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Edited by
Heungchong Kim

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Economic Policy

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Wook Chae, *President*

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Contents

Acknowledgement

Korea Institute for International Economic Policy (KIEP) has expanded its cooperative relations with the world since it took the role of the hub of regional studies in public research areas of Korea. The Center for Regional Economic Studies (CRES), the largest part of KIEP stands at the forefront of Korea's regional economic research field, and has played a pivotal role of regional studies of the world in Korea.

As a part of our systematic efforts to foster international exchanges and build the knowledge based through interdisciplinary collaboration, CRES initiated a researcher-exchange program called CRES Visiting Fellows Program in 2008. The program brings together influential professionals from academia and the public sector to advance individual, institutional and national understanding of regional economic matters and to improve international cooperation on related research.

This volume is a part of our achievements through the program. It is comprised of nine papers written by visiting scholars participated in CRES Visiting Fellows Program in 2009. I hope this proceeding would work as another channel to deepen the understanding of regional economies in Korea.

I would like to express my special thanks to all participated scholars who contributed in the book. I would also deeply appreciate the President of KIEP, Dr. Chae, Wook for his endless supports for the program and regional studies, and my colleagues, Dasong Chong, Mijung Woo, and Hyeyoun Park from the Outreach Team in CRES who worked very hard for the publication of this volume.

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Comparative Study on Changing Pattern of Industrial Structure Between China and Korea

Guo Chaoxian

1. Introduction

This paper adopts input-output analysis to make the comparative study of the change pattern of industrial structure between China and Korea. The method of calculating the coefficient of power and sensitivity of dispersion and the filtering method are used to choose the mainstay industries, and the Causative Matrix Approach is used to measure which sectors expanded or shrank in the given period, and SDA is used to calculate the technological advancement in the process of economic growth respectively. Some conclusions can be drawn: the changing pattern of industrial structure in China and Korea reflect the common law of industrialization, and the influence of globalization as well. Korea has more advanced pattern of industrial structure and technical effectiveness than China. The difference and the gap of the two countries give the great opportunities for both sides to cooperate, including inter-industry and intra-industry.

China is the largest developing country in the world, and Korea is the most affluent newly-developed country in Asia. China has achieved a significant level of development since adopting policies of reform and openness in 1978, and economic growth in China is presently the main engine of world economic growth. Korea has also made great achievements since its adoption of export-oriented industrial development strategy in the 1960s, and Korea's GNI per capita has now exceeded US$20000. Korea has become a member of the OECD, and of a group of the world's high- income countries. As late developers, China and Korea have many similarities but also differences, so a comparison of the two countries' paths to industrialization and the

change pattern of industrial structure would have great significance.[1]

2. Basic Situation about Two Countries' Economy

2.1. The comparison of economic aggregate

　　As seen in the chart below, China's economic aggregate is greater than that of Korea. China's GDP is 1.5-3.5 times that of Korea, varying mainly from the change of exchange rate, as the two countries' economic aggregates are measured in US dollars. On average, China's GDP is double that of Korea. However a number of other researchers have different opinions about the ratio between the two countries, as they used other measuring methods, and according to PPP indicators, China's economic aggregate may be 4-8 times as that of Korea.

Figure 1. The Economic Aggregate of China and Korea

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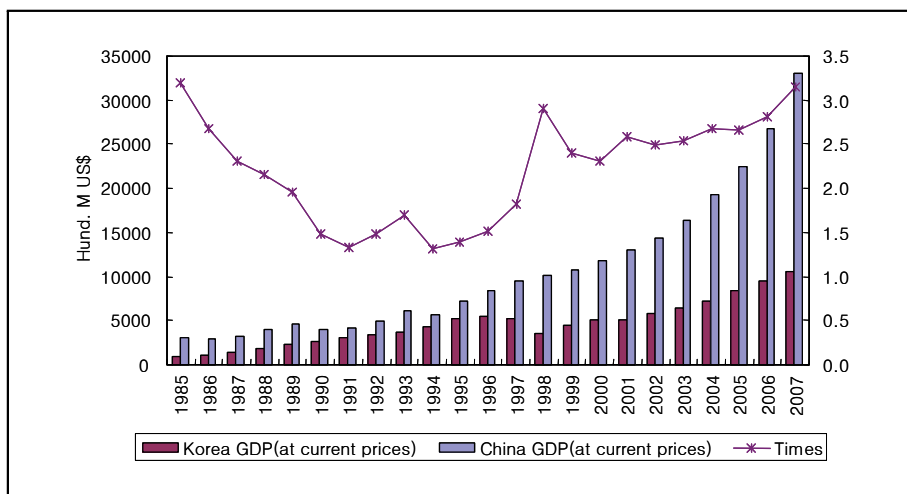
[1] The statistic data about Korea mainly from The Korea of Bank and its website (http://ecos.bok.or.kr), and China's data mainly from *CHINA STATISTIC YEARBOOK* annually.

Table 1. Economic Aggregate of China and Korea (PPP)

[Unit: 100 million US\$ (at current prices)]

	GNP			GDP		
	China	Korea	China/Korea	China	Korea	China/Korea
2004	76283	9869	7.73	76423	9856	7.75
2000	48994	7569	6.47	49601	7602	6.52
1995	29846	5627	5.30	30337	5646	5.37
1990	14832	3423	4.33	14788	3426	4.32
1985	8671	1844	4.70	8647	1890	4.57

Source: 中经网, 中国社会科学院中国产业与企业竞争力研究中心数据库.

2.2. The comparison of development stage

Because China has a large population, China's GDP or GNI per capita is far lower than that of Korea. China GNI per capita was US\$2490 in 2007, or 1/10~1/9 of that of Korea. China GNI per capita today is equal to that of Korea in the mid-1980s, i.e., China lags 20 years or so behind Korea in terms of its stage of development. But another research using the PPP method showed that the gap between two countries' GNP/GDP per capita isn't as great and China lags only about 10 years behind Korea.

Figure 2. Development Stage of Korea and China
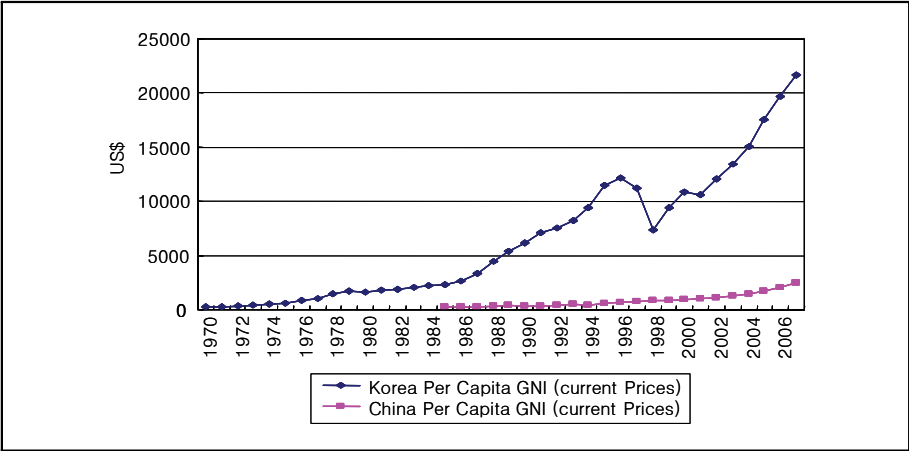
Table 2. Economic Aggregate per Capita of China and Korea (PPP)

[Unit: US$(at current prices)]

	GNP per capita			GDP per capita		
	China	Korea	China/Korea	China	Korea	China/Korea
2004	5896	20499	0.29	5885	20526	0.29
2000	3928	16172	0.24	3880	16102	0.24
1995	2518	12522	0.20	2477	12478	0.20
1990	1303	7991	0.16	1307	7986	0.16
1985	823	4632	0.18	825	4520	0.18

Source: 中经网, 中国社会科学院中国产业与企业竞争力研究中心数据库.

2.3. The comparison of economic growth rate

As shown in the list below, Korea's growth rate is higher than that of China before the 1980s, and the two countries have almost the same growth rate in the 1980s. However, the situation changed after 1992, and especially in the new century, as China's GDP growth rate increased to twice that of Korea. So, the development gap between the two countries will likely decrease in the future. China still displays a high growth rate in its economic development owing to its 'take-off' stage. Thanks to the good economic and trade relationship between the two countries, China's high economic growth rate may give great opportunity to Korea enterprises as well.

Table 3. The Comparison of Growth Rate Between China and Korea

(at constant prices)

Year	Korea	China	Year	Korea	China
1979	20.10	7.57	1994	9.20	13.08
1980	24.00	7.84	1995	9.50	10.92
1981	5.20	5.24	1996	5.60	10.01
1982	8.00	9.06	1997	2.70	9.30
1983	11.20	10.85	1998	-8.30	7.83
1984	8.20	15.18	1999	9.40	7.62
1985	6.30	13.47	2000	5.50	8.43

Table 3. Coutinued

Year	Korea	China	Year	Korea	China
1985	6.30	13.47	2000	5.50	8.43
1986	12.50	8.85	2001	3.30	8.30
1987	13.10	11.58	2002	7.50	9.08
1988	12.10	11.28	2003	2.50	10.03
1989	8.40	4.06	2004	3.70	10.09
1990	8.90	3.84	2005	2.00	10.43
1991	9.80	9.18	2006	3.90	11.60
1992	5.80	14.24	2007	4.80	11.90
1993	6.30	13.96			

2.4. The comparison of growth in different industrial sectors and the difference of industrial structure

For convenience of comparison, here we classified the sectors into agriculture, mining, manufacture, Electric, gas, and water services, Construction, Traditional service and Modern service. Traditional service refers to wholesale and retail trade, and accommodation and food services. Modern services refer to the services other than traditional services as defined above.

As we can see from the following charts, all of the industries have seen development in the past decades, with the most rapid development occurring in manufacture and service sectors have made in the two countries. At present, China possesses an industrial structure in which manufacture and service sectors are the dominant, with a moderate proportion of agriculture and construction; with the remaining small percentages taken up by mining and electric, gas, and water services. Korea has formed an industrial structure where the service and manufacturing sectors are dominant; construction forms a moderate portion; agriculture, mining and electric, gas, and water services are minor in terms of percentages. The biggest different between China and Korea is that agriculture accounted for 10% or so in China and almost vanished in Korea(less than 2%). Accordingly, the proportion of Korea's modern services is much

higher than that of China. Furthermore, mining represents a trivial portion in Korea, which shows that Korea is a country poor in natural resources. Surprisingly, China and Korea have high percentages of manufacture, representing almost the same proportion in their respective national economies.

Figure 3. Korea Industry Growth (value added)
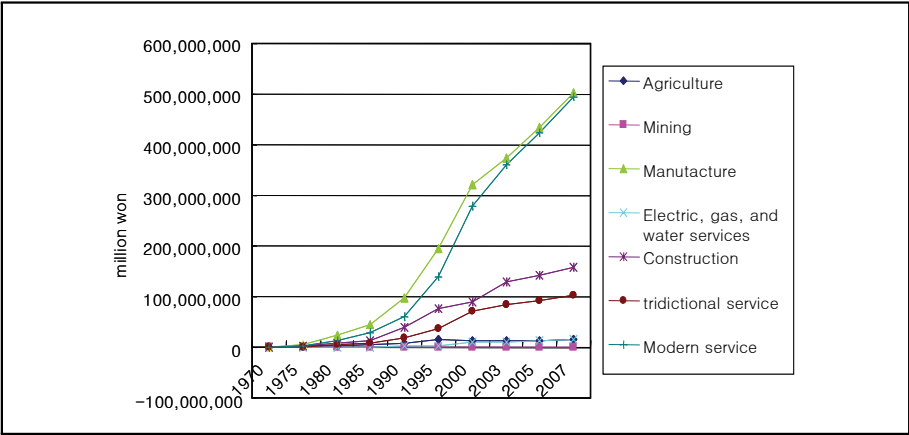
Figure 4. China Industry Growth (value added)
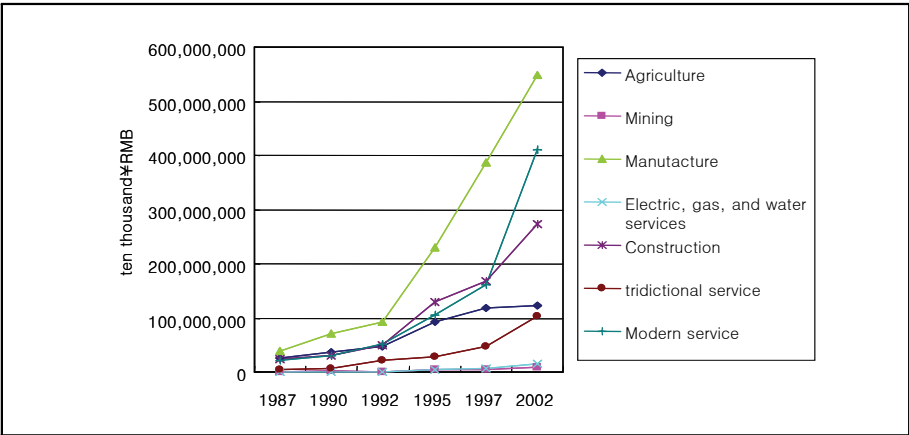
Figure 5. Korea Industry Structure (value added)
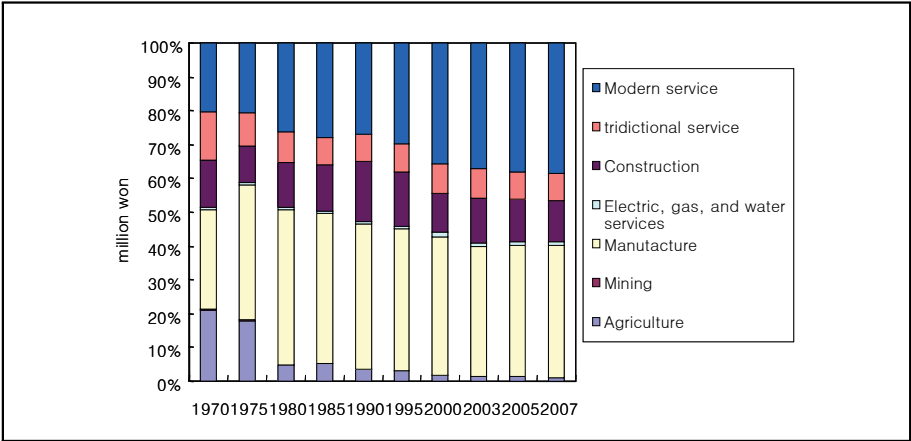
Figure 6. China Industry Structure (value added)
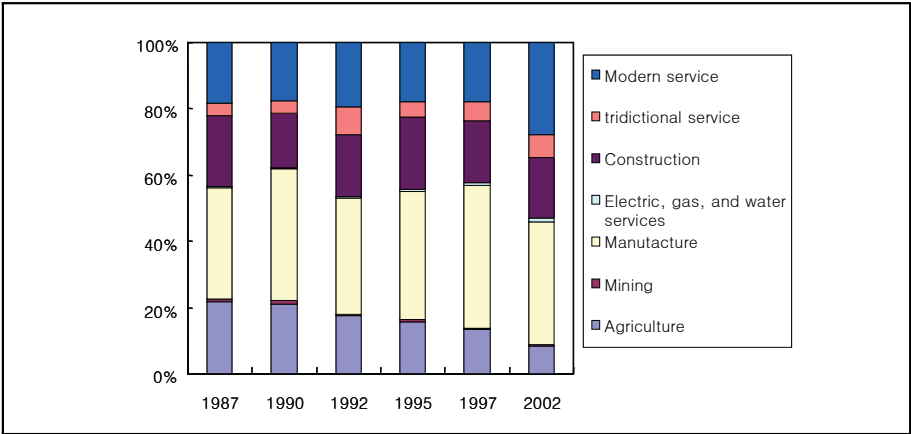
3. I-O Tables and Industry Classification Standardized

There are many differences in two countries' Input-Output Tables (IOTs). In sum, the two IOTs are different mainly in five aspects : (1) Compiling Organization: National Bureau of Statistics is responsible for compiling IOTs in China, and Bank of Korea is responsible for compiling IOTs in Korea. (2) Commencing year: Korea started compiling IOTs in 1960 and China began compiling IOTs in 1987 (3) Frequency of compilation: Though the two countries usually compiled benchmark IOTs every 5 years, Korea compiles IOTs more frequently. According to the new regulations of the Bank of Korea, Korea has compiled IOT

Table 4. China Input-Output Tables

Benchmark Year	Classification	Updating Year	Classification
1987	33/118	1990	33
1992	33/119	1995	33
1997	40/124	2000	17
2002	42/122	2005	17

Table 5. Korea Input-Output Tables

Benchmark Year	Classification	Updating Year
1960	-/43/109/266	-
1963	-/43/109/270	-
1966	-/43/117/298	1968
1970	-/56/153/340	1973
1975	-/60/164/392	1978
1980	19/64/162/396	1983
1985	20/65/161/402	1986, 1987, 1988
1990	26/75/163/405	1993
1995	28/77/168/402	1998
2000	28/77/168/404	-
2003	28/77/168/404	-
2005	28/78/168/403	2006, 2007

every year since 2005 (4) Industrial classification and sector number: both are frequent in changing their industry classifications, and sector number in IOTs has increased as a whole. Korea usually has more sectors than China, i.e., Korea's IOTs are usually more detailed than that of China. (5) IOT type: this is where the difference is most apparent. Korea IOTs belong to C-type IOT, i, e., imported goods and services are more detailed. They are reflected in other IOTs, but China's IOTs belong to a non-competitive type.

In order to compare the changes in the two countries' industrial structure, we need to standardize classification of IOTs. They are classified into 29 sectors, the uniform classification as follows.

Table 6. Uniform of Industry Classification

New Code	China classification correspondence	Korean classification correspondence
1	农业	Agriculture, forestry, and fisheries
2	煤炭开采和洗选业	Coal mining
3	金属矿采选业	Metallic ores mining
4	非金属矿采选业	Nonmetallic mining
5	食品制造及烟草加工业	Food, beverages and tobacco
6	纺织业	Fiber yarn and Fiber fabrics
7	服装皮革羽绒及其制品业	Apparel and fabricated textile products, leather and fur products
8	木材加工及家具制造业	Wood products and furniture
9	造纸印刷及文教用品制造业	Pulp and paper, printing, and Publishing and reproduction of recorded media
10	石油加工, 炼焦及核燃料加工业	Petroleum and coal products
11	化学工业	Chemicals and allied products
12	非金属矿物制品业	Nonmetallic mineral products
13	金属冶炼及压延加工业	Primary metal products
14	金属制品业	Fabricated metal products
15	通用, 专用设备制造业	General machinery and equipment
16	电子和电气设备制造业	Electronic and electric equipment
17	仪器仪表及文化办公用机械制造业	Precision instruments
18	交通运输设备制造业	Transportation equipment
19	其他制造业	Furniture and other manufactured products

Table 6. Coutinued

New Code	China classification correspondence	Korean classification correspondence
20	电力燃气及水的生产和供应业	Electric, gas, and water services
21	建筑业	Construction
22	批发和零售贸易业	Wholesale and retail trade
23	住宿和餐饮业	Eating and drinking places, and hotels and other lodging places
24	交通运输及仓储业	Transportation and warehousing
25	金融保险业	Finance and insurance
26	房地产业	Real estate and business services
27	公共管理和社会组织	Public administration and defense
28	教育和卫生产业	Educational and health services
29	其他第三产业	Other services, and Dummy sectors

4. Mainstay Industries in China and Korea

4.1. Method of choosing mainstay industries

In this paper, we use two methods for choosing mainstay industries. First, calculating the coefficient of power and sensitivity of dispersion, if the two coefficients of sector i is greater than 1 at the same time, then sector i will be chosen; second, is the use of the filtering method to choose the industries. If an industry meets the two requirements simultaneously, then we can say the industry is the core industry of its economy, and if an industry meets only one of the two requirements, then we can say the industry is an important, but not a core, industry of its economy.

The coefficient of power of dispersion is the column sum (standardized) of Leontief inverse matrix $(I-A)^{-1}$, and the coefficient of sensitivity of dispersion is the row sum (standardized) of Leontief inverse matrix $(I-A)^{-1}$. The main idea of the filtering method is to convert the quantitative relationship between different industries into a qualitative relationship, in which the main industries that have strong relations with others was emphasized.

The computer programs for calculating the coefficient of power and sensitivity of dispersion, and the filtering method for choosing the mainstay industries, see Annex I and II respectively.

4.2. China's mainstay industries

As shown below, since 1987; fiber yarn and fiber fabrics, chemicals and allied products, general machinery and equipment, and electronic and electric equipment have always been the core industries for China.

Other important sectors in China including agriculture, nonmetallic mineral products, primary metal products, transportation equipment; and wholesale and retail trade, transportation and warehousing, other services and dummy sectors.

At present, petroleum and coal products have played an important role; and food, beverages and tobacco; pulp and paper, printing, and publishing and reproduction of recorded media have less importance.

The change pattern of the mainstay industries reflected the features of China's industrialization going forward to a heavy and chemical stage, influence of globalization and competitiveness from low labor costs.

Figure 7. China Mainstay Industry Cluster
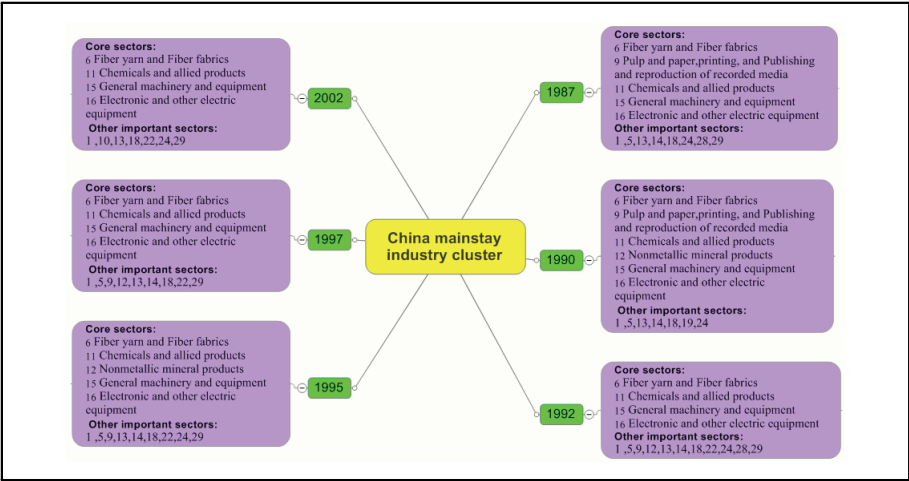
4.3. Korea's mainstay industries

As shown in the below, Chemicals and allied products (since 1975), primary metal products (since1980) and other services and dummy sectors (since1980) have always been the core industries in Korea. Fabricated metal products was the core industry in the year 2007, and fiber yarn and fiber fabrics which was the core industry before 1990 had vanished.

Other important sectors in Korea including Food, beverages and tobacco, General machinery and equipment, Electronic and electric equipment, Transportation equipment, Construction, and most of tertiary sectors.

The change in the pattern of the mainstay industries in Korea reflected an upgrading of its industrial structure towards heavy and chemical industry, advanced manufacturing, and new service industries. At the same time, some manufacturing industries especially fiber yarn and fiber fabrics manufacturing was withdrawing gradually.

Figure 8. Korea Mainstay Industry Cluster
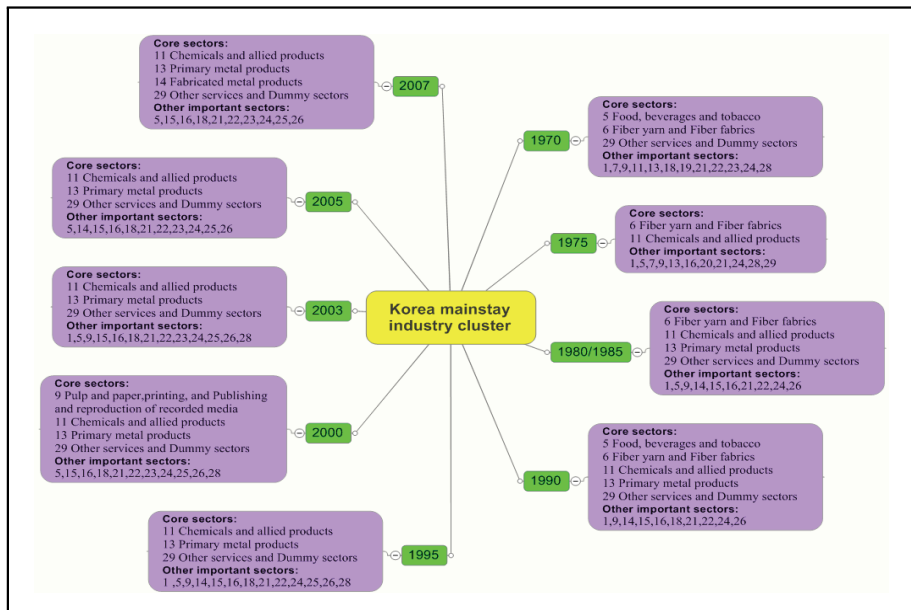
5. Changing Pattern of Industry Structure

5.1. Expansion or shrinkage of various sectors

Here, we use the Causative Matrix Approach to measure which sectors expanded or shrank in the given period. Let's give the Causative Matrix as follows:

$$C = B_t B_0^{-1}$$

Here, B_0 and B_t represent the Leontief inverse matrix $(I - A_0)^{-1}$, $(I - A_t)^{-1}$ at different times, respectively.

Table 7. The Result of Causative Matrix Approach in China

| Sector	Code	1987-1990	1990-1992	1992-1995	1995-1997	1997-2002
Agriculture, forestry, and	1	1. 42	0. 52	1. 16	0. 95	0. 82
Coal mining	2	1. 02	1. 03	0. 91	1. 11	0. 96
Metallic ores mining	3	1. 08	1. 01	0. 99	1. 08	0. 86
Nonmetallic mining	4	1. 04	1. 17	0. 98	1. 01	0. 94
Food, beverages and tobacco	5	1. 00	1. 01	1. 09	1. 05	0. 89
Fiber yarn and Fiber fabrics	6	1. 33	0. 74	1. 26	0. 73	0. 65
Apparel and fabricated textile	7	1. 02	0. 92	1. 16	0. 99	0. 96
Wood products and furniture	8	1. 00	1. 01	1. 04	1. 08	1. 04
Pulp and paper,printing, and	9	1. 10	0. 89	1. 11	0. 96	0. 94
Petroleum and coal products	10	1. 05	1. 00	1. 07	0. 95	1. 06
Chemicals and allied	11	1. 48	0. 81	1. 19	0. 99	0. 85
Nonmetallic mineral products	12	1. 28	1. 10	0. 99	0. 93	0. 60
Primary metal products	13	1. 15	1. 43	0. 87	0. 71	1. 05
Fabricated metal products	14	1. 15	0. 98	1. 06	1. 06	0. 86
General machinery and	15	1. 16	1. 21	0. 87	0. 85	0. 83
Electronic and other electric	16	1. 18	1. 01	1. 28	0. 99	1. 17
Precision instruments	17	0. 97	1. 04	1. 00	0. 98	1. 02
Transportation equipment	18	1. 06	1. 25	1. 05	0. 80	1. 05
Furniture and other	19	1. 28	1. 06	0. 80	1. 23	0. 71
Electric, gas, and water	20	1. 10	1. 11	0. 96	1. 11	1. 10
Construction	21	1. 00	1. 12	1. 00	1. 10	0. 98
Wholesale and retail trade	22	0. 85	2. 23	0. 66	0. 46	0. 91
Eating and drinking places,	23	1. 00	1. 00	1. 11	1. 08	1. 12
Transportation and	24	1. 34	1. 03	1. 05	0. 90	1. 33
Finance and insurance	25	1. 02	1. 23	0. 64	1. 14	1. 12
Real estate and business	26	1. 00	1. 09	0. 98	1. 02	1. 11
Public administration and	27	1. 00	1. 00	1. 00	1. 00	1. 00
Educational and health	28	1. 01	0. 95	0. 99	0. 91	1. 01
Other services and Dummy	29	1. 05	1. 42	0. 91	1. 34	1. 14

In the matrix C, if the row sum of *industry i* is greater than 1, it means *industry i* have the structural expansion; and if the row sum of *industry i* is less than 1, means *industry i* have the structural shrink.

For the outcome of the Causative Matrix Approach in China and in Korea, see the tables below. As seen in the table, since 1995, China has been undergoing structural change, and the main direction is the service sector expansion and shrinkage of light industry. In the period 1990-2003, Korea had been undergoing an intense structural change, with the service sector expanding and secondary industry especially light industry shrinking.

Table 8. The Result of Causative Matrix Approach in Korea

Sector	Code	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000	2000-2003	2003-2005	2005-2007
Agriculture,	1	0.71	1.28	0.96	1.00	0.82	1.12	0.91	1.03	0.99
Coal mining	2	0.96	0.99	0.97	0.96	0.95	1.00	1.00	1.00	1.00
Metallic ores	3	0.99	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Nonmetallic	4	1.00	0.96	1.05	1.01	1.00	0.96	1.00	0.98	0.99
Food,	5	0.81	1.10	1.05	1.05	0.93	1.17	0.98	1.03	1.04
Fiber yarn and	6	1.17	1.04	1.08	0.76	0.73	1.06	0.99	0.98	0.93
Apparel and	7	1.00	1.04	1.05	1.04	0.91	1.00	1.00	1.09	1.03
Wood	8	1.00	1.08	1.02	0.97	1.08	0.99	0.96	1.02	1.00
Pulp and	9	1.01	1.09	1.12	1.00	0.97	0.99	0.95	0.92	1.01
Petroleum and	10	1.80	1.46	0.50	0.55	0.80	1.24	0.96	1.20	1.03
Chemicals and	11	1.55	1.28	1.06	0.90	0.95	1.19	0.78	1.23	1.03
Nonmetallic	12	1.04	1.07	1.07	0.98	0.99	0.96	0.98	0.96	0.99
Primary metal	13	1.40	1.02	0.84	1.03	0.79	0.93	1.05	1.25	1.02
Fabricated	14	1.04	1.02	1.07	1.01	1.05	1.06	1.02	1.19	1.05
General	15	1.07	1.17	1.18	1.02	0.93	1.01	0.98	1.07	1.01
Electronic and	16	1.11	1.13	1.02	1.17	1.00	1.08	0.88	1.09	1.02
Precision	17	0.99	1.11	0.96	1.01	0.98	1.04	0.97	1.00	1.01
Transportation	18	0.96	1.01	1.05	1.31	0.94	0.99	1.02	1.09	0.99
Furniture and	19	0.96	1.06	0.97	1.00	1.02	0.99	1.00	1.04	1.03
Electric, gas,	20	1.09	1.23	1.12	0.80	0.93	1.05	0.93	1.03	1.01
Construction	21	0.99	1.05	1.01	1.04	0.94	0.94	1.01	0.95	1.00
Wholesale and	22	0.96	0.79	0.87	1.00	0.70	1.12	0.93	1.33	0.98
Eating and	23	0.61	1.02	1.00	1.02	1.00	1.08	1.00	0.98	1.01
Transportation	24	0.82	1.00	1.03	1.03	1.04	0.87	1.31	1.25	0.98
Finance and	25	0.99	1.35	0.93	1.23	0.98	1.26	0.77	0.85	1.06
Real estate and	26	1.43	0.79	1.55	1.21	1.52	0.93	1.07	0.55	1.01
Public	27	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.00
Educational	28	1.13	0.82	1.02	1.00	1.29	0.95	1.04	0.71	1.02
Other services	29	0.46	1.70	0.91	1.06	1.02	1.15	0.95	1.28	1.05

## 5.2. The effectiveness of changing pattern

Now we use Structure Decomposition Analysis (SDA) to reveal the dynamic mechanism and the effectiveness of industrial structure

change. The idea of SDA is to explain the total output increases mainly from economic scale increases or from technological advancement. Since direct input coefficient matrix A represents the technology level in the economy, the change of A and its Leontief inverse matrix $(I-A)^{-1}$ can reflect the technological advancement. So, we have the equation:

$$X_t - X_0 = (I-A_t)^{-1}Y_t - (I-A_0)^{-1}Y_0$$
$$= (I-A_t)^{-1}(Y_t-Y_0)+[(I-A_t)^{-1}-(I-A_0)^{-1}]Y_0$$
$$= (I-A_0)^{-1}(Y_t-Y_0)+[(I-A_t)^{-1}-(I-A_0)^{-1}]Y_t$$

i.e,
$$X_t - X_0 = [(I-A_t)^{-1}+(I-A_0)^{-1}](Y_t-Y_0)/2$$
$$+[(I-A_t)^{-1}-(I-A_0)^{-1}](Y_0+Y_t)/2$$

The first part in the right side in the equation reflects the output change stimulated by economic scale change, and The second part of the right in the equation reflects the output change arising from technical improvements.

For the effects of industrial structure change in China and Korea, see the charts below.

Figure 9. The Contribution of Technology Progress in the Output Growth (China)
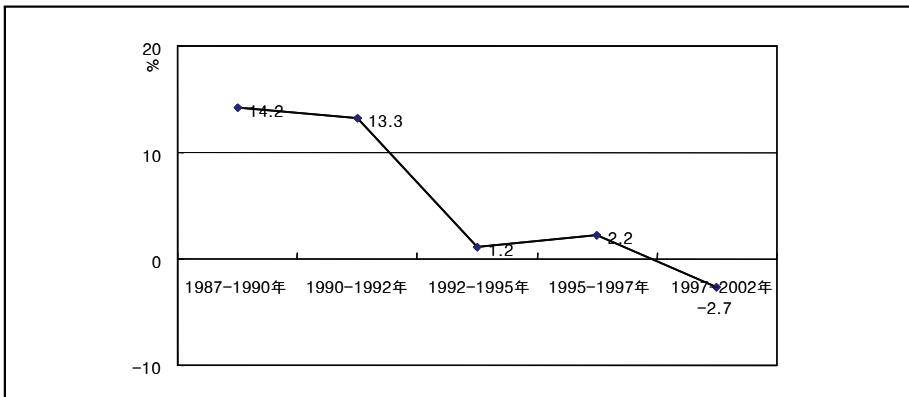
Figure 10. The Contribution of Technology Progress in the Output Growth (Korea)
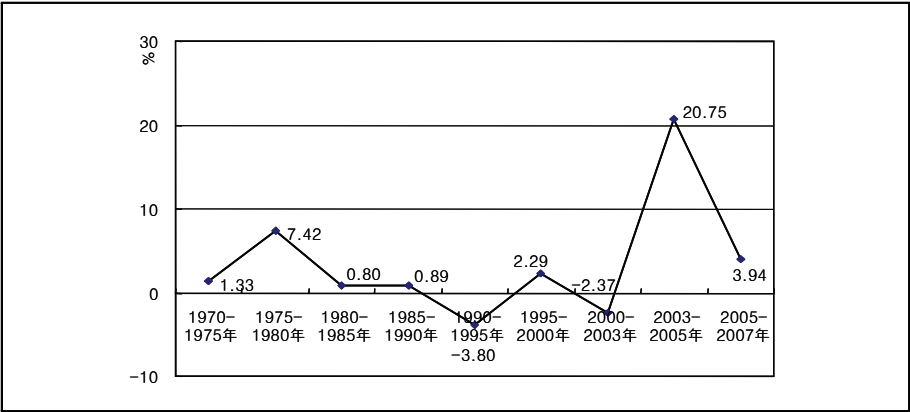
As we can see in the above charts, in the year 1987-2002, China's output growth occurred mainly as a result of increases in economic scale, and technological improvement plays a decreasing role in the output growth. Unfortunately, contribution of technological progress in the output growth is negative in the year 1997-2002 in China. Much similarity can be seen in Korea from 1970 to 2003, with technical progress playing a decreasing role in output growth, and the contribution is negative in the periods 1990~1995 and 2000~2003. But technical advancement played an important role in the output growth after 2003 in Korea, and the trend will likely continue.

What is the significance of the change in the contribution of technological progress to output growth reflected in the above charts? I think, in the first stage of industrialization, economic growth may be extensive i.e., using much more immediate input (including natural resources), not intensive, and thus less dependent on technology, and the impact of technological progress in the output growth is much less. Owing to the improvement of socially-binding mechanisms for utilizing resources (including natural resources) more effectively, the contribution of technological progress increases in the second stage of industrialization, and Korea came to this stage as seen in the charts above. So, we can say that the whole economic effectiveness cannot be achieved until the socially-binding mechanisms have been established

to mobilize economic resources more effectively and to internalize external costs.

6. Some Conclusions

To compare the changes in industrial structure between China and Korea, some conclusions may be drawn:

As a whole, the changing pattern of industrial structure in China and Korea reflect the common law of industrialization; and influence of globalization as well. At the same time, resource endowment has played an important role in shaping the national industrial pattern.

China is in a difference stage from Korea, and perhaps China lags behind Korea by 20 years. However, China is developing with great speed, which represents opportunities for Korea enterprises as well.

Although manufacturing takes up the greatest proportion of Korean and Chinese economies, Korea has a more advanced pattern of industrial structure than China. Korea's tertiary sector now has a high percentage, while China has a large part of agriculture.

Korea is more effectiveness concerning technology than China, and China should strive to form an mechanism to improve efficiency in utilizing resources.

The difference in the pattern in the two countries gives great opportunity for both sides to cooperate, including inter-industry and intra-industry.

China can learn from Korea on how to promote economic development, upgrade its industries, improve its technologies, and so on.

References

Kim, Chuk Kyo. 2008. *Korea's Development Policy: Experience and Implications for Developing Countries.* Seoul: Korea Institute for International Economic Policy.

The Bank of Korea. 2005. Input-output Tables of Korea, December 31, 2008. Seoul.

The Bank of Korea. 2006. Input-output Tables of Korea, May 2, 2009. Seoul.

刘起运・陈璋・苏汝劼. 2006. 投入产出分析[M]. 北京: 中国人民大学出版社.

许宪春・刘起运. 2005. 2004年中国投入产出理论与实践[M]. 北京: 中国统计出版社.

许宪春・刘起运. 2004. 中国投入产出分析应用论文精粹[M]. 北京: 中国统计出版社.

齐舒畅. 2003.「我国投入产出表的编制和应用情况简介」.『中国统计』, 2003年第6期.

Annex

I. The computer program to calculate the coefficient of power of dispersion and sensitivity of dispersion

```
function y=coefficient(A, X)
X=X';
B=repmat(X, size(A, 1), 1);
a=A./B;
i=eye(size(A));
b=(i-a)^(-1);
outcome1=sum(b)/sum(sum(b))*size(A, 1);
outcome1=outcome1'
XLSWRITE('c:\d100\Korea mainstay', outcome1, '1980', 'c3:c33');
S=sum(b, 2);
outcome2=S/sum(sum(b))*size(A, 2)
XLSWRITE('c:\d100\Korea mainstay', outcome2, '1980', 'd3:d33').
```

II. The computer program of filtering method

```
function f=mainstay
clear;
a=XLSREAD('c:\d100\Korea', '2007', 'c3:AE31');
y=XLSREAD('c:\d100\Korea', '2007', 'af3:af31');
x=XLSREAD('c:\d100\Korea', '2007', 'ag3:ag31');
x=x';
b=repmat(x, size(a, 1), 1);
a=a./b;
k=0;
b=diag(y);
c=0;
while sum(sum(b))~=0
    b=a*b;
    k=k+1;
    c=c+sum(sum(b));
end
f1=c/k/(size(a, 1)*size(a, 2))
b=diag(y);
```

```
s=zeros(size(a));
w=zeros(size(a));
for i=1:k
    b=a*b;
    for m=1:size(a, 1)
        for n=1:size(a, 2)
            if b(m, n)>=f1
                w(m, n)=1;
            else
                w(m, n)=0;
            end
        end
    end
    s=s+w;
end
f2=sum(sum(s))/k/(size(a, 1)*size(a, 2))
t=zeros(size(a));
for m=1:size(a, 1)
    for n=1:size(a, 2)
        if s(m, n)/k>=f2
            t(m, n)=1;
        else
            t(m, n)=0;
        end
    end
end
g=t+t';
XLSWRITE('c:\d100\Mainstay in Korea', g, '2007', 'c3:ae31')
```

Effects of Structural Change and Income Distribution on Employment: Experience of India and Korea

Chiranjib Neogi

1. Introduction

The phenomenon of jobless growth is the major threat to the economic development of both the developing and developed world. According to estimates by the United Nation during the period 1996 to 2006, global gross domestic product had grown by 3.8 percent per year, while the rate of unemployment had remained unchanged at around 6 percent during the same period. Thus a major section of the world population has been deprived from the fruits of the huge economic growth during the recent period. To ensure the employment for the unemployed youth and the vulnerable section of the population, each country should design macroeconomic policies at the national level. At the international level, policies in trade, finance and labor should be evaluated on the basis of their impact on employment and decent work. It is argued that a norm of minimum wages should be fixed in such a manner so that the people at the bottom of the pay pyramid could receive the dividends of growth. The growing informal sector has placed increasing pressure on the protective form of job market and policies should be taken to regularize the jobs in the informal sectors to ensure the stability of the jobs and to reduce the uncertainty of the livelihood of the people engaged in this sector.

Contrary to the general belief, it has been observed in most developed countries and in many developing countries that the higher growth of the Gross Domestic Product (GDP) does not ensure the growth in employment. There could be many reasons behind this phenomenon of jobless growth during the recent years. Some forty years ago Professor

Arthur Okun (1962) summarized the relationship between the growth and unemployment from a statistical analysis which was later labeled Okun's Law. The relation shows that 1 percent increase in the growth rate above the trend would lead only to 0.3 percent reduction in unemployment. This implies that the rate of GDP growth must be equal to its potential growth just to keep the rate of unemployment constant. To reduce the unemployment, therefore, the rate of GDP growth must be above the potential growth rate of output.

Several hypotheses have been proposed to explain the causes of jobless growth particularly after the recent economic growth due to economic liberalization in most of the developing countries. The higher rate of productivity growth may be one of the reasons behind the slower recovery of employment even if the GDP growth proceeds at a high rate. It has been argued that by definition labor productivity rises when there are factors that suppress employment growth while output is expanding. It is presumed in economics that higher growth of productivity does not always lead to generation of employment opportunities in the short run. If the price is sticky in the short run and demand is constrained, then productivity will not generate enough employment opportunities for the economy as a whole. Thus the benefit of productivity growth, which is considered to be one of the major virtues of liberalization, might not work in the short run in generating employment or in other words in reducing unemployment. It is also argued that if the productivity of any production unit rises and there is no correspondent rise in the output due to demand constraints, the firm will try to retrench labor to reduce wage cost.

Another explanation of jobless growth is the structural change of the industries basically due to change in demand patterns and technological development. This type of unemployment is called structural unemployment which is more permanent in nature than temporary layoffs. Unemployment of this nature occurs due to disappearance of industries. There are two reasons for unemployment due to disappearance of industries. First, the persons engaged in those industries might not have any alternative job opportunities in the economy. Second, the persons engaged in those industries are usually specialized in a particular trade and might not be able to find suitable jobs in modern industries. In both cases, even if the GDP is rising due to shift of industries from the traditional sector to modern technology-

intensive industries, there is every possibility of increasing unemployment in the economy. However, proper planning in setting up new industries can reduce the scale of loss of employment. In setting up newer industries, emphasis should be given in those industries which have higher linkage to industries that are more labor intensive in nature. Modern industries in most of the cases require less labor compared to traditional, small-scale industries. Now if the new industries could generate enough input demand for comparatively more labor-intensive industries, then a sizable portion of the retrenched labor might be given opportunities in those labor-intensive industries/services.

Now the question of the effect of income distribution on employment growth is one major issue in the developing economies. The relationship between growth and income distribution through the macroeconomic adjustment process is analyzed in many recent studies [Studies of Cline (1972), Moreley and Jeffrey (1974), Stewart (1977), Oded and Zeira (1993) and Kaldor (1956) are worth noting]. There is an effect of changes in income distribution on the employment generation through variation in demand elasticities among different economic classes. The additional income spent on the type of commodities changes the vector of final demand in the economy and thus changes the labor demand through linkage effect. Now the macroeconomic policies that alter the distribution of income are to be envisaged in order to achieve a balance between growth and employment generation. A high growth (in terms of growth in high value added output) does not necessarily enlarge the scope of employment unless the distribution of income is considered simultaneously.

In the present project, investigation will be carried out to explain the relationship between GDP growth and employment in India and Korea during the recent period. Also, an empirical estimation of employment generation through the demand effect in various economic classes is done with India's household-level consumption data and the Input-Output table of the recent period.

2. GDP Growth and Employment Growth: India

According to the International Labor Organization (ILO), the

world is currently experiencing the worst employment crisis since the Great Depression of the 1930's. The ILO reports that over 30% of the world's labor force is either unemployed (120 million) or underemployed (700 million) (Anthuvan 2005).

As we already know, India embarked upon a 'New Economic Policy' to revive the economy from its dismal state. The main features of the so-called 'New Economic Policy' are (i) gradual process of easing out government control through industrial deregulation and (ii) opening up the channels for greater connectivity with the international market. The experiences of East Asian countries have emboldened policymakers to adapt the new economic policy. Contrary to expectations, the propagandists welcomed the 'New Economic Policy' because they thought that this policy is expected to correct the deficiencies that were inherent in the earlier strategy of bureaucratic control.

There is massive amount of literature on the relationship between trade liberalization and growth through increasing productivity and efficiency of industries. Trade liberalization, in particular, implies the reduction or removal of quantitative restrictions on imports and lowering of tariff rates. Import liberalization and removal of quantitative restrictions in particular would not only induce more efficient allocation of investment along the line of a country's comparative advantage but would also eliminate costs associated with intrusive bureaucracies and wasteful rent-seeking special interest groups. Furthermore, it would make the economy more competitive. It is argued that economic theory can be used identify the likely effects of liberalization on subjects of interest like employment, wages rates, productivity, unemployment and how they connect together. These variables are in fact jointly determined by technology, prices and market structure.

There is a genuine concern of proponents of liberalization in India is that the new policies will have a positive effect on the growth of GDP without commensurate growth in employment. The fear comes from the obvious fact that during the process of liberalization, the private sector organization will be desperate to increase its efficiency in every respect to exist and survive in the competitive world. Also, with the ongoing process of technological development, the industries will be more dependent on automation and cutting jobs. The net result could be a very slow expansion in employment opportunities

in the organized sector, with a rise in unemployment rates and growing frustration among youth.

It is often argued that it would be better to think in terms of quality of employment instead of number of employed persons only. However, the level of education of quality employment in India is far behind other moderately-developed countries like Mexico and Korea (only 5 per cent of 20-24 year-olds in India's labor force possess vocational skills compared to 28 percent in Mexico and 96 percent in Korea).

Now the basic issue is to generate employment opportunities with corresponding GDP growth during the process of liberalization. The effect on the employment potential can be seen through the employment elasticity of output (GDP). It is expected that the process of liberalization generate higher elasticity compared to the post-liberalization period through gain in productivity. However this is not always true, particularly at the initial stage of reform basically due to slow adjustment process of the economy.

The present study attempts to review the employment scenario as well as the growth of GDP both at state level as well as for All India level for three different sub periods after liberalization. The study was done over the period 1993-94 to 2004-05.

2.1. Overall Unemployment Situation in India

Table 1 shows the All- India unemployment rates over different periods using various definition of NSS. *Unemployment rate* (UR) is defined as the number of persons unemployed per 1000 persons in the *labor force* (which includes both the employed and the unemployed). This, in effect, gives us the unutilized portion of the labor force. Some of the important points emerging from this statement are:
(i) Unemployment is generally higher in urban areas compared to rural areas.
(ii) Unemployment is increasing in rural areas recently compared to earlier periods.
(iii) Unemployment rates for females are higher than those for males, and it is much higher among urban-females vis-à-vis urban-males.
(iv) Unemployment rates according to the current daily status (cds)

approach are higher than the rates obtained according to 'usual status' approach and 'weekly status' approach, thereby indicating a high degree of intermittent unemployment. This is mainly due to the absence of regular employment for many workers;

Table 1. Unemployment Rates According to Usual Status, Current Weekly Status (cws) and Current Daily Status (cds) During 2004-2005 All-India Rural Urban

round		unemployment rate							
(year)			male				female		
		us	us (adj.)	cws	cds	us	us (adj.)	cws	cds
1		2	3	4	5	6	7	8	9
					rural				
61	(2004-05)	21	16	38	80	31	18	42	87
55	(1999-2000)	21	17	39	72	15	10	37	70
50	(1993-94)	20	14	31	56	13	9	29	56
					urban				
61	(2004-05)	44	38	52	75	91	69	90	116
55	(1999-2000)	48	45	56	73	71	57	73	94
50	(1993-94)	54	41	52	67	83	61	79	104

Source: NSS Reports of Different Rounds.

Table 1(a) depicts the state-wise unemployment rates (Usual Status) in three different years 1993-94, 1999-2000 and 2004-05 for Rural and Urban areas in India. It has been observed that there are wide variations in the rates among the states. Some of the states like Assam, Orissa and Kerala show very high rates of unemployment, particularly in urban areas during this period. The comparison between urban and rural unemployment rates shows that the rural unemployment rates are lower than urban rates. One of the reasons behind this low rate in rural areas is the definition of usual status which states that if a person spent relatively longer time as a certain status during the preceding 365 days from the date of survey, that is considered the

Table 1(a). Rural and Urban Unemployment Rates (Usual Status) During Three Years in Some Major States in India

States	Rate of Unemployment (persons unemployed in 1000 labor force i.e., total of employed and unemployed)					
	Rural person Usual Status			Urban person Usual Status		
	1993-94	1999-2000	2004-05	1993-94	1999-2000	2004-05
Andhra Pradesh	4	8	7	30	39	36
Assam	52	39	26	89	97	72
Bihar	16	18	15	71	74	64
Chandigarh	29	7	26	72	48	40
Delhi	NA	47	19	15	33	48
Goa	90	93	111	101	185	87
Gujarat	9	4	5	33	20	24
Haryana	11	12	22	26	66	40
Himachal Pradesh	5	8	18	26	27	38
Jammu & Kashmir	7	11	15	66	50	49
Karnataka	7	7	7	36	33	28
Kerala	69	82	107	103	102	156
Madhya Pradesh	5	5	5	50	35	28
Maharashtra	8	14	10	44	58	36
Orissa	14	19	50	65	67	134
Pondicherry	24	40	70	68	41	81
Punjab	13	18	38	34	27	50
Rajasthan	3	4	7	14	25	29
Sikkim	7	28	24	31	75	37
Tamil Nadu	13	20	12	50	40	35
Uttar Pradesh	7	8	6	29	41	33
West Bengal	18	28	25	79	76	62
All-India	12	15	17	45	47	45

Source: NSS Reports of different Rounds.

principal usual status activity of the person. Accordingly, a person is considered 'working or employed' if the person was engaged for a relatively longer time during the past years in one or more work-related activities. So, in rural areas most people are engaged in some form of agriculture-related activities. If we look through Table 1(a), it is observed that in almost all states the unemployment in rural areas increased compared to that of the previous two years. In the urban areas, though unemployment rates are higher compared to that of rural areas, the rate is lower compared to previous two years in most of the states. However, some states like Delhi, Gujarat, Himachal Pradesh, Kerala, Orissa, Pondicherry, Punjab and Rajasthan show rising unemployment rates in 2004-05 relative to year 1999-2000. Thus, although the all-India figures for urban areas show a slight fall in unemployment rate, the state wise figures indicate that there is definite rise in the rural unemployment in most of the major states and the unemployment rate in urban areas also increased for some major states in India. If the unemployment rate using daily status is considered, then the situation becomes more alarming. It is argued that the unemployment rate using 'current daily status' became high due to a high degree of intermittent unemployment. It indicates that people who are seeking jobs are not getting jobs for a longer time and/or are not being absorbed into any permanent position.

This deterioration in the employment situation in the recent past may be due to many reasons and it is sometimes argued that this is basically fallout from structural changes in the Indian economy during recent past.

2.2. Structural Change

It has been argued that there is a structural change in the economy in terms of shares of different sectors in total GDP which in effect put an adverse impact on the growth of employment in India, particularly after liberalization.

Table 2. Share of Different Sectors in Total GDP (Percentage)

Industry	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
1 agriculture, forestry & fishing	**32.93**	**32.32**	**29.85**	**30.44**	**28.32**	**28.28**	**26.68**	**25.51**	**25.63**	**22.78**	**23.00**
1.1 agriculture	30.22	29.69	27.35	28.02	25.98	26.12	24.54	23.40	23.56	20.72	21.06
1.2 forestry & logging	1.60	1.53	1.42	1.34	1.31	1.25	1.22	1.20	1.14	1.11	1.03
1.3 fishing	1.11	1.10	1.08	1.07	1.04	0.92	0.92	0.91	0.93	0.95	0.90
2 mining & quarrying	**2.14**	**2.15**	**2.14**	**1.98**	**2.16**	**2.10**	**2.06**	**2.04**	**2.00**	**2.14**	**2.11**
3. Manufacturing	**14.86**	**15.53**	**16.58**	**16.68**	**15.79**	**14.94**	**14.49**	**14.97**	**14.58**	**15.02**	**14.82**
3.1 registered	9.42	10.12	10.80	10.92	9.92	9.21	8.82	9.16	9.00	9.36	9.28
3.2 unregistered	5.44	5.40	5.78	5.76	5.88	5.73	5.67	5.81	5.58	5.66	5.54
4 elect. gas & water supply	**1.26**	**1.33**	**1.35**	**1.32**	**1.40**	**1.42**	**1.41**	**1.41**	**1.37**	**1.35**	**1.28**
5 construction	**5.55**	**5.46**	**5.40**	**5.11**	**5.38**	**5.36**	**5.46**	**5.59**	**5.49**	**5.68**	**5.57**
6 trade, hotels & restaurant	**13.84**	**14.30**	**15.29**	**15.28**	**15.75**	**15.90**	**16.08**	**16.04**	**16.50**	**17.20**	**17.19**
6.1 trade	13.08	13.55	14.43	14.42	14.85	14.95	15.07	15.00	15.39	16.09	16.05
6.2 hotels & restaurants	0.76	0.75	0.87	0.86	0.89	0.96	1.01	1.04	1.11	1.11	1.14
7 transport, storage & communication	**5.40**	**5.55**	**5.81**	**5.84**	**6.12**	**6.30**	**6.73**	**7.36**	**7.71**	**8.53**	**9.36**
7.1 railways	0.97	0.92	0.95	0.93	0.90	0.86	0.91	0.92	0.94	0.97	0.95
7.2 transport by other means	3.28	3.38	3.47	3.48	3.54	3.52	3.59	3.69	3.67	3.80	3.93
7.3 storage	0.08	0.08	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05
7.4 communication	1.07	1.17	1.31	1.36	1.61	1.85	2.17	2.68	3.04	3.72	4.43
8 financing, insurance, real estate & business services	**11.54**	**11.34**	**11.46**	**11.37**	**12.22**	**12.33**	**12.91**	**12.76**	**12.54**	**13.16**	**12.96**

Table 2. Continued

Industry	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
8.1 banking & insurance	5.75	5.77	5.93	6.02	6.82	6.97	7.48	7.06	6.88	7.40	7.31
8.2 real estate, ownership of dwellings & business services	5.79	5.57	5.52	5.35	5.40	5.36	5.43	5.70	5.66	5.76	5.65
9 community, social & personal services	**12.47**	**12.01**	**12.13**	**11.98**	**12.86**	**13.36**	**14.19**	**14.33**	**14.16**	**14.13**	**13.71**
9.1 public administration & defence	5.55	5.23	5.24	5.07	5.63	5.88	6.33	6.21	6.01	5.87	5.69
9.2 other services	6.92	6.77	6.89	6.91	7.24	7.48	7.86	8.12	8.15	8.26	8.02
10 net domestic product at factor cost (1 to 9)	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: National Account Statistics India.

Table 2 shows the shares of different sectors of the economy in Total GDP over the years from 1993-94 to 2003-04, i.e., the period after liberalization. It is observed that the share of Agriculture and related items has declined steadily from 32.93% to 23%. The share of Mining and quarrying remains almost in the same position during this period. The position of the manufacturing sector also remains almost the same during this period and takes up around 15% of the total GDP. Among others, there is a significant increase of the shares from 13.84% to 17.19% during the same period. Transport and communication also underwent a significant increase in percentage from 5.4% in 1993-94 to 9.36% in the year 2003-04. The other two sectors namely, 'Financing, Insurance & Real Estate' and 'Community, Social Services, etc.' actually gained in percentage share during this period. Thus it is found that there is a significant change in the structure of the Indian economy during the post-liberalization period. The primary sector is

loosing its importance and the secondary sector remains almost in the same position. On the other hand, the tertiary sector gained importance during the same period.

Table -3 represents the growth of shares (of the GDP) of major sectors during the three sub periods. In the first sub period i.e., during 1993-94 to 1999-2000

Table 3. Growth of Shares in Major Sectors of Indian Economy

Industry	1993-94 to 1999-00	1999-00 to 2004-05	1993-94 to 2004-05
1 Agriculture, forestry & fishing	-3.16	-2.76	-2.74
2 Mining & quarrying	-0.63	0.46	-0.14
3 Manufacturing	-0.42	0.46	-0.03
4 Elect. gas & water supply	1.98	-1.80	0.17
5 Construction	-0.28	0.41	0.03
6 Trade, hotels & restaurant	2.69	1.38	2.20
7 Transport, storage & communication	4.09	7.83	6.66
8 Financing, insurance, real estate & business services	1.97	0.08	1.12
9 Community, social &	2.30	-0.68	0.90

It is observed that the share of Agriculture falls much faster in the first of the two sub-periods. The growth of the share of manufacturing becoming positive during the latter phase indicates a process of rebound from the downfall. Electricity etc. shows a fall in growth rates in the recent period while construction industry shows movement in an opposite direction, meaning growth. A major gain is observed in Transport and communication where the growth of percentage share increased from 4.09 during the first period to 7.83 in the second period. So if we include this sector in the tertiary sector, then the contribution from the growth of tertiary sector is highest and the contribution of Trade and Hotel business come second. From the above analysis, it is clear that there was definite structural change in the Indian economy during the recent period.

3. Employment Elasticity

One of the major objectives of development planning in India is to provide employment opportunities not only to the huge existing unemployed population but also to new additions to the labor force. There is a major shift in the sectoral composition of the Indian economy after the economic reforms had taken place during the early nineties. The policy of economic reform was taken with intentions of increasing competition and thus efficiency and productivity of the economy. However, at the same time, the government policies have been taken in favor of fostering labor-intensive production. The employment intensity of economic growth can be understood by the value of output elasticity of employment. In other words the concept of output elasticity of employment in a particular sector of the economy helps in understanding the extent of labor absorption capacity of that sector in the economy. The responsiveness of employment to the changes in the macroeconomic situation in terms of gross domestic product after the introduction of economic reform needs to be empirically examined to understand the effect of different sectoral changes on employment opportunity. In this section, an effort is made to understand this phenomenon empirically using state-wise data on employment and output of different sectors of the economy over 1993-94 to 2004-05.

3.1. Method

To arrive at the output elasticity of employment we must first calculate the growth of Net State Domestic Product (NSDP) in different sectors of the economy of 22 major states in India during 1993-94 to 1999-2000 and 1999-2000 to 2004-05. The data for this analysis have been collected from different issues of the National Account Statistics, published by the Central Statistical Organisation (CSO) of the government of India. Next we have taken data from National Sample Survey Organisation (NSSO) for generating employment figures in different sectors of the economy for these 22 states. NSSO has published estimated figures on Labor Force participation ratio as one person in one thousand. These figures are available for various

types of employment estimation namely, (i) Usual Status, (ii) Current Weekly Status and (iii) Current Daily Status. We have taken usual status figures for our analysis. NSSO has also published data for employed persons as per 1000 distribution of usually-working persons in the principal status by broad industry division for each state/ union territory. To get the actual number of employed persons in these sectors, we have to have population estimates of the corresponding years. To get the interpolated figures of population of these states for the corresponding years, we have estimated the month-wise growth rates of population and then calculated the estimated population at Decembers of corresponding years. These estimates are calculated for both rural and urban population.

Now to find out employment figures we have first calculate the total labor force (i.e., employed and unemployed) using the population figures and the corresponding 'Labor Force Participation Ratios' from the NSSO. Then, the per 1000 distribution of working persons in total labor force for different sectors are multiplied with the estimated total labor force (population) to arrive at figures of employed persons in those sectors of the economy in 22 states of India. Thus we get the employment figures of the states for Rural and Urban areas as well as the Total in different sectors for three different years.

3.2. Growth of Net State Domestic Product

Table 4 gives the state-wise and All India compound annual growth rates of NSDP at three major sectors as well as for the total. It has been observed from the All India Net Domestic Product growth rates that it is around 6% per annum for the total period. However, there is a fall in growth rate if we compare the 1999-2000 to 2003-04 figure with that of 1993-94 to 1999-2000, i.e., early phase of liberalization. Growth of agriculture has declined during the latter phase of liberalization relative to its early phase. Growth of the manufacturing sector remains almost at the same level and settled around 6% per annum. There is a remarkable growth in the Tertiary sector, around 9%, during the early phase of liberalization and there is a slight fall in the latter phase. During the whole period it grows around 8% per annum. Among this tertiary sector, Transport and

Communication shows the highest growth during this period. Among the other sectors that registered a higher growth of output are Banking & Finance, and Electricity and water supply.

We have estimated the compound annual growth rates of 22 major states in India for different sectors during the same period. Table 4 presents the values of growth rates for three different sub-periods for three major sectors and of total NSDP. If we compare the NSDP growth for the whole period of these 22 states with that of the All India figure, we find that 10 states - Chandigarh, Delhi, Gujarat, Haryana, Himachal Karnataka, Pondicherry, Rajasthan Sikkim and West Bengal are above the All India average. When we make a similar comparison for the initial period it is observed that some other states performed better compared to the All India average. They are namely Goa, Maharashtra, Madhya Pradesh, and Tamil Nadu. Growth rates of NSDP for most of the states are lower in the latter phase of liberalization compared to the earlier phase. This was as expected because at the initial phase of liberalization there was a jump in the output of different sectors from a very low level while in the latter phase the economy had already gained its momentum and became steady with a moderate pace of growth.

Now, coming to the sector-wise breakdown of the growth rates, it is found that there is a wide variation of growth rates among the states. If we concentrate on the agricultural growth it is observed that there is a trend of marginal revival of agricultural production during the later phase of liberalization. In many states the growth was negative during this period. A wide variation in growth rates among the states is also found in the manufacturing sector and it varies from .06% to a high of 24.6% during the total period. Some states which perform better in the early phase of liberalization are found lagging in the latter period - for example Goa, Gujarat, Himachal Pradesh, Jharkhand, Kerala, Maharashtra, etc. As we have already said that the growth of Tertiary sector during the period is highest among all other sectors and the variation of growth rates among the states are not as high as in other sectors and ranges from 6% to 10% on an average.

Table 4. Compound Annual Growth Rate of NSDP

States	1993-94 to 1999-00 Agriculture	1999-00 to 2004-05 Agriculture	1993-94 to 2004-05 Agriculture	1993-94 to 1999-00 Manufacturing	1999-00 to 2004-05 Manufacturing	1993-94 to 2004-05 Manufacturing	1993-94 to 1999-00 Sub Total of Tertiary	1999-00 to 2004-05 Sub Total of Tertiary	1993-94 to 2004-05 Sub Total of Tertiary	1993-94 to 1999-00 Net State domestic product	1999-00 to 2004-05 Net State domestic product	1993-94 to 2004-05 Net State domestic product
AP	1.51	3.73	2.52	5.79	5.69	5.74	7.29	8.17	7.69	5.42	6.62	5.96
Assam	0.55	1.19	0.84	2.13	2.91	2.48	3.75	7.76	5.55	1.89	4.78	3.19
Bihar	0.61	4.65	2.43	2.00	4.88	3.29	6.48	5.62	6.09	3.90	5.06	4.43
Chandigarh	-2.23	-0.76	-1.56	5.27	3.99	4.68	9.55	9.42	9.49	9.29	9.14	9.22
Chattrisgarh	-4.24	-0.48	-2.55	0.06	8.63	3.87	5.79	7.55	6.59	2.03	6.08	3.85
Delhi	-9.17	2.8	-3.91	2.55	8.25	5.1	11.16	8.72	10.04	8.79	8.94	8.86
Goa	4.80	3.77	4.33	10.89	-2.76	4.46	10.24	1.95	6.39	8.87	1.87	5.63
Gujarat	2.38	8.12	4.95	7.91	6.66	7.34	9.46	7.11	8.39	7.36	6.86	7.13
Haryana	1.86	2.71	2.24	6.47	7.08	6.75	9.64	10.71	10.12	5.69	7.01	6.29
Himachal	0.44	7.36	3.53	19.34	8.47	14.27	10.02	4.3	7.39	7.67	5.77	6.8
J&K	5.24	3.7	4.53	-0.59	4.14	1.53	6.70	5.06	5.95	4.76	4.32	4.56
Jharkhand	5.24	4.67	4.98	10.26	0.76	5.84	4.01	5.27	4.58	5.26	4.69	5.0
Karnataka	4.10	-3.63	0.52	4.28	9.26	6.51	10.46	10.4	10.43	7.33	6.18	6.81
Kerala	1.93	-4.46	-1.02	5.39	-1.32	2.28	7.94	9.75	8.76	5.45	6.09	5.74
Maharastra	2.81	-2.61	0.31	5.14	1.07	3.27	7.82	8.02	7.91	5.94	4.86	5.45
MP	2.53	-0.54	1.12	8.20	-2.66	3.12	6.86	4.64	5.85	6.10	2.03	4.23
Orissa	-1.35	2.74	0.49	9.23	4.03	6.84	7.39	7.78	7.57	4.20	5.88	4.96
Pondicherry	1.78	-8.17	-2.87	24.65	17.2	21.21	11.61	7.17	9.57	14.18	11.13	12.79
Punjab	2.21	2.03	2.13	5.01	1.74	3.51	6.98	5.81	6.45	4.54	4.07	4.32
Rajasthan	4.99	3.37	4.25	12.95	0.64	7.18	8.84	7.14	8.07	8.23	5.17	6.83
Sikkim	-2.24	6.89	1.81	0.95	0.16	0.59	10.30	5.11	7.91	5.71	7.25	6.41
TN	1.25	-2.55	-0.5	3.46	0.67	2.19	9.57	4.63	7.3	6.34	3.83	5.19
UP	2.92	1.26	2.16	3.14	3.65	3.37	5.07	5.54	5.29	4.28	3.78	4.05
WB	4.09	2.33	3.29	7.55	3.37	5.63	9.65	10.41	10	7.22	7.05	7.14

Compound Annual Growth rate of GDP- India

	Agriculture	Mining & quarrying	Manufacturing	Electricity, gas and Water supply	Construction	Trade, hotels and restaurants	Transport, storage & communication	Banking & Insurance	Real estate and business services	Sub Total of Tertiary	Net State domestic product
1993-94 to 1999-00	2.84	5.83	6.06	8.53	6.21	9.21	10.48	11.29	5.37	9.02	6.51
1999-00 to 2003-04	1.89	6.34	6.33	3.27	6.28	7.51	14.84	5.13	6.81	7.42	5.74
1993-94 to 2003-04	2.46	6.04	6.17	6.39	6.24	8.53	12.20	8.79	5.94	8.38	6.20

3.3. Employment Growth

We have shown in the previous section that the unemployment rate has increased in many states during the post reform period. In this section we tried to find out variations in employment growth in major sectors of the economy during the period of study. This estimation of growth rates have been done separately for rural and urban sectors. However, here we have analyzed the results for total of urban and rural together. Table 5 gives the account of growth rates for the states as well as for India as a whole. From All India figures, it is found that the growth rate of employment is about 2% during the total period. Breaking the total period into two sub periods, we find the growth rate of total employment higher in the latter phase of liberalization. In almost all the sectors the growth rate for employment is higher than the rate for the initial part of the period. The manufacturing sector shows a high growth rate of about 5% during 1999-2000 to 2004-05, and for the whole period, the value is about 3% per annum. Though some of the tertiary sectors show high employment growth, the overall performance of the tertiary sector in generating employment is not promising compared to the manufacturing sector. However, the performance of transport and communication and banking/insurance give better result in terms of growth of employment during this period.

Now coming to the state-wise variation of employment growth, it is found that for all sectors together the variation is from about 1% to 4% per annum. For most of the states, the employment growth is higher in the second sub-period compared to the initial period. The states which show higher growth rates compared to other states are Delhi, Haryana and Sikkim. But some of the states which show growth rates higher than the national average are Assam, Bihar, Gujarat, Jammu & Kashmir, Karnataka, Maharashtra, Pondicherry, Punjab and Uttar Pradesh. The employment growth rates in the agricultural sector in the states are below 2% and in some states it is even negative. So though agriculture is the main area with employment potential, the growth of employment there is poor compared to other sectors. There is also a wide variation in the growth rates of employment in manufacturing and tertiary sectors. The states which performed better compared to the others in generating employment

opportunity are namely Delhi, Haryana, Himachal Pradesh, J & K, Orissa, Bihar and Rajasthan; whose growth rates are above 5% per annum. For the tertiary sector, the growth of employment in the latter period is high in most of the states compared to the initial phase. The compound annual growth rates of the tertiary sector are low compared to that of the manufacturing sector. Thus growth rates of the employment in general show that the position is better in the recent period compared to the earlier period and the manufacturing sector has done better compared to other sectors of the economy.

3.4. Elasticity of Employment

The importance of measuring elasticity of employment to asses the employment potential in different sectors of the economy has already been discussed. Table 6 gives the values of employment elasticity in different sectors of the economy during this period. First, let us concentrate on the All-India figures. It is found that elasticity of employment for the total economy in the latter period is about 0.46 which is much higher than that for the first phase of liberalization which is about 0.16. Employment elasticity is much higher in the manufacturing industry compared to that of in other sectors. The employment elasticity in the tertiary sector total is not very high and it gains value only in the latter phase of liberalization. The employment elasticity in trade, hotel/restaurant and transport sectors are better and in both cases the value is lower in the last phase compared to the first phase of the study. Thus in general, the employment potential of the economy is better in the latter period compared to the initial phase.

The state-wise figures of elasticity indicates that for the economy as a whole and for the total period, states like Assam, Haryana and Uttar Pradesh have done better compared to other states in employment elasticity. If we consider the recent period then it is observed that states like Madhya Pradesh, Punjab and Uttar Pradesh have higher elasticity compared to other states. Now, sector-wise elasticities show that some states have higher elasticities in specific sectors compared to other sectors. For example if we think of the manufacturing sector in Maharashtra, Up and MP are in good position in terms of employment

Table 5. Compound Annual Growth Rate of Employment - All

States	1993-94 to 1999-00 Agriculture	1999-00 to 2004-05 Agriculture	1993-94 to 2004-05 Agriculture	1993-94 to 1999-00 Manufacturing	1999-00 to 2004-05 Manufacturing	1993-94 to 2004-05 Manufacturing	1993-94 to 1999-00 Sub Total of Tertiary	1999-00 to 2004-05 Sub Total of Tertiary	1993-94 to 2004-05 Sub Total of Tertiary	1993-94 to 1999-00 Total	1999-00 to 2004-05 Total	1993-94 to 2004-05 Total
AP	-0.12	-0.48	-0.29	-1.59	7.50	2.45	1.15	3.91	2.40	0.31	1.71	0.94
Assam	-1.14	5.87	1.99	2.24	1.16	1.75	10.50	-3.94	3.68	1.65	3.79	2.61
Bihar	1.03	1.06	1.04	9.43	1.73	5.86	1.15	2.05	1.56	1.82	2.24	2.01
Chandigarh	42.56	-37.53	-2.03	-1.70	3.35	0.56	-2.14	9.27	2.89	1.93	0.83	1.43
Delhi	2.33	-20.73	-8.89	8.10	3.85	6.15	2.76	4.12	3.38	4.52	3.33	3.98
Goa	-11.45	6.99	-3.50	1.31	0.42	0.90	-3.73	6.67	0.87	-1.13	3.45	0.92
Gujarat	2.36	1.26	1.86	-1.82	9.69	3.26	0.69	1.54	1.08	2.21	2.64	2.41
Haryana	-0.15	4.79	2.07	3.96	9.78	6.57	-3.69	6.70	0.90	1.08	5.47	3.06
Himachal	-1.62	1.16	-0.36	4.21	8.85	6.29	3.43	3.46	3.45	-0.07	2.73	1.19
J&K	2.14	-1.66	0.39	3.82	23.37	12.29	-2.21	5.04	1.02	1.95	2.35	2.13
Karnataka	0.07	2.86	1.33	0.33	2.97	1.52	-0.15	4.77	2.05	0.80	3.17	1.87
Kerala	-2.70	-0.10	-1.53	1.24	1.34	1.29	1.75	5.37	3.38	1.08	1.48	1.26
Maharastra	0.17	2.50	1.22	1.06	4.99	2.83	0.74	4.05	2.23	1.07	3.33	2.09
MP	0.26	1.51	0.83	4.29	5.14	4.68	0.54	4.80	2.46	1.11	2.76	1.85
Orissa	-0.02	0.13	0.05	4.68	6.46	5.48	-1.26	6.81	2.33	0.67	2.60	1.54
Pondicherry	-2.30	3.77	0.42	8.98	-2.30	3.70	-3.67	6.27	0.72	2.54	1.74	2.17
Punjab	1.54	0.77	1.19	3.69	6.49	4.95	0.90	3.23	1.95	2.57	2.62	2.59
Rajasthan	0.00	1.56	0.71	3.52	7.28	5.21	-0.20	4.30	1.82	0.80	2.91	1.75
Sikkim	2.56	4.70	3.53	-5.63	6.51	-0.29	1.47	0.40	0.98	2.17	4.55	3.25
TN	-1.95	0.44	-0.87	1.15	3.20	2.08	0.25	3.25	1.60	0.18	1.79	0.91
UP	-0.37	3.08	1.18	4.06	5.69	4.80	0.40	2.59	1.39	1.00	3.88	2.30
WB	0.22	2.79	1.38	-0.05	1.32	0.57	-0.53	4.82	1.87	0.59	3.17	1.76

Compound Annual Growth rate Employment All – India

	Agriculture	Mining & quarrying	Manufacturing	Electricity, gas and Water supply	Construction	Trade, hotels and restaurants	Transport, storage & communication	Banking & Insurance	Real estate and business services	Sub Total of Tertiary	Total
1993-94 to 1999-00	0.03	-3.09	1.58	-1.74	6.24	6.13	5.46	4.44	-1.41	0.69	1.02
1999-00 to 2004-05	1.75	2.96	4.88	3.13	8.14	3.61	4.67	9.97	1.91	3.52	2.86
1993-94 to 2004-05	0.81	-0.38	3.07	0.44	7.10	4.98	5.10	6.92	0.08	1.96	1.85

Table 6. Employment Elasticity

States	1993-94 to 1999-00 Agriculture	1999-00 to 2004-05 Agriculture	1993-94 to 2004-05 Agriculture	1993-94 to 1999-00 Manufacturing	1999-00 to 2004-05 Manufacturing	1993-94 to 2004-05 Manufacturing	1993-94 to 1999-00 Sub Total of Tertiary	1999-00 to 2004-05 Sub Total of Tertiary	1993-94 to 2004-05 Sub Total of Tertiary	1993-94 to 1999-00 Total	1999-00 to 2004-05 Total	1993-94 to 2004-05 Total
AP	-0.08	-0.08	-0.19	-0.27	0.43	1.31	0.16	0.29	0.51	0.06	0.14	0.29
Assam	-2.09	1.67	7.01	1.05	0.6	0.47	2.8	0.47	-0.71	0.87	0.55	1.19
Bihar	1.69	0.22	0.44	4.73	1.2	0.53	0.18	0.28	0.34	0.47	0.4	0.51
Chandigarh	-19.08	2.68	24.02	-0.32	0.14	0.72	-0.22	0.31	0.98	0.21	0.16	0.09
Chattrisgarh												
Delhi	-0.25	-3.18	5.3	3.18	0.75	0.75	0.25	0.39	0.41	0.51	0.45	0.38
Goa	-2.38	-0.93	1.61	0.12	-0.33	0.09	-0.36	0.44	1.04	-0.13	0.49	0.61
Gujarat	0.99	0.23	0.25	-0.23	0.49	1.32	0.07	0.15	0.18	0.3	0.35	0.37
Haryana	-0.08	0.76	2.13	0.61	0.93	1.45	-0.38	0.08	0.66	0.19	0.44	0.87
Himachal	-3.68	-0.05	0.33	0.22	0.74	0.62	0.34	0.8	0.47	-0.01	0.21	0.4
J&K	0.41	0.11	-0.37	-6.44	2.97	15.25	-0.33	0.2	0.85	0.41	0.49	0.52
Jharkhand												
Karnataka	0.02	-0.37	5.54	0.08	0.16	0.46	-0.01	0.2	0.46	0.11	0.3	0.47
Kerala	-1.40	0.34	0.1	0.23	-0.97	0.59	0.22	0.35	0.61	0.2	0.21	0.26
Maharastra	0.06	-0.47	8.02	0.21	2.64	1.53	0.09	0.28	0.51	0.18	0.43	0.61
MP	0.10	-1.54	1.35	0.52	-1.76	1.65	0.08	0.53	0.82	0.18	0.91	0.65
Orissa	0.01	0.02	0.27	0.51	1.36	0.94	-0.17	0.3	0.90	0.16	0.26	0.52
Pondicherry	-1.29	-0.05	-1.32	0.36	0.22	-0.11	-0.32	0.1	0.65	0.18	0.2	0.14
Punjab	0.70	0.59	0.36	0.74	2.85	1.85	0.13	0.34	0.50	0.57	0.64	0.61
Rajasthan	0.00	0.21	0.37	0.27	8.12	1.01	-0.02	0.26	0.53	0.1	0.34	0.43
Sikkim	-1.14	0.51	2.6	-5.90	-1.79	10.96	0.14	0.19	0.05	0.38	0.45	0.71
TN	-1.56	0.34	-0.9	0.33	3.09	1.46	0.03	0.35	0.44	0.03	0.24	0.35
UP	-0.13	0.94	1.43	1.29	1.32	1.69	0.08	0.25	0.49	0.23	0.61	0.96
WB	0.05	0.59	0.85	-0.01	0.17	0.23	-0.05	0.18	0.48	0.08	0.25	0.44

Employment Elasticity All – India

	Agriculture	Mining & quarrying	Manufacturing	Electricity, gas and Water supply	Construction	Trade, hotels and restaurants	Transport, storage & communication	Banking & Insurance	Real estate and business services	Sub Total of Tertiary	Total
1993-94 to 1999-00	0.01	-0.53	0.26	-0.20	1.01	0.67	0.52	0.39	-0.26	0.08	0.16
1999-00 to 2004-05	0.71	0.49	0.79	0.49	1.31	0.42	0.38	1.13	0.32	0.49	0.50
1993-94 to 2004-05	0.43	-0.06	0.48	0.14	1.13	0.66	0.34	1.35	0.01	0.41	0.30

elasticity. On the other hand, for the tertiary sector we find that Goa, Chandigarh and Orissa have high value of elasticity compared to other states. This has some implications. Some states have some advantage in creation of job opportunities in specific areas. For example, Orissa and Goa have specific advantages in tourism sector and the scope of employment generation in that sector is high compared to other sectors.

Now as we find that some of the states have very low values of employment elasticity it is important to know the relation between GDP growth and employment growth. In order to get the idea we have estimated correlation between the elasticity and GDP growth rates. The values of correlation coefficient show that in most of the cases there is a strong correlation between employment growth and output growth.

In Table 7 the output growth, employment growth and elasticities of different sectors of the Korean economy are reported for the period 1997 to 2007. It is observed that the total output grows at about 4% per annum during the period 1997 to 2007. The sectoral composition shows that the 'Manufacturing' sector has the highest growth of about 7% during the same period and 'Agriculture and Fishing' grew at about 0.14% during the period. The growth of 'Electricity, Transport and other' is about 5.6% per annum which is second to 'Manufacturing' sector. Other service sectors grew at about 3% per annum. Negative growth is observed in 'Construction sector' during the same period. Thus in Korea, Manufacturing Sector plays a key role in the growth of GDP.

Now if we concentrate on the growth of employment, we find a dismal picture during the same period. In most of the sectors considered the growth employment is found to be negative. Only three sectors, namely, 'Social overhead, Capital and Other services', 'Electricity, Transport & Others' and 'Business personal, Public Service' show positive growth of employment during the period. The employment growth in the total economy is, however, positive but it is less than 1% during the period. The overall elasticity of employment is about 0.21 and the sectors 'Business personal, Public Service' show very high elasticity of employment at 1.97. We are not considering the elasticity of the sectors which has negative growth of employment.

Thus even if the growth of the Korean economy depends on the

Table 7. Output Growth and Employment Elasticity of Korean Economy

Output at 2000 prices

Year	Total	Agriculture, Forestry and Fishing	Agri., forestry & hunting	Mining and manufacturing	Manufacturing	Socialoverhead, capital and other services	Construction	Wholesale & Retail Trade, Restaurants and Hotels	Electricity, transport, storage, finance & other	Business, personal, public service
1997	373146	24947	NA	117513	115274	230687	53667	50418	73276	53325
1998	347238	23355	NA	108079	106173	215803	48295	44436	71524	51548
1999	381937	24730	NA	131297	129288	225910	44459	51380	76615	53456
2000	417037	25030	NA	153280	151243	238728	42927	55574	84607	55619
2001	435253	25309	NA	156538	154503	253406	45279	58138	93928	56061
2002	467387	24422	NA	168122	166243	274844	46529	61301	107228	59785
2003	482305	23138	NA	177312	175417	281854	50549	59564	110323	61419
2004	509556	25259	NA	196832	194886	287466	51459	59471	114055	62480
2005	532581	25447	NA	210587	208673	296547	51413	60687	120007	64440
2006	560835	25067	NA	228318	226372	307450	51579	62822	125616	67434
2007	590772	25339	NA	243023	241045	322410	52523	65019	134591	70277
CAGR	4.2654	0.1420		6.8286	6.9360	3.0901	-0.1957	2.3390	5.6829	2.5412

Employment-Total

Year	Total	Agriculture, forestry & fishing	Agri., forestry & hunting	Mining and manufacturing	Manufacturing	Socialoverhead, capital and other services	Construction	Wholesale & retail trade, restaurants & hotels	Electricity, transport, storage, finance & other	Business, personal, public service
1997	21214	2285	2177	4564	4537	14365	2027	5871	2034	4433
1998	19938	2397	2318	3937	3917	13603	1580	5570	1998	4455
1999	20291	2302	2219	4046	4027	13943	1475	5739	1999	4731
2000	21156	2243	2162	4310	4293	14603	1580	5752	2076	5195
2001	21572	2148	2065	4285	4267	15139	1585	5874	2141	5540
2002	22169	2069	1999	4259	4241	15841	1746	5998	2157	5940
2003	22139	1950	1877	4222	4205	15967	1816	5852	2160	6139
2004	22557	1825	1749	4306	4290	16427	1820	5862	2187	6558
2005	22856	1815	1747	4251	4234	16789	1814	5806	2246	6923
2006	23151	1785	1721	4185	4167	17181	1835	5762	2333	7251
2007	23433	1726	1670	4137	4119	17569	1850	5726	2393	7600
CAGR	0.9085	-2.5183	-2.3814	-0.8890	-0.8748	1.8472	-0.8272	-0.2271	1.4886	5.0227
Empl. Elasticity	0.2130	-17.7365		-0.1302	-0.1261	0.5978	4.2275	-0.0971	0.2619	1.9765

performance of Manufacturing sector, the employment potential of that sector is alarmingly poor. On the other hand the Service sectors play a key role in employment generation during the period 1997 to 2007.

4. Effect of Income Distribution on Employment

It has been argued that income distribution plays a key role in generating employment in the economy. In a less developed economy there is a skewed distribution of income and the poor are less powerful in controlling the market demand. There is wide variation in demand for the items between the poor and the rich. Also, a segregated market is found for almost all the commodities in terms of lower price and quality which are consumed by poor section of people. Poor segments of the economy in general consumed less expensive commodities and which are mostly non-industrial goods. Even if they consumed industrial commodities they are mostly less technology-intensive goods. Now, there are two types of effects of consumption of goods of this type. First, there is a direct effect on employment if the goods are labor-intensive. Second, if the goods are not labor-intensive., i.e, the final product is capital-intensive then there is also the possibility of employment generation through backward linkage effect of the production process. If the input required for the production of output of the final good is labor- intensive, then the increase in the demand for such commodities may generate employment opportunity through linkage effect.

In this section, attempt has been made to measure the effect of an exogenous redistribution of income on the demand for different types of goods and generation of labor demand in different sectors. This is done by estimating the effect of the initial redistribution on sectoral composition of consumer goods demand, resulting intersectoral redistribution of demand for the intermediate products and finally the demand for labor inputs in different sectors. This depends on the relation between the income elasticities of demand for the final goods and the factor intensities of these final goods. As it has been said, if the income redistributed to the poor is spent on more labor-intensive goods, the redistribution will augment the labor demand in the final

product as well as in the other products through linkage effect.

This analysis has actually two parts. First, we have to estimate the income elasticity of demand in different economic class of people for the consumer goods. Second, an estimate of the changes in the final demand through exogenous redistribution of income on the demand for the good and the employment in the sectors is to be done. For the first part we depend on the standard demand analysis models and for the second part we use the Input-Output tables to find out the changes in the total demand for the goods due to changes in the final demand for exogenous redistribution of income.

4.1. Data and Methods

The data for the demand analysis has been collected from the National Sample Survey Organisation (NSSO) of the Central Statistical Organisation (CSO), of the Government of India. The NSSO uses it to publish data on household consumer expenditure on a number of durable and non-durable commodities. Data are available for almost every five-year gap (round). We have taken the latest round (61st) figures for the year 2004-05 for our analysis. We have taken the cross-sectional values for 18 major states for as many as 50 commodities both durable and non-durable. For the analysis of labor demand part, we have taken the latest Indian Input-Output table of 2003-04 published by CSO. Finally, we have calculated the labor coefficient of output from the data published by the Annual Survey of Industries (ASI) for the year 2003-04. Since the data on consumer demand is not available for the corresponding year, we have taken the latest data for estimating the income elasticity of demand. However, we have to perform a few exercises with the raw data to arrive at the data for our use.

In the following section we have tried to give the impression of the methods used to arrive at the income elasticity of demand and the estimation of changes in employment due to an exogenous change in income distribution.

The modern econometric analysis of demand system starts with the seminal paper by Deaton and Muellbauer (1980), where the concept of Almost Ideal Demand System (AIDS) is introduced. Before

that Richard Stone (1954) first estimated a system, of demand equations derived explicitly from the consumer theory. In AID we start with a cost or expenditure function that depends on utility and price, and can be written as:

$$\log c(u, p) = (1 - u) \log\{a(p)\} + u \log\{b(p)\}, \tag{1}$$

Where, u is the utility and p is price.

$$\log a(p) = a_o + \sum a_k \log p_k + 1/2 \sum \sum \gamma_{kj} \log p_k \log p_j \tag{2}$$

and

$$\log b(p) = \log a(p) + \beta_0 \prod_K p_k^{\beta_k} \tag{3}$$

After substituting we have

$$\log c(u, p) = a_o + \sum a_k \log p_k + 1/2 \sum \sum \gamma_{kj} \log p_k \log p_j + u\beta_0 \prod_K p_k^{\beta_k} \tag{4}$$

Now we know that the differentiation of log cost function with respect to log price will give us the budget share. Hence differentiating equation (4) with log price we have

$$w_i = \alpha_i + \sum \gamma_{ij} \log p + \beta_i \log(x/p) \tag{5}$$

This is homogeneous to degree zero in prices, which implies if all price change in same proportion the share of expenditure of items remains the same.

Aggregating over household equation (5) can be modified as $\overline{w}_i = \alpha_i + \sum \gamma_{ij} \log p + \beta_i \log(\overline{x}/Kp)$, where $\overline{w}_i$ represent the share of aggregate expenditure of all household and $\overline{x}/K$ represents the representative budget level (total expenditure).

Now, using the budget share equation the required elasticity of demand can be written as

$$\eta_i = \frac{\beta_i}{w_i} + 1 \tag{6}$$

In this analysis we have taken the quadratic form of AIDS developed by Banks, Blundell and Lewbel (997). The modified version of the Engel Curve in our analysis is the following:

$$w_i = \alpha + \beta_{1i} \log(x) + \beta_{2i} \log(x)^2 + \varepsilon$$

Also, since we are estimating the Engel curve with cross-section data, we do not consider here the effect of relative price changes among the commodities. Thus we have no price variable in our model of Engel Curve.

Naturally, the form of the elasticity will be modified as

$$\eta_i = \frac{\beta_i + 2\beta_2 \log x_i}{w_i} + 1$$

Now coming to the estimation procedure we have depend on the P-Tobit model developed by Deaton and Irish (1984). A major problem in cross-section demand analysis stems from the fact that most household expenditure surveys are based on a very short observation period. The survey is usually only able to observe purchases of commodities, and since it is assumed that consumption yields utility, the observed purchased data are directly relevant if consumption and purchases are equal. This may not be true for durable goods. Deaton and Irish (1984) propose a simple modification of the Tobit Model, called the P-Tobit model for such goods.

For a simple AIDS model where the Engel curve is represented by

$$w_i = \alpha + \beta_{1i} \log(x) + \varepsilon$$

The unconditional elasticity is represented by

$$\eta_i = 1 + \frac{\Phi(\hat{z}_i)\hat{\alpha}}{\Phi(\hat{z}_i)\bar{x}\,\hat{\beta} + \hat{\sigma}_i\phi(\hat{z}_i)}$$

Where,

$$\hat{z}_i = \frac{\hat{x}_i \hat{\beta}}{\sigma}$$

The conditional elasticity will be

$$\eta_i = 1 + \frac{[1 - \hat{z}_i \phi(\hat{z}_i)/\Phi(\hat{z}_i) - (\phi(\hat{z}_i)/\Phi(\hat{z}_i))^2]\hat{\alpha}}{\bar{x}\,\hat{\beta} + \hat{\sigma}_i(\phi(\hat{z}_i)/\Phi(\hat{z}_i))}$$

The conditionality is imposed such the estimated values of quantities will be greater than zero.

These forms of the elasticities basically come from the P-Tobit estimation of Working-Leser Model of Engel Curve proposed by Wan (1996). In our analysis, however, there will be a slight modification of the formulation of elasticities. In our model, the value of $\hat{z}_i$ will be $\hat{z}_i = \{\alpha + \hat{\beta}_1 \log \bar{x} + \hat{\beta}_2 (\log \bar{x}_i)^2\}/\sigma$, and the formula of elasticity will change accordingly.

So, this is a truncated from of the Tobit analysis where we have the restriction on the estimated values which turn to less than or equal to zero.

4.2. Input-Output Model

Now, for the second part of the analysis, i.e, to get an estimate of employment demand from the changes in the final demand of different section of people, we have relied on the Input-output model.

A simple I-O model considers that the output demanded in the economy consists of two parts, (i) the endogenous or intermediate demand and (ii) the exogenous or final demand. The endogenous portion of the demand in these types of model may be obtained on the basis of the information contained in the I-O transaction table. These inter-industry linkages of the I-O flow table enable one to estimate how various types of exogenous changes originating in specific sectors will be transmitted throughout the economy. To be specific, the endogenous relationships are used to transfer changes in the

exogenous sectors into changes in gross output by sector.

In a simple framework the I-O transactions table can be represented as:

$$\sum_{j=1}^{m} X_{ij} + \sum_{k=1}^{p} Y_{ik} = X_i \quad (i = 1,...,m)$$

xij = the amount of output produced by sector i and purchased by sector j for production purposes (endogenous)

yik = the amount of output produced by sector i for final demand of type k (exogenous)

xi = the total output of sector i (endogenous)

m = the number of sectors

p = the number of final demand sectors (which might include personal consumption expenditure, government expenditure, etc).

In an I-O model, it is assumed that the relationship between inputs and outputs can be specified by fixed I-O coefficients. That is, we assume,

$$X_{ij} = a_{ij} X_j, \text{ (i, j = 1, ..., m)}$$

Or we can write

$$a_{ij} = X_{ij} / X_j$$

aij is the amount of input of commodity i required to produce one unit of commodity j. Substituting aij in the original equations gives the new set of m equations as follows:

$$X_i = \sum_{j=1}^{m} a_{ij} X_j + \sum_{k=1}^{p} Y_{ik} \text{ (i=1, ···, m)}$$

In matrix notation, this is represented as:

$$AX + Y = X$$

Where A is a (m x m) matrix of (aij) coefficients, X is a (m x 1) vector of output levels of m sectors, Y is a (m x 1) vector of level of final demand for each of the m sectors. The matrix A is commonly known as I-O technical coefficients matrix. By definition, aij entry in this matrix signifies the amount of input of commodity i that is required to produce one unit of commodity j.

The solution to this system is obtained as follows:

$$X - AX = Y$$
$$\text{or } (I - A) \, X = Y$$
$$\text{or } X = (I - A)^{-1} \, Y = RY$$
Where $R = r_{ij}$ is a (m x m) $(I - A)^{-1}$ matrix.

The matrix R is known as the Leontief inverse. Here each coefficient r_{ij} represents the amount of output of sector i required to meet the requirement of one unit of final demand for sector j. It includes direct and indirect effects in the sense that to produce one unit of sector i's output, we require a_{ij} units of each sector j with j = 1, ..., m. But then to produce one unit of sector j's output, we need a_{ij} units of output of sector i's output. Thus, r_{ij} capture the direct and indirect effects

4.3. Measures of Output and Employment Effects

The I-O model provides a way to measure various types of income/employment effects. The direct income effect of one-percent change in income on final demand in sector i is estimated by multiplying the original final demand with the value of elasticity of the particular item. The direct and indirect income change per rupee change of final demand in all sectors is generated from the Leontief coefficient matrix and the change in the final demand vector. Thus, if there is any change in the final demand of any commodity there will be change in the demand in other sectors also, due to the linkage effect.

The employment effect of change in total demand in the ith sectors due to the change in the final demand of any particular sector is obtained from the ith sector's employment to output ratio. Employment

effects are subject to a larger margin of error as the relationship between output and employment is less rigid in practice (obtained from the ASI data) than that assumed in the I-O model.

The justification of analyzing the direct and indirect employment effects of changes in the income distribution is that the changes in any industrial sector's output due to the change in its final demand affect the output of all the industrial sectors which directly or indirectly supply this sector. Thus the changes in the final demand of any sector changes employment demand not only in that sector but in other sectors too by chain reaction.

For this analysis, we have to first estimate the income elasticity of demand for 'Urban poor', 'Urban rich', 'Rural poor' and 'Rural rich' separately using the Log Quadratic Ideal Demand System for each commodity we have considered. Then, these elasticities are used to find out the changes in the final demand of each sector. Once the changes in final demand are obtained we can get the changes in total demand vector from the Leontief Inverse matrix. Finally, we get the changes in labor demand using the labor-output ratios of each sector.

4.4. Empirical Results

For the analysis of this section we have taken the NSSO data of 61st round Household expenditure survey. The data for the 15 major states are taken for the estimation of income elasticity of demand. This data are first divided into Rural and Urban sectors. Then a demand function is estimated for each sector separately. Using the coefficients of the total demand function we have estimated the elasticities for 'Rural poor', 'Rural rich', 'Urban poor' and 'Urban rich' using the All-India urban and rural poverty line. We have taken 50 commodity groups for this purpose from a set of large disaggregated items.

Table 8(a) and 8(b) states the Total Output growth in the economy due to one percent change in the income spent on the ith sector in Rural and Urban areas. As is expected, barring few cases the elasticities of the poor are found to be high compared to those of rich and the output growths for all the commodities are higher compared to the rich people. This is expected because the proportion of consumption

to total by the poor is very low compared to the rich. Now if we compare the pattern of growth rates of total output due to changes in income for poor and rich it will be very different, and the differences are more prominent in urban areas. It has been found from the ranking of the growth rates that rankings of many durable consumer goods like Gems & Jewelry, Communication Equipments, Electronic Equipments including TV etc., for the rich section are above the rakings of the poor people of those durable goods, while high-ranking commodities for the poor people are mostly non-durable consumer goods. It indicates that if there is an increase of income of the rich people in the same proportion as that of the poor, the expenditure on durable consumer goods by rich increases the total output by a greater degree compared to the increase of output growth if the income is spent on consumer durable by the poor.

Table 9(a) and 9(b) provides the figures for total employment growth rates due to one percentage change in income spent on commodity. Similar to the earlier results on the output growth, the growth rates of employment for spending an incremental income in commodities are higher in case of poor people. It is interesting to note that in many cases when output growth is similar between two commodities, the employment growth is different. Let us take the case of 'Soaps, Cosmetics & Glycerin' and 'Cotton Textile' for 'rural poor'. The growth rates of total output are almost same if a person spent one percent of his/her income on these two commodities. However, the growth rates of employment are different between these two commodities. 'Soaps, Cosmetic & Glycerin' produces 0.05% employment growth while 'Cotton Textile' generates much higher growth of 0.09% growth. Also, since the poor segment of the population spends most of their income in non-durable consumption goods and the spending on that goods generate similar employment compared to the spending of rich people on some durable commodities, if the income distribution goes in favor of poor people it can also generate employment opportunities though it may not match exactly with their rich counterparts. Now if we concentrate on the growth rates of individual commodities it is found that in almost all the cases the growth rates of output and employment of durable consumer goods of the richer section of the people are higher compared to that of poor people. And he reverse is true for the non durable consumer

goods.

One thing that should be borne in mind is that the 1% increase in average income of the poor is much less compared to that of average rich incomes. So, it can be a good exercise if we can simulate the results for similar increases in absolute income for both groups.

Table-10 shows the comparison between growth of output and growth of employment in different income classes. It has been observed that in many cases the growth rates of employment is higher than that of output. This phenomenon is more prominent in the results with poorer section demand elasticities.

There are some implications from the above findings regarding employment growth and output growth. If the policies are taken in favor of GDP growth by redistribution of income in favor of rich people, it may not always generate the scope for employment generation. On the other hand, if policies are taken to increase income for the poor section who can spend on non-durable goods to a greater degree, can generate employment opportunity similar to the situation if the additional income is spent by the rich on any durable commodities.

Table 8(a). Output Growth due to One % Chang in Income Spent on the Sector

Output growth -rural poor		Output Growth -rural rich	
Milk And Milk Products	0.8978	Crude Petroleum	0.1377
Fruits	0.1818	Milk And Milk Products	0.1310
Wheat	0.1032	Other Liv.St. Produ. & Gobar Gas	0.0846
Readymade Garments	0.0706	Readymade Garments	0.0524
Sugar	0.0522	Communication Equipments	0.0416
Cotton Textiles	0.0518	Wheat	0.0410
Soaps, Cosmetics & Glycerin	0.0495	Fruits	0.0369
Edible Oils Other Than Vanaspati	0.0472	Soaps, Cosmetics & Glycerin	0.0301
Pulses	0.0399	Gram	0.0292
Vegetables	0.0365	Fishing	0.0288
Fishing	0.0346	Sugar	0.0280
Paddy	0.0274	Woolen Textiles	0.0258
Rubber Products	0.0271	Cotton Textiles	0.0243
Motor Vehicles	0.0178	Edible Oils Other Than Vanaspati	0.0201
Maize	0.0156	Pulses	0.0187
Jowar	0.0116	Jems & Jewelry	0.0183
Miscellaneous Textile Products	0.0105	Leather Footwear	0.0181
Tobacco Products	0.0070	Rubber Products	0.0175
Bajra	0.0066	Tobacco Products	0.0164
Plastic Products	0.0056	Vegetables	0.0134
Drugs And Medicines	0.0045	Plastic Products	0.0120
Jems & Jewelry	0.0040	Drugs And Medicines	0.0106
Tobacco	0.0033	Medical, Precision&Optical Instru.S	0.0095
Poultry & Eggs	0.0027	Electrical Wires & Cables	0.0079
Electrical Appliances	0.0020	Electronic Equipments(Incl.Tv)	0.0065
Groundnut	0.0017	Bajra	0.0061
Batteries	0.0017	Maize	0.0056
Furniture And Fixtures-Wooden	0.0016	Electrical Appliances	0.0055
Coconut	0.0014	Jowar	0.0053
Electronic Equipments(Incl.Tv)	0.0013	Natural Gas	0.0049
Bicycles, Cycle-Rickshaw	0.0012	Bicycles, Cycle-Rickshaw	0.0048
Electrical Wires & Cables	0.0010	Furniture And Fixtures-Wooden	0.0030
Medical, Precision&Optical Instru.S	0.0009	Coconut	0.0029
Hydrogenated Oil(Vanaspati)	0.0009	Groundnut	0.0025
Jute, Hemp, Mesta Textiles	0.0008	Miscellaneous Textile Products	0.0024
Other Transport Equipments	0.0008	Batteries	0.0015
Paper, Paper Prods. & Newsprint	0.0008	Other Transport Equipments	0.0014
Communication Equipments	0.0006	Watches And Clocks	0.0012
Coffee	0.0006	Tobacco	0.0010
Watches And Clocks	0.0002	Hydrogenated Oil(Vanaspati)	0.0010
Petroleum Products	0.0001	Jute, Hemp, Mesta Textiles	0.0010
Motor Cycles And Scooters	0.0001	Coffee	0.0009
Other Oilseeds	0.0000	Poultry & Eggs	0.0007
Beverages	-0.0003	Paper, Paper Prods. & Newsprint	-0.0003
Woolen Textiles	-0.0029	Coal And Lignite	-0.0052
Gram	-0.0029	Motor Cycles And Scooters	-0.0210
Coal And Lignite	-0.0076	Beverages	-0.0234
Leather Footwear	-0.0095	Petroleum Products	-0.0429
Other Liv.St. Produ. & Gobar Gas	-0.0332	Motor Vehicles	-0.0626
Crude Petroleum	-0.0596	Paddy	-0.0892

Table 8(b). Output Growth due to One % Chang in Income Spent on the Sector

Output growth -urbanl poor		Output Growth -urban rich	
Milk And Milk Products	0.1525	Milk And Milk Products	0.0935
Paddy	0.0954	Readymade Garments	0.0670
Wheat	0.0572	Cotton Textiles	0.0293
Readymade Garments	0.0533	Paddy	0.0290
Fishing	0.0478	Fishing	0.0269
Soaps, Cosmetics & Glycerin	0.0392	Jems & Jewelry	0.0267
Edible Oils Other Than Vanaspati	0.0389	Fruits	0.0257
Vegetables	0.0384	Miscellaneous Textile Products	0.0256
Other Liv.St. Produ. & Gobar Gas	0.0382	Soaps, Cosmetics & Glycerin	0.0255
Cotton Textiles	0.0382	Poultry & Eggs	0.0248
Sugar	0.0366	Drugs And Medicines	0.0245
Pulses	0.0289	Wheat	0.0215
Miscellaneous Textile Products	0.0278	Communication Equipments	0.0215
Tobacco Products	0.0268	Edible Oils Other Than Vanaspati	0.0189
Fruits	0.0253	Vegetables	0.0158
Maize	0.0191	Sugar	0.0157
Jowar	0.0147	Leather Footwear	0.0144
Drugs And Medicines	0.0143	Tobacco Products	0.0141
Jems & Jewelry	0.0135	Plastic Products	0.0139
	0.0135	Pulses	0.0131
Rubber Products	0.0131	Rubber Products	0.0123
Bajra	0.0121	Electronic Equipments(Incl.Tv)	0.0117
Plastic Products	0.0091	Electrical Appliances	0.0108
Hydrogenated Oil(Vanaspati)	0.0083	Electrical Wires & Cables	0.0093
Electrical Appliances	0.0066	Medical, Precision&Optical Instru.S	0.0087
Natural Gas	0.0054	Hydrogenated Oil(Vanaspati)	0.0069
Communication Equipments	0.0053	Furniture And Fixtures-Wooden	0.0065
Bicycles, Cycle-Rickshaw	0.0052	Bicycles, Cycle-Rickshaw	0.0064
Woolen Textiles	0.0049	Bajra	0.0056
Electronic Equipments(Incl.Tv)	0.0046	Maize	0.0055
Beverages	0.0046	Jowar	0.0046
Furniture And Fixtures-Wooden	0.0044	Woolen Textiles	0.0038
Groundnut	0.0030	Coconut	0.0031
Other Transport Equipments	0.0028	Groundnut	0.0029
Medical, Precision&Optical Instru.S	0.0027	Batteries	0.0018
Coconut	0.0024	Gram	0.0018
Batteries	0.0023	Watches And Clocks	0.0016
Tobacco	0.0023	Other Transport Equipments	0.0012
Motor Cycles And Scooters	0.0023	Jute, Hemp, Mesta Textiles	0.0011
Electrical Wires & Cables	0.0015	Tobacco	0.0008
Watches And Clocks	0.0009	Coffee	0.0006
Petroleum Products	0.0007	Petroleum Products	0.0000
Jute, Hemp, Mesta Textiles	0.0006	Sugarcane	0.0000
Coffee	0.0003	Beverages	-0.0007
Paper, Paper Prods. & Newsprint	0.0000	Natural Gas	-0.0029
Crude Petroleum	-0.0011	Coal And Lignite	-0.0038
Poultry & Eggs	-0.0033	Motor Cycles And Scooters	-0.0088
Leather Footwear	-0.0148	Other Liv.St. Produ. & Gobar Gas	-0.0329
Coal And Lignite	-0.0157	Motor Vehicles	-0.1569
Gram	-0.0746	Crude Petroleum	-0.2861

Table 9(a). Employment Growth due to One % Chang in Income Spent on the Sector

Emp growth -rural poor		Emp Growth -rural rich	
Milk And Milk Products	1.7039	Crude Petroleum	0.5916
Fruits	0.3629	Milk And Milk Products	0.2029
Wheat	0.1866	Other Liv.St. Produ. & Gobar Gas	0.1242
Readymade Garments	0.1318	Readymade Garments	0.0798
Cotton Textiles	0.0876	Wheat	0.0606
Sugar	0.0820	Fruits	0.0600
Pulses	0.0740	Tobacco Products	0.0530
Vegetables	0.0724	Fishing	0.0465
Fishing	0.0686	Gram	0.0464
Soaps, Cosmetics & Glycerin	0.0522	Communication Equipments	0.0363
Paddy	0.0502	Sugar	0.0359
Edible Oils Other Than Vanaspati	0.0472	Woolen Textiles	0.0356
Rubber Products	0.0305	Cotton Textiles	0.0335
Maize	0.0294	Leather Footwear	0.0286
Tobacco Products	0.0278	Pulses	0.0282
Jowar	0.0210	Soaps, Cosmetics & Glycerin	0.0259
Motor Vehicles	0.0159	Natural Gas	0.0236
Miscellaneous Textile Products	0.0148	Vegetables	0.0216
Bajra	0.0122	Jems & Jewelry	0.0175
Tobacco	0.0064	Edible Oils Other Than Vanaspati	0.0164
Plastic Products	0.0063	Rubber Products	0.0161
Poultry & Eggs	0.0054	Plastic Products	0.0110
Drugs And Medicines	0.0048	Bajra	0.0092
Jems & Jewelry	0.0047	Drugs And Medicines	0.0092
Groundnut	0.0032	Medical, Precision&Optical Instru.S	0.0088
Coconut	0.0025	Maize	0.0086
Electrical Appliances	0.0025	Jowar	0.0078
Furniture And Fixtures-Wooden	0.0024	Electrical Wires & Cables	0.0074
Batteries	0.0021	Electrical Appliances	0.0054
Jute, Hemp, Mesta Textiles	0.0019	Bicycles, Cycle-Rickshaw	0.0052
Bicycles, Cycle-Rickshaw	0.0016	Electronic Equipments (Incl.Tv)	0.0048
Electrical Wires & Cables	0.0012	Coconut	0.0043
Electronic Equipments (Incl.Tv)	0.0012	Groundnut	0.0039
Other Transport Equipments	0.0012	Furniture And Fixtures-Wooden	0.0037
Paper, Paper Prods. & Newsprint	0.0011	Miscellaneous Textile Products	0.0027
Coffee	0.0010	Jute, Hemp, Mesta Textiles	0.0020
Medical, Precision&Optical Instru.S	0.0010	Other Transport Equipments	0.0017
Hydrogenated Oil (Vanaspati)	0.0008	Tobacco	0.0016
Communication Equipments	0.0006	Batteries	0.0015
Petroleum Products	0.0002	Watches And Clocks	0.0015
Watches And Clocks	0.0002	Coffee	0.0012
Motor Cycles And Scooters	0.0001	Poultry & Eggs	0.0011
Other Oilseeds	0.0000	Hydrogenated Oil (Vanaspati)	0.0008
Beverages	-0.0004	Paper, Paper Prods. & Newsprint	-0.0003
Woolen Textiles	-0.0049	Motor Cycles And Scooters	-0.0172
Gram	-0.0057	Coal And Lignite	-0.0229
Leather Footwear	-0.0185	Beverages	-0.0259
Coal And Lignite	-0.0413	Motor Vehicles	-0.0457
Other Liv.St. Produ. & Gobar Gas	-0.0597	Petroleum Products	-0.0897
Crude Petroleum	-0.3141	Paddy	-0.1332

Table 9(b). Employment Growth due to One % Chang in Income Spent on the Sector

Emp growth -urban poor		Emp Growth -urban rich	
Milk And Milk Products	0.3188	Milk And Milk Products	0.1431
Paddy	0.1922	Readymade Garments	0.1008
Tobacco Products	0.1167	Tobacco Products	0.0451
Wheat	0.1140	Fishing	0.0430
Readymade Garments	0.1095	Paddy	0.0429
Fishing	0.1041	Fruits	0.0413
Vegetables	0.0838	Cotton Textiles	0.0399
Other Liv.St. Produ. & Gobar Gas	0.0756	Poultry & Eggs	0.0395
Cotton Textiles	0.0711	Wheat	0.0314
Sugar	0.0634	Miscellaneous Textile Products	0.0290
Pulses	0.0590	Jems & Jewelry	0.0253
Fruits	0.0555	Vegetables	0.0252
Soaps, Cosmetics & Glycerin	0.0455	Leather Footwear	0.0226
Miscellaneous Textile Products	0.0430	Soaps, Cosmetics & Glycerin	0.0217
Edible Oils Other Than Vanaspati	0.0429	Drugs And Medicines	0.0211
Maize	0.0396	Sugar	0.0199
Natural Gas	0.0350	Pulses	0.0196
Jowar	0.0294	Communication Equipments	0.0185
Bajra	0.0246	Edible Oils Other Than Vanaspati	0.0153
Jems & Jewelry	0.0174	Plastic Products	0.0127
Drugs And Medicines	0.0168	Rubber Products	0.0111
Rubber Products	0.0162	Electrical Appliances	0.0106
Motor Vehicles	0.0133	Electronic Equipments (Incl.Tv)	0.0086
Plastic Products	0.0113	Electrical Wires & Cables	0.0085
Woolen Textiles	0.0091	Bajra	0.0084
Electrical Appliances	0.0088	Maize	0.0083
Hydrogenated Oil (Vanaspati)	0.0086	Furniture And Fixtures-Wooden	0.0080
Bicycles, Cycle-Rickshaw	0.0076	Medical, Precision&Optical Instru.S	0.0080
Furniture And Fixtures-Wooden	0.0075	Bicycles, Cycle-Rickshaw	0.0068
Beverages	0.0069	Jowar	0.0067
Groundnut	0.0064	Woolen Textiles	0.0052
Communication Equipments	0.0062	Hydrogenated Oil (Vanaspati)	0.0052
Tobacco	0.0048	Groundnut	0.0045
Electronic Equipments (Incl.Tv)	0.0046	Coconut	0.0044
Coconut	0.0046	Gram	0.0028
Other Transport Equipments	0.0045	Jute, Hemp, Mesta Textiles	0.0021
Medical, Precision&Optical Instru.S	0.0034	Watches And Clocks	0.0021
Batteries	0.0031	Batteries	0.0018
Motor Cycles And Scooters	0.0025	Other Transport Equipments	0.0014
Petroleum Products	0.0021	Tobacco	0.0012
Electrical Wires & Cables	0.0019	Coffee	0.0008
Jute, Hemp, Mesta Textiles	0.0016	Petroleum Products	0.0000
Watches And Clocks	0.0015	Paper, Paper Prods. & Newsprint	-0.0006
Coffee	0.0006	Beverages	-0.0007
Paper, Paper Prods. & Newsprint	0.0000	Motor Cycles And Scooters	-0.0071
Crude Petroleum	-0.0062	Natural Gas	-0.0141
Poultry & Eggs	-0.0072	Coal And Lignite	-0.0165
Leather Footwear	-0.0317	Other Liv.St. Produ. & Gobar Gas	-0.0477
Coal And Lignite	-0.0939	Motor Vehicles	-0.1131
Gram	-0.1599	Crude Petroleum	-1.2152

Table 10. Comparis on between Output Growth and Employment Growth

	Growth of Output									
Growth of Empl	Rural Poor									
Percentage	less than 0	0 to 0.001	0.001 to 0.005	0.005 to 0.01	0.010 to 0.015	0.015 to 0.05	0.05 to 0.1	0.1 to 0.5	0.5 to 1.0	1 & above
less than 0	8	0	0	0	0	0	0	0	0	0
0 to 0.001	0	7	0	0	0	0	0	0	0	0
0.001 to 0.005	0	4	9	0	0	0	0	0	0	0
0.005 to 0.01	0	0	2	1	0	0	0	0	0	0
0.010to 0.015	0	0	0	2	0	0	0	0	0	0
0.015 to 0.05	0	0	0	0	2	4	0	0	0	0
0.05 to 0.1	0	0	0	0	0	5	2	0	0	0
0.1to 0.5	0	0	0	0	0	0	1	2	0	0
0.5 to 1.0	0	0	0	0	0	0	0	0	0	0
1 & above	0	0	0	0	0	0	0	0	1	0
	Rural Rich									
less than 0	7	0	0	0	0	0	0	0	0	0
0 to 0.001	0	1	0	0	0	0	0	0	0	0
0.001 to 0.005	0	4	8	0	0	0	0	0	0	0
0.005 to 0.01	0	0	1	7	0	0	0	0	0	0
0.010to 0.015	0	0	0	0	1	0	0	0	0	0
0.015 to 0.05	0	0	0	0	2	12	0	0	0	0
0.05 to 0.1	0	0	0	0	0	3	1	0	0	0
0.1to 0.5	0	0	0	0	0	0	1	1	0	0
0.5 to 1.0	0	0	0	0	0	0	0	1	0	0
1 & above	0	0	0	0	0	0	0	0	0	0
	Urban Poor									
less than 0	6	0	0	0	0	0	0	0	0	0
0 to 0.001	0	1	0	0	0	0	0	0	0	0
0.001 to 0.005	0	3	8	0	0	0	0	0	0	0
0.005 to 0.01	0	0	4	4	0	0	0	0	0	0
0.010to 0.015	0	0	0	2	0	0	0	0	0	0
0.015 to 0.05	0	0	0	0	6	4	0	0	0	0
0.05 to 0.1	0	0	0	0	0	6	0	0	0	0
0.1to 0.5	0	0	0	0	0	2	3	1	0	0
0.5 to 1.0	0	0	0	0	0	0	0	0	0	0
1 & above	0	0	0	0	0	0	0	0	0	0
	Urban Rich									
less than 0	9	0	0	0	0	0	0	0	0	0
0 to 0.001	0	1	0	0	0	0	0	0	0	0
0.001 to 0.005	0	1	7	0	0	0	0	0	0	0
0.005 to 0.01	0	0	2	7	1	0	0	0	0	0
0.010to 0.015	0	0	0	0	3	0	0	0	0	0
0.015 to 0.05	0	0	0	0	3	14	0	0	0	0
0.05 to 0.1	0	0	0	0	0	0	0	0	0	0
0.1to 0.5	0	0	0	0	0	0	2	0	0	0
0.5 to 1.0	0	0	0	0	0	0	0	0	0	0
1 & above	0	0	0	0	0	0	0	0	0	0

5. Concluding Remarks

- There have been definite structural changes in the Indian economy in terms of shares in GDP of different sectors during post liberalization period.
- The tertiary sector grew much faster than other sectors while the Agricultural sector lost its importance.
- There is a wide variation in the growth of NSDP among the states. However, the pattern of growth in different sectors is almost the same.
- There is rise in employment during the latter phase of liberalization.
- Employment in manufacturing sector is better than in the tertiary sector as a whole, particularly during the latter period. However, in Transport and Banking sector, the employment situation is better.
- Employment elasticity is much higher in the manufacturing industry compared to that of other sectors. Employment elasticity in the tertiary sector total is not very high and it gains value only in the latter phase of liberalization.
- For durable consumer goods, the output growths due to spending of 1% increase of income of poor are lower compared to the rich people.
- It is expected because the proportion of consumption these goods to total by the poor is very low compared to the rich.
- Now if we compare the pattern of growth rates of total output due to changes in income for poor and rich it will be very different, however, the pattern is similar for rural and urban areas.
- The growth rates of employment for spending an incremental income in durable commodities are higher in case of rich people. It is interesting to note that in many cases when output growth is similar between two commodities, the employment growth is different.
- Appropriate policies on income distribution growth may lead to higher employment generation with high GDP growth.

References

Anthuvan VL. 2005. "Jobless Growth and Unemployment: A Global Phenomenon." *World Affairs*, Vol. 9, No. 1.

Cline, W.R. 1972. *Potential Effects of Income Redistribution on Growth.* New York: Praeger.

Deaton, A. and Irish, M. 1984. "Statistical Methods for Zero Expenditure in Households Budgets." *Journal of Public Economics*, Vol. 23.

Deaton, A. and Muellbauer, J. 1980. "An Almost Ideal Demand System." *American Economic Review*, Vol. 70.

Kaldor, N. 1956. "Alternative Theories of Distribution." *Review of Economic Studies*, Vol. 23.

Morley, S.A. and Jeffrey G. W. 1974. "Demand Distribution and Employment: The Case of Brazil." *Economic Development and Cultural Change*, Vol. 23, No.1.

Oded G. and Zeira, J. 1993. "Income Distribution and Macroeconomics." *The Review of Economic Studies,* Vol. 60, No. 1.

Stewart, J.R. 1977. "The Demand for Labour and the Stability of Income Distribution in Mexico." *International Economic Review*, Vol. 18, No. 2.

Stone, R. 1954. *Linear Expenditure System and Demand Analysis: An Application to the Pattern of British Demand*, Vol. 64.

Wan, G.H. 2003. "Using panel Data to Estimate Engel Functions: Food Consumption in China." *Applied Economic Letters*, Vol. 3.

Corporate Social Responsibility Investment and Social Objectives: An Examination on Social Welfare Investment of Chinese State Owned Enterprises

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1. Introduction

The theory of Corporate Social Responsibility (CSR) suggests that firms should be concerned with the interest of all stakeholders, rather than those of shareholders only. This gives rise to socially responsible activities. Although these activities do not directly affect profits in the short run, they are important for corporations to build good relations with all stakeholders; such as employees, customers, input suppliers, communities, and governments; that boosts the firm's performance.

In this paper, we investigate investment in social welfare facilities (dwelling houses and welfare facilities) undertaken by Chinese State Owned Enterprises (SOEs) during the period 1995-1999. This period covers most activities from the corporatization movement of Chinese SOEs, including the reform for divesting Chinese SOEs of social responsibilities. Restructuring of the ownership of Chinese SOEs' was only initiated in 1993 and by the end of 1999, about half of the industrial SOEs in China had transformed themselves into joint stock companies.[1] We analyze whether the social welfare investment behaviour of Chinese SOEs changes after the corporatization reform. More specifically, we examine whether social welfare investment undertaken by Chinese SOEs has become mainly profit-driven or whether social objectives still take priority over profit concerns in

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1) Source: OECD/ADB/DRC meeting on corporate governance of SOEs in China, 18-19 January 2000, Beijing.

motivating social welfare investment of Chinese SOEs.

The nature of social welfare investment undertaken by Chinese SOEs has been changing since the corporatization reform. Before the mid 1990s, Chinese SOEs' social welfare investment was undoubtedly and mainly driven by political concerns of the government. Then Chinese SOEs had no autonomy, but only obligations to provide social services to its employees without concern for profits. However, after the corporatization reform of SOEs, social welfare investment undertaken by Chinese SOEs has been neither fully obligatory nor purely driven by political concerns. Although still connected to politics due to centralised personnel selection and appointment system for large SOEs, the managers of Chinese SOEs are much more concerned with profits than before. There emerged some interesting features that are the reflections of the features of CSR investment undertaken by mature firms. Firstly, the Chinese central government has decentralised and delegated the decision-making authority on social welfare investment to SOEs. The targeted recipients of social welfare investment are no longer directly determined by the central government. Chinese SOEs have been enjoying autonomy in deciding whom their social services should cover. Consequently, SOEs are no longer being forced to conduct social welfare investment, and many SOEs have actually been voluntarily and deliberately providing some social services to certain targeted employees as an incentive scheme to motivate employees. This feature apparently brings in profit concerns to the decision‐making process of SOEs' social welfare investment. Secondly, the financing for this type of investment has been no longer provided by the government. SOEs have been relying mainly on internal funds and bank loans to finance their social welfare investment. Therefore the primary concern of SOEs' managers was with profitability because profits generate internal funds and finances the cost of borrowing for this type of investment. This feature merges SOEs' pro-profit activities with their social welfare investment.

The above-mentioned new features of social welfare investment of Chinese SOEs provide us with a very interesting platform to examine closely special features of Chinese SOEs during the transition period. Evidence is lacking regarding how the corporatization reform has changed the social welfare investment behaviour of Chinese SOEs. Although transition has brought profit concerns into social

welfare investment undertaken by Chinese SOEs, there are hardly any formal studies that provide evidence on whether social welfare investment undertaken by Chinese SOEs has become mainly profit-driven or whether social objectives are still dominant over profit concerns in motivating social welfare investment of Chinese SOEs.

A recent literature on Chinese SOE reform has been justifying the social function of SOEs during the transition process. For example, Bai *et al*. (2000) formulate a multi-task theory to justify the dominance of state ownership during the earlier period of transition. They argue that when a transition economy lacks social safety net providers, then the government will deliberately delay the privatization of SOEs and discount the ownership restructuring of SOEs so that they will continue to rely on SOEs to provide social welfare services on behalf of the state, in order to retain social stability. This sounds logical for China where the social security system is underdeveloped. According to the multi-task theory of SOEs (Bai *et al*. 2000), it is highly likely that Chinese SOEs, even though they were restructured, are still influenced by social objectives in conducting social welfare investments.

Our paper adds value to the multi-task theory of SOEs (Bai *et al*. 2000). Although theoretically appealing for reform of Chinese SOEs, the multi-task theory of SOEs has not been formally and directly tested.[2] The support to this theory has been mainly based on some casual observations during China's transition, e.g. redundant labour and non-performing state bank loans. In this paper, we conduct formal econometric analyses to test the multi-task theory of Chinese SOEs. In addition, we further test whether the impact of social objectives changes over time.

To achieve the above-mentioned research objectives, we present a simple theoretical model to illustrate how the presence of social objectives in the firm's objective function changes its investment behaviour. Our theoretical model accommodates special features of Chinese SOEs,

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2) Bai *et al*. (2005) in a recent working paper indirectly test the multi-task efficiency theory of public ownership by linking the probability of SOEs privatization to the affiliation of SOEs to different levels of governments. There they focus on the surplus labour and debt overhang of SOEs. Our paper differs from theirs in that we formally and directly explain the social welfare investment behaviour of the Chinese SOEs.

whose social welfare investment is driven by both social objectives and profit concerns. We then test the model prediction by analyzing an array of Chinese enterprises during the period of 1995-1999. Our empirical results indicate that social welfare investment undertaken by Chinese SOEs is still inefficient due to the lack of profit concerns in spite of the corporatization reform, which suggests that social objectives still remain dominant over profit concerns in motivating the SOEs' social welfare investment. However, we do obtain clear-cut evidence showing that social objectives become less important as time progresses.

The remainder of the paper is organised as follows. Section 2 provides background information on the reform of Chinese SOEs, focusing on their social function. In Section 3 we review the standard CSR literature. Section 4 provides an illustrative theoretical model that accommodates both social objectives and profit concerns in making CSR investment decision. Section 5 discusses some empirical issues. Section 6 presents empirical results showing that the social welfare investment of Chinese SOEs is still inefficient due to the lack of profit concerns, i.e. social objectives still remain dominant over profit concerns in motivating the SOEs' social welfare investment. Section 7 documents that the impact of social objectives declines over time. Section 8 concludes.

2. Reform of the Social Function of Chinese SOEs

The ultimate goal of Chinese industrial reform is to allow enterprises to survive and grow in a competitive market environment. Chinese SOEs were plagued with many problems that are rooted in the design of the central planned economy. In the 1950s the Chinese government chose the "Leap Forward" development strategy, where heavy industries were given priority at the cost of neglecting other sectors. The state set up a low basic wage policy for urban labourers, the majority of which was employed by SOEs (Lin *et al*. 1996). To compensate for low urban wages, SOEs were required to provide in-kind benefits for their employees, including housing, medical care facilities, schools, kindergartens, recreation facilities, etc. Since then and before the mid 1990s, Chinese SOEs had been carrying out dual

functions, being designed not only to produce and deliver revenue to the state but also to fulfill political objectives of the state, in particular to provide social welfare services to their employees on behalf of the state.

The enterprise reform that took place between the late 1970s and the mid 1990s focused on delegating the decision-making authority to the managers of SOEs, without changing the ownership structure. Naughton (1995) gives details about early measures to reform the SOEs in relation to profit retention and the contract responsibility system. Since the mid 1990s, the world has witnessed more earnest reforms of Chinese SOEs, including the reform of ownership structure. This ownership restructuring made the SOEs more comparable to enterprises in mature market economies as far as corporate governance issues are concerned. Chinese SOEs now have diverse (although still public-dominated) owners, and corporate governance has become the centre of management. The reform of SOEs has also subjected the rational of their social function to question. For example, the low-wage regime that previously underpinned extensive in-kind benefits provided by SOEs has been swept away due to the fact that the SOEs' managers now have discretion over wage determination. In addition, the introduction of temporal employment contracts and a huge rise in the number of lay-offs, together with rapid growth of non-SOEs mean that social welfare provision by SOEs no longer covers a vast majority of the urban labour force as they did in the past (Hussain 2000). In response to these changes, the social function of the Chinese SOEs is now said to be separated from its economic function, at least in theory. For example, the State Council regulation of 1998 was designed to divest SOEs of their responsibility for providing housing. Since then Chinese SOEs have been undergoing the process of selling the existing housing stock. However, due to the fact that the formation of a social security system in China has been lagging behind the pace of the overall economic transition, many Chinese SOEs are still bothered by various social burdens. Lin and Zhu (2001) provide descriptive survey statistics showing that 76% of the restructured SOEs had to carry partially or fully the social welfare obligations that they had shouldered for their workforce before the ownership restructuring reform, which implicitly supports the multi-task theory of SOEs reform (Bai *et al.* 2000).

Although social welfare investment of Chinese SOEs is still subject to the managers' political concerns, theoretically speaking this type of investment should become more and more profit-oriented due to the corporatization movement. Gu (2002) emphasized that due to the urban housing reform in 1998, the Chinese SOEs are becoming the owners of the welfare facilities invested by themselves. The decentralisation of decision-making authority to SOEs and the diversification of financing for SOEs' social welfare investment have changed the motives that drive SOEs' social welfare investment. However, as we mentioned before, although transition has brought profit concerns into social welfare investment undertaken by Chinese SOEs, there are hardly any formal studies that provide evidence on whether social welfare investment of Chinese SOEs has become mainly profit-driven or whether social objectives still remain dominant over profit concerns in motivating social welfare investment of Chinese SOEs.

3. Related CSR Literature

In this section we look at the standard CSR investment literature and review some related studies that discuss why firms should be involved in socially responsible activities.

Baron (2001) distinguishes different motivations for investing in CSR. He argues that the reasons why a modern corporation conducts CSR investment include (a) altruism, (b) profit maximization, and (c) external pressure, e.g. pressure such as from politicians, or consumer boycotts. Thus, according to Barron (2001), a firm's CSR investment can be driven by both profit concerns and external pressures from governments or politicians. However, in the absence of external pressure and convincing arguments for altruistic behaviour of corporations (rather than individuals), one could conclude that profit maximization is the main motivation for firms to be engaged in CSR. Navarro (1988) explicitly tests the profit maximization hypothesis in cases of charity-giving by corporations against the hypothesis that managers derive private benefits from charity-giving. Navarro concludes that profit maximization is an important motive driving corporations to offer charity.

As mentioned earlier, CSR investment is justified by stakeholder theory. According to Tirole (2001), in a stakeholder society, managers have to choose among multiple constituencies with competing or even conflicting interests. This raises the question whether maximizing the firm's value is still the objective of the firm. Jensen (2001) combines shareholder objectives with stakeholder theory and argues that the objective of the firm still is to maximize the firm's value in the long run. According to his enlightened value maximization "we cannot maximize the long-run market value of an organization if we ignore or mistreat any important constituency. We cannot create value without good relations with customers, employees, financial backers, suppliers, regulators, and communities" (Jenson, 2001, pp.16). Thus, investment in CSR creates firm value. The relationship between CSR investment and firm value is not monotonic, implying that there is an optimal level of CSR investment. In theory, the firm should choose this optimal level of CSR investment for the purpose of maximizing profits (Friedman 1970; Baron 2001). This optimal level is not always implemented by managers, however. Analyzing the largest 3, 000 US corporations, Barnea and Rubin (2006) conclude that managers tend to overinvest in CSR. They obtain private benefits from CSR investment, but pay little costs. Thus, firms may invest too much in CSR and destroy value by hurting the wealth of shareholders.

Summing up, the standard CSR literature agrees that the main motivation for investment in CSR is to improve financial performance. Modern corporations should choose a certain amount of CSR investment driven by profit maximization. However, there may be too much investment in CSR due to private or non-economic benefits from CSR investment, increasing agency costs and adversely affecting the value of the firm.

Chinese SOEs can be put into the standard CSR context on the ground that the motivation for conducting social welfare investment for Chinese SOEs is no longer purely political after years of transition. If profit concerns are also important in motivating Chinese SOEs in conducting social welfare investment, then social welfare investment of Chinese SOEs should share some common features predicted by the above-mentioned standard CSR investment theories.

4. The Model

In this section we present a theoretical model to describe a firm's CSR investment behaviour. The model accommodates not only profit motivation, which is commonly seen for firms in mature market economies, but also social objectives, which is a special feature of transition firms. This modelling strategy is particularly relevant for social welfare investment undertaken by Chinese SOEs because as we discussed earlier both social objectives and profit concerns are relevant to explaining the social welfare investment behaviour of Chinese SOEs.

We assume that the firm is maximizing the weighted average of operating profits and social contributions when making CSR investment decisions. The weight is the parameter assigned to social objectives. The firm's CSR investment behaviour is then determined by the following problem:

$$\text{Max} \quad E_0 \sum_{t=0}^{T} \rho^t \left[(1 - \gamma)\pi_t + \gamma SC_t \right] \tag{1}$$

$$\text{s.t.} \quad \pi_t = p_t F_t(K_t, L_t) - w_t L_t - p_t^I I_t - p_t G(I_t, K_t) \tag{2}$$

$$SC_t = p_t^I I_t \tag{3}$$

$$K_t = I_t + (1 - \delta)K_{t-1} \tag{4}$$

where E_0 is the expectations operator evaluated at time $t=0$; T is the time horizon; ρ is the discount rate of the firm; π_t is net operating profit in period t; SC_t is the social contribution and γ is the weight assigned to social objectives; $F_t(K_t, L_t)$ is output; K_t, L_t, and I_t are the beginning-of-period capital stock, the labour input, and the CSR investment of the firm at time t, respectively; w_t, p_t^I, and p_t are the nominal wage rate, the price of capital goods, and the output price for the period t; $G(I_t, K_t)$ is the cost function of adjusting the capital stock due to CSR investment; and δ is the constant depreciation rate of capital

Because CSR investment is non-productive, it does not directly enhance the output level through the increase in the productive

capital stock. However, CSR investment does affect the firm's profit in the long run. The CSR literature agrees that CSR investment may bring about future profit in various forms. For example, the firm may enjoy persistent market share due to customers' loyalty; the cost of production may be lower due to a trusting relationship between the firm and its employees. Given that the mechanisms through which CSR investment can bring about future profit are diverse and are not observable, we model the benefit of CSR investment regarding future profit by assuming that the firm's value will be increased by a proportion of its social contributions. Aside from its beneficial effects, CSR investment also affects profit in an opposite direction. For example, conducting CSR investment requires some productive resources, such as labour and administration, which may disturb the production process. Hence CSR investment enters into the adjustment costs function of capital. Because social welfare investment in our paper is a type of fixed assets investment, we also consider the dynamic identity of the capital stock in the model (equation (4)).

The above investment model (1)－(4) differs from the standard framework in the investment literature in that we assign a weight to social objectives in the firm's objective function and explicitly consider the firm's social objectives in addition to its profit concerns. Again this modelling strategy is particularly relevant for social welfare investment undertaken by Chinese SOEs, which is driven by both social objectives and profit concerns. If $ɣ>0$, the firm explicitly attaches value to CSR investment and has social objectives. The firm may be motivated by the following to explicitly have social objectives in its objective function: (a) the firms' owners may be altruistic; (b) CSR investment may increase future profit by improving relationships with stakeholders. For example, to motivate employees by providing them with welfare facilities; (c) there may be external pressure. For example, the government may exert political pressure on the firm and force it to have social objectives. Evidently, if $ɣ>0$ the firm will be biased towards CSR, and spend more on CSR in equilibrium than it would if $ɣ=0$, i.e. spend more than it would if it was purely profit-maximizing. For the purpose of the paper, we will concentrate on the case of $ɣ>0$. In the empirical analyses of this paper, we will examine the social welfare investment behaviour of Chinese SOEs. In the past and during the transition period, Chinese SOEs have been widely recognized to have

explicit social objectives, meaning $\gamma > 0$.

We will now show how the presence of social objectives in the firm's objective function changes the investment behaviour of the firm. The Lagrangian function of the maximization problem is:

$$L = E_0 \sum_{t=0}^{T} \rho^t \left[(1-\gamma)\left(p_t F_t(K_t, L_t) - w_t L_t - p_t^I I_t - p_t G(I_t, K_t)\right) \right.$$
$$\left. + \gamma p_t^I I_t + \lambda_t \left(I_t + (1-\delta)K_{t-1} - K_t\right) \right] \qquad (5)$$

where λ_{it} is the shadow price of capital for firm i at time t[3]. Thefirst order condition for CSR investment gives:

$$-(1-\gamma)p_t^I - (1-\gamma)p_t \frac{\partial G(I_t, K_t)}{\partial I_t} + \gamma p_t^I + \lambda_t = 0 \qquad (6)$$

Normalizing prices for simplicity, i.e. $p_t^I = p_t = 1$, and assuming the adjustment cost function of investment takes the form $G(I_t, K_t) = \frac{\alpha}{2}\left(\frac{I_t}{K_t} - c\right)^2 K_t$ (see Whited, 1992), then the first order condition becomes:

$$\frac{I_t}{K_t} = \left(c - \frac{1}{\alpha}\right) + \frac{1}{(1-\gamma)\alpha}\lambda_t + \frac{\gamma}{(1-\gamma)\alpha} \qquad (7)$$

We observe from (7) that when $\gamma = 0$ the first order condition of investment is reduced to a standard investment model, i.e. $\frac{I_t}{K_t} = \left(c - \frac{1}{\alpha}\right) + \frac{1}{\alpha}\lambda_t$. In this case the response of investment to the fundamental variable λ is determined by the parameter α, which is the parameter in the adjustment cost function that reflects the speed of adjustment. The larger the value of parameter α, the slower the adjustment process, hence higher the cost of adjusting the capital

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3) In empirical fixed investment models, the shadow price of capital is often replaced by an indicator of the investment fundamental, such as Tobin's q, sales growth, and profitability, ect.

stock involved, implying lower investment efficiency. However, the presence of a strictly positive social objective weight γ complicates the relationship between CSR investment and the fundamental variable λ. More specifically, the first order condition (7) shows that both γ and α affect how a firm's CSR investment responds to the fundamental variable. The impact of γ on the sensitivity of CSR investment to the fundamental variable is positive:

$$\frac{\partial^2 (I_t/K_t)}{\partial \lambda_t \partial \gamma} = \frac{1}{(1-\gamma)^2} \frac{1}{\alpha} > 0 \tag{8}$$

and the impact of α on the investment sensitivity is negative:

$$\frac{\partial^2 (I_t/K_t)}{\partial \lambda_t \partial \alpha} = -\frac{1}{(1-\gamma)\alpha^2} < 0 \tag{9}$$

Therefore there are two forces determining the sensitivity of CSR investment to the fundamental variable λ when social objectives are present in the firms' objective function. We refer to the first force as the social objective effect (8) and to the second as the inefficiency effect (9). The social objective effect (8) captures the importance of social objectives in motivating CSR investment, while the inefficiency effect (9) captures the importance of profit concerns in motivating CSR investment. The social objective effect (8) states that given a certain level of investment efficiency (α), stronger social objectives promote more CSR investment by making CSR investment more responsive to the investment fundamental variable. On the other hand, the inefficiency effect (9) states that given a certain level of social objectives, higher investment efficiency (smaller α) will make CSR investment more responsive to the investment fundamental variable. The speed of adjusting capital stock due to CSR investment (α) is determined by both technology and the motivation for investment. Given the technology, the firm that conducts CSR investment for profit will be more efficient in investment. Hence higher investment efficiency (smaller α) is associated with stronger profit concerns in motivating CSR investment, and vice versa.

Putting (8) and (9) together, the sensitivity of CSR investment to the fundamental variable λ is the net effect of the social objective effect and the inefficiency effect. Given a certain level of profit concerns (which is normal for a standard modern corporation) and given the same technology for all the firms, then the firms that have stronger social objectives should experience a larger sensitivity of CSR investment to the fundamental variable, i.e. the social objective effect (8) dominates the inefficiency effect (9). Otherwise, if the firm places no or too little weight on profit concerns when conducting CSR investment, even with the presence of social objectives (that are supposed to increase the investment sensitivity), it can be the case that the investment efficiency is so low that the inefficiency effect dominates the social objective effect, which results in a lower sensitivity of CSR investment to the fundamental variable.

5. Empirical Issues

5.1. Empirical specifications

In empirical analyses, we examine the sensitivity of social welfare investment to the investment fundamental for Chinese SOEs. The purpose is to infer whether the SOEs' social welfare investment has become mainly profit-driven or whether social objectives still remain dominant over profit concerns in motivating the SOEs' social welfare investment. According to our theoretical model, the investment sensitivity is determined by two forces, i.e. the social objective effect (8) and the inefficiency effect (9). Given the technology, if the firm's social welfare investment is driven by profit concerns to the extent that guarantees a certain level of investment efficiency, then stronger social objectives will enhance the sensitivity of investment to the fundamental variable. On the other hand, if profit concerns are not important in motivating social welfare investment, investment efficiency will be too low. Even with the presence of stronger social objectives, it can be the case that the investment efficiency is so low that the inefficiency effect dominates the social objective effect, which results in a lower investment sensitivity.

In the empirical analyses, we test the theoretical model by using some previously observed indicators of social objectives in Chinese

firms, including: (a) whether the firm is SOE or not (SOE); (b) how much state equity is in the firm (State Equity); and (c) How large is the social burden of the firm perceived by the managers (Social Burden). It is common knowledge that in a transition economy, such as China, the firms that are SOEs, which have a larger proportion of state assets in the firm, and which have heavier social burdens, have stronger social objectives. According to our model prediction, these firms who have stronger social objectives should experience larger investment sensitivity provided that their investments are also driven by profit concerns to the extent that guarantees a certain level of investment efficiency. However, if the investment sensitivity decreases with stronger social objectives, then we can infer that profit concerns are not important enough in motivating the social welfare investment undertaken by these firms, i.e. social objectives still remain dominant over profit concerns.

It is important to mention that although our primary interest is in the social welfare investment behaviour of Chinese SOEs, in the empirical analyses we include a group of non-SOEs from China, which enables us to use the observed indicators of social objectives mentioned in the last paragraph. We assume that the Chinese SOEs have a value of weight assigned to social objective (γ) that is greater than or equal to that of non-SOEs. We also assume that both SOEs and non-SOEs are exposed to the same technology in conducting CSR investment. If the SOEs are equally motivated by profit concerns in making social welfare investment as the non-SOEs, then our model predicts that SOEs should have a larger sensitivity of social welfare investment to the fundamental variable than non-SOEs. However, if instead the inefficiency effect is dominant over the social objective effect for SOEs, then SOEs' social welfare investment becomes less responsive to the fundamental variable even with the presence of stronger social objectives. Assuming that the state of technology faced by SOEs and non-SOEs is the same, the inefficiency of SOEs' social welfare investment itself could most likely be explained by the fact that the SOEs' social welfare investment still lacks profit concerns, i.e. social objectives are still dominant over profit concerns in motivating the SOEs' social welfare investment.

We estimate the following empirical investment equation:

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + e_{it} \tag{10}$$

where I_{it} represents social welfare investment of firm i at time t; K_{it} is the capital stock of firm i at the beginning of period t; f_i and f_t are firm and time effects; π_{it} indicates net profit; S_{it} is sales (turnover); SOE_i is a dummy variable for being a SOE or not; and e_{it} is an error term. We use the profitability of the firm (return to sales) as proxy for the investment fundamental λ in the empirical investment model. Estimating (10), we are particularly interested in the interactive term between the investment fundamental (profitability) and the SOE dummy because it reflects how being an SOE affects the sensitivity of social welfare investment to the fundamental variable. We add profitability and the SOE dummy as separate explanatory variables in the empirical model (10) to control for their own effects, which enables us to obtain the pure interactive effect between profitability and the SOE dummy on social welfare investment. From (10) we have:

$$\frac{\partial^2 (I/K)_{it}}{\partial (\pi/S)_{it}\, \partial SOE_i} = \beta_2 \tag{11}$$

The coefficient β_2 captures the impact of being an SOE on the investment sensitivity. If the estimate of β_2 is significantly negative, we can conclude that social welfare investment undertaken by SOEs is less responsive to the investment fundamental variable than non-SOEs, and then infer that SOEs' social welfare investment is less efficient than that of Non-SOEs, because the inefficient effect (9) dominates the social objective effect (8) for Chinese SOEs. We believe that the low efficiency of the social welfare investment of Chinese SOEs is due to the lack of profit concerns.

As we mentioned earlier, social welfare investment undertaken by Chinese SOEs was used in the past to compensate for low wages in urban China. To see whether this is still the case after restructuring, in another specification we consider the potential effect of wages on social welfare investment:

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + \beta_4\left(\frac{W}{S}\right)_{it} + e_{it} \quad (12)$$

where W_{it} is the total wage expenditure of firm i in period t. Further, in an alternative specification, we control for possibility of persistent investment. Current year's social welfare investment could be affected by past investment. To control for this effect, we include the one-year-lagged social welfare investment scaled by the capital stock in (10) and (12), respectively. The dynamic investment equations are:

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + \beta_4\left(\frac{I}{K}\right)_{i,t-1} + e_{it} \quad (13)$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i$$
$$+ \beta_4\left(\frac{W}{S}\right)_{it} + \beta_5\left(\frac{I}{K}\right)_{i,t-1} + e_{it} \quad (14)$$

The empirical investment equations (10), (12), (13), and (14) are first estimated by using the SOE dummy, interpreting being a SOE as an indicator of social objectives. To check robustness, we will also use two other indicators: State Equity (SE), and Social Burden (SB) perceived by the managers of the firm (for details see below).

5.2. Data

The data set we use is based on the *Chinese Enterprise Survey*, a survey of 800 Chinese enterprises covering the period 1995-1999. This survey was sponsored by a consortium of researchers from Mainland China, Hong Kong, and the U.S. and was conducted in early 2000 to obtain information on a mixture of SOEs and non-SOEs. Using this data set, we construct the following variables:

social welfare investment *(I)* is the total amount of fixed assets investment in dwelling houses and welfare facilities;

capital stock *(K)* is the book value of total assets;

net profit *(π)* is the difference between revenue and costs;

sales *(S)* is the product of output price and products sold;

wages *(W)* is the total wage expenditure;

SOE *(SOE)* is a dummy variable indicating whether a sample firm is a SOE *(SOE=1)* or not *(SOE=0)*;

State Equity *(SE)* is the ratio of state equity to total equity of the firm;

Social Burden *(SB)* is the manager's subjective assessment of social burdens in his firm in the year 2000 as obtained in the survey *(SB*=1 if there are no social burdens, *SB*=2 if part of social burdens remained; *SB* =3 if the entire social burdens remained).

The data set covers a stratified sample of Chinese enterprises. All variables are reported on an annual basis. We restrict attention to 755 enterprises for which relevant data are available over the entire sample period, thus constructing a panel of 755 enterprises for the period 1995-1999. This panel contains 209 enterprises from *Jiangsu* province (East China), 199 from *Jilin* province (Northeast China), 170 from *Shanxi* province (North China), and 177 from *Sichuan* province (Southwest China). The industry distribution of the panel is as follows: of the 755 enterprises, 57 are in the mining or utility industry, 188 in light manufacturing, 241 in heavy manufacturing, 185 in the chemical industry, and 84 in "others". There are 426 SOEs and 329 non-SOEs in the panel. Table 1 presents some descriptive statistic of the variables used, and correlation statistics are presented in Table 2.

Table 1. Summary Statistics

Variables	Mean	Median	Std. Dev.	Skewness	Kurtosis	Obs.
I/K	0.0017	0	0.0050	5.7114	51.2404	3813
π/S	0.9209	0.8489	0.5706	1.2758	6.3220	3813
SOE	0.5584	1	0.4966	-0.2350	1.0552	3813
SE	0.5408	0.8287	0.4804	-0.1913	1.0946	3813
SB	1.3682	1	0.5485	1.1549	3.3348	3813
W/S	0.1389	0.0911	0.4080	35.7211	1645.78	3813

Notes:

(1) Data source: *Chinese Enterprise Survey (1995-1999)*.

(2) Explanations of variables:

I/K : The ratio of fixed asset investment in dwelling houses and welfare facilities to the capital stock. The capital stock is measured by total assets of the firm.

π/S : The ratio of net profit to sales.

SOE : Dummy variable for SOEs, =1 if an enterprise is a SOE, and 0 otherwise.

SE : The ratio of state equity capital to equity capital.

SB : The manager's subjective assessment of the social burdens in his enterprise in year 2000 =1 if no such burdens at all, 2 if part of the burdens still remained, and 3 if the entire burdens still remained.

W/S : The ratio of total wage expenditure to sales.

Table 2. Correlation Statistics

	(I/K)	π/S	SOE	SE	SB
π/S	0.0103				
	(0.5705)				
SOE	0.0371**	0.4087***			
	(0.0404)	(0.0000)			
SE	0.0408**	0.4127***	0.9698***		
	(0.0243)	(0.0000)	(0.0000)		
SB	0.0152	0.1482***	0.4045***	0.4062***	
	(0.4028)	(0.0000)	(0.0000)	(0.0000)	
W/S	-0.0039	-0.2111***	-0.1403***	-0.1399***	-0.0689***
	(0.8315)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Notes:

(1) Data source: *Chinese Enterprise Survey (1995-1999)*.

(2) *** and ** denote significance at the 1% and 5% level respectively.

(3) The p-values are in parentheses.

(4) Explanations of variables: see notes for Table 1.

5.3. Estimation method

Social welfare investment by corporations is affected by profitability, but in turn a firm's profitability may also be affected by its social welfare investment. Similar reasoning applies to both sales and wage expenditure. Considering these endogeneity problems, we use the Generalized Methods of Moments (GMM) since this is likely to be the most efficient estimation procedure. We estimate our model using the "xtabond2" routine in STATA, and adopt the system GMM estimation procedure proposed by Blundell and Bond (1998). In this procedure, moment conditions for equations in first differences are combined with moment conditions for equations in levels to compute the optimal weighting matrix that provides consistent system GMM estimators. In all estimations, we control for time effects by adding time dummies for the years 1996-1999, and add industry dummies. In the estimations we use all available lagged observations for the explanatory variables as the instruments for the firms-differenced equations (with some adjustments when necessary). Instruments used in the level equations in the system GMM estimations are the lagged-one first differences of the explanatory variables. Both time and industry dummies are used as additional instruments.

As linear GMM estimators, system GMM estimators have one- and two-step variants. Though more efficient, the two-step estimates of the standard errors tend to be severely biased downward (Arellano and Bond 1991; Blundell and Bond 1998). The estimation method adopted in the current paper allows for a finite-sample correction to the two-step covariance matrix derived by Windmeijer (2005), which can make two-step robust more efficient than one-step robust, especially for the system GMM estimation.

6. Evidence: Social Objectives still Remain Dominant over Profit Concerns in Motivating the SOEs' Social Welfare Investment

We first use the SOE dummy as an indicator of social objectives in the firm. The results of estimating empirical models (10), (12), (13), and (14) are reported in Table 3. The four empirical specifications

produce consistent and clear-cut results. First, we observe that social welfare investment is positively and significantly associated with the profitability of the firm (the estimate of β_1 is significantly positive). Second, the estimate of β_2 for the interaction between the SOE dummy and the investment fundamental (profitability) is significantly negative in all specifications. This indicates that being an SOE reduces the response of social welfare investment to the fundamental variable. According to the out theoretical model, if the estimated investment sensitivity decreases for the firms that have stronger social objectives, then it must be true that the inefficiency effect (9) is dominant over the social objective effect (8), suggesting that these firms invest in social welfare facilities with low efficiency. Given the same technology, the low investment efficiency can mostly be explained by the lack of profit concerns in conducting social welfare investment. Hence, we can infer that the social welfare investment of Chinese SOEs is still inefficient due to the lack of profit concerns, i.e social objectives still dominant over profit concerns in motivating the SOEs' social welfare investment. Third, the estimate of β_3 for the SOE dummy is significantly positive in all specifications. This is consistent with the literature on Chinese SOEs which argues that social welfare investment is positively related to social objectives.

Table 3. Determinants of Social Welfare Investment in China, with the SOE Dummy as the Possible Social Objective Indicator

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + \beta_4\left(\frac{W}{S}\right)_{it} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + \beta_4\left(\frac{I}{K}\right)_{i,t-1} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + \beta_4\left(\frac{W}{S}\right)_{it} + \beta_5\left(\frac{I}{K}\right)_{i,t-1} + e_{it}$$

	(1)	(2)	(3)	(4)
$(\pi/S)_t$	0.0028**	0.0024***	0.0025*	0.0022**
	(2.45)	(2.75)	(1.78)	(2.34)
$(\pi/S)_t * SOE$	-0.0032**	-0.0028***	-0.0027*	-0.0025**
	(-2.57)	(-2.82)	(-1.83)	(-2.41)

Table 3. Coutinued

	(1)	(2)	(3)	(4)
SOE	0.0026***	0.0023***	0.0021**	0.0020***
	(2.87)	(3.20)	(2.13)	(2.88)
$(W/S)_t$		-0.00002		-0.00002
		(-0.16)		(-0.25)
$(I/K)_{t-1}$			0.0697*	0.0660**
			(1.83)	(2.00)
m_1	-5.53	-5.51	-4.96	-5.13
m_2	-0.81	-0.82	-0.95	-0.97
Wald test Chi-square	$H_0 : \beta_1 = 0$ 6.02	$H_0 : \beta_1 = 0$ 7.55	$H_0 : \beta_1 = 0$ 3.16	$H_0 : \beta_1 = 0$ 5.48
	$H_0 : \beta_2 = 0$ 6.59	$H_0 : \beta_2 = 0$ 7.94	$H_0 : \beta_2 = 0$ 3.34	$H_0 : \beta_2 = 0$ 5.80
	$H_0 : \beta_3 = 0$ 8.21	$H_0 : \beta_3 = 0$ 10.22	$H_0 : \beta_3 = 0$ 4.56	$H_0 : \beta_3 = 0$ 8.28
Hansen test	7.93(16)	14.98(24)	28.58(24)	32.91(32)
Obs.	3813	3813	3049	3049
Instruments used in the first difference equations	$(\pi/S)_{t-2....}$ $((\pi/S)*SOE)_{t-2}$ SOE	$(\pi/S)_{t-2....}$ $((\pi/S)*SOE)_{t-2}$ SOE $(W/S)_{t-2.....}$	$(\pi/S)_{t-2....}$ $((\pi/S)*SOE)_{t-2}$ SOE $(I/K)_{t-2.....}$	$(\pi/S)_{t-2....}$ $((\pi/S)*SOE)_{t-2}$ SOE $(W/S)_{t-2.....}$ $(I/K)_{t-2.....}$

Notes:
(1) Data source: *Chinese Enterprise Survey (1995-1999)*.
(2) The two-step estimates with robust test statistics are reported.
(3) Finite-sample corrected t-statistics are in parentheses.
(4) Hansen(k): test of the overidentifying restrictions, asymptotically distributed as Chi-square(k) under the null.
(5) Time and industry effects are controlled in all estimations by adding time dummies from 1996-1999 (year 1995 as the benchmark) and light manufacturing, heavy manufacturing, chemical, and other industries dummies (mining and utility industry as the benchmark). These time and industry dummies are also used as additional instruments.
(6) Instruments used in the level equations in the system GMM estimations are the lagged-one first differences of the explanatory variables.
(7) ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.
(8) Explanations of variables: see notes for Table 1.

Note that Table 3 shows that the estimates presented there meet the necessary tests. The test statistic for the absence of first-order serial correlation in the first-differenced residuals (m_1) is highly significant with a negative sign in all cases, indicating that the disturbances e_{it} are not serially correlated. The test statistic of second-order correlation (m_2) is not significant, confirming no serial correlation in the error term. The Hansen test supports the validity of the instruments used in the estimation.

To check the robustness of these results, we consider several robustness checks. First, we proxy for social objectives by two other variables, i.e. state equity and social burden. Second, we consider the Tobit estimation, taking into account that not all firms in our sample invested in social welfare facilities in each year.

We now use state equity *(SE)* to proxy for social objectives in the firm. Thus, we replace the *SOE* dummy by the variable *SE* in equations (10), (12), (13), and (14). The estimation results are displayed in Table 4. We find that the estimate of β_1 is significantly positive in three out of four specifications. The estimate of β_2 is significantly negative in two of the specifications, both when wage expenditure is controlled (column 2) and when wage and investment persistence are controlled (column 4), and the estimate of β_3 is significantly positive in these specifications. This indicates that a larger proportion of state equity in the firm induces less responsiveness of the firm's social welfare investment to the fundamental variable, implying that social welfare investment undertaken by the firms that have higher state ownership (hence stronger social objectives) is less efficient due to the lack of profit concerns, suggesting that social objectives still remain dominant over profit concerns in motivating the SOEs' social welfare investment undertaken by these firms. This result is in line with those found by using the SOE dummy shown in Table 3. We also acknowledge that the state equity variable *SE* is strongly correlated with the SOE dummy (see Table 2).

Table 4. Determinants of Social Welfare Investment in China, with State Equity as the Possible Social Objective Indicator

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_3 SE_i + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_3 SE_i + \beta_4\left(\frac{W}{S}\right)_{it} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_3 SE_i + \beta_4\left(\frac{I}{K}\right)_{i,t-1} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_3 SE_i + \beta_4\left(\frac{W}{S}\right)_{it} + \beta_5\left(\frac{I}{K}\right)_{i,t-1} + e_{it}$$

	(1)	(2)	(3)	(4)
$(\pi/S)_t$	0.0016*	0.0017**	0.0010	0.0012*
	(1.78)	(2.02)	(1.20)	(1.66)
$(\pi/S)_t * SE$	-0.01003	-0.0021**	-0.0018	-0.0021**
	(-1.16)	(-2.27)	(-1.56)	(-2.58)
SE	0.0008	0.0021*	0.0024	0.0027**
	(0.48)	(1.70)	(1.56)	(2.39)
$(W/S)_t$		-.00003		-0.00003
		(-0.57)		(-0.60)
$(I/K)_{t-1}$			0.0840**	0.0715**
			(2.14)	(2.13)
m_1	-5.50	-5.50	-5.03	-5.14
m_2	-0.84	-0.83	-0.90	-0.94
Wald test Chi-square	$H_0: \beta_1 = 0$ 3.18	$H_0: \beta_1 = 0$ 4.10	$H_0: \beta_1 = 0$ 1.44	$H_0: \beta_1 = 0$ 2.74
	$H_0: \beta_2 = 0$ 1.35	$H_0: \beta_2 = 0$ 5.15	$H_0: \beta_2 = 0$ 2.44	$H_0: \beta_2 = 0$ 6.67
	$H_0: \beta_3 = 0$ 0.23	$H_0: \beta_3 = 0$ 2.89	$H_0: \beta_3 = 0$ 2.43	$H_0: \beta_3 = 0$ 5.73
Hansen test	17.95(24)	28.11(32)	36.82(32)	45.04(40)
Obs.	3813	3813	3049	3049
Instruments used in the first difference equations	$(\pi/S)_{t-2.....}$ $((\pi/S)*SE)_{t-2......}$ SE	$(\pi/S)_{t-2.....}$ $((\pi/S)*SE)_{t-2......}$ SE $(W/S)_{t-2.....}$	$(\pi/S)_{t-2.....}$ $((\pi/S)*SE)_{t-2......}$ SE $(I/K)_{t-2.....}$	$(\pi/S)_{t-2.....}$ $((\pi/S)*SE)_{t-2......}$ SE $(W/S)_{t-2.....}$ $(I/K)_{t-2.....}$

Notes:
(1) Data source: *Chinese Enterprise Survey (1995-1999)*.

(2) The two-step estimates with robust test statistics are reported.
(3) Finite-sample corrected t-statistics are in parentheses.
(4) Hansen(k): test of the overidentifying restrictions, asymptotically distributed as Chi-square(k) under the null.
(5) Time and industry effects are controlled in all estimations by adding time dummies from 1996-1999 (year 1995 as the benchmark) and light manufacturing, heavy manufacturing, chemical, and other industries dummies (mining and utility industry as the benchmark). These time and industry dummies are also used as additional instruments.
(6) Instruments used in the level equations in the system GMM estimations are the lagged-one first differences of the explanatory variables.
(7) ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.
(8) Explanations of variables: see notes for Table 1.

Next we consider using social burden *(SB)* perceived by the managers of a firm as proxy for social objectives. The correlation between this variable and the SOE dummy is much weaker. The estimation results are shown in Table 5. The estimations in two of the specifications (columns (3) and (4) in the table) indicate that social welfare investment undertaken by the firms with heavier social burdens is less efficient due to the lack of profit concerns, implying that social objectives are still dominant over profit concerns in motivating the social welfare investment undertaken by these firms.

Table 5. Determinants of Social Welfare Investment in China, with Social Burdens Perceived by the Managers as the Possible Social Objective Indicator

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SB_i + \beta_3 SB_i + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SB_i + \beta_3 SB_i + \beta_4\left(\frac{W}{S}\right)_{it} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SB_i + \beta_3 SB_i + \beta_4\left(\frac{I}{K}\right)_{i,t-1} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SB_i + \beta_3 SB_i + \beta_4\left(\frac{W}{S}\right)_{it} + \beta_5\left(\frac{I}{K}\right)_{i,t-1} + e_{it}$$

	(1)	(2)	(3)	(4)
$(\pi/S)_t$	0.0015	0.0029**	0.0048**	0.0039***
	(0.81)	(1.98)	(2.07)	(3.27)

Table 5. Coutinued

	(1)	(2)	(3)	(4)
$(\pi/S)_t * SB$	-0.0007	-0.0018	-0.0033*	-0.0027***
	(-0.47)	(-1.61)	(-1.87)	(-2.80)
SB	0.0006	0.0023	0.0046*	0.0037***
	(0.28)	(1.49)	(1.74)	(2.68)
$(W/S)_t$		-0.0001		-0.00003
		(-0.57)		(-0.49)
$(I/K)_{t-1}$			0.0693	0.0571*
			(1.64)	(1.68)
m_1	-5.48	-5.50	-4.88	-5.04
m_2	-0.85	-0.82	-0.87	-0.96
Wald test Chi-square	$H_0 : \beta_1 = 0$ 0.65	$H_0 : \beta_1 = 0$ 3.91	$H_0 : \beta_1 = 0$ 4.30	$H_0 : \beta_1 = 0$ 10.72
	$H_0 : \beta_2 = 0$ 0.22	$H_0 : \beta_2 = 0$ 2.59	$H_0 : \beta_2 = 0$ 3.49	$H_0 : \beta_2 = 0$ 7.82
	$H_0 : \beta_3 = 0$ 0.08	$H_0 : \beta_3 = 0$ 2.21	$H_0 : \beta_3 = 0$ 3.01	$H_0 : \beta_3 = 0$ 7.18
Hansen test	18.47(19)	25.78(27)	32.01(26)	39.33(34)
Obs.	3813	3813	3049	3049
Instruments used in the first difference equations	$(\pi/S)_{t-2\dots}$ $((\pi/S)*SB)_{t-2\dots}$ SB	$(\pi/S)_{t-2\dots}$ $((\pi/S)*SB)_{t-2\dots}$ SB $(W/S)_{t-2\dots}$	$(\pi/S)_{t-2\dots}$ $((\pi/S)*SB)_{t-2\dots}$ SB $(I/K)_{t-2\dots}$	$(\pi/S)_{t-2\dots}$ $((\pi/S)*SB)_{t-2\dots}$ SB $(W/S)_{t-2\dots}$ $(I/K)_{t-2\dots}$

Notes:
(1) Data source: *Chinese Enterprise Survey (1995-1999)*.
(2) The two-step estimates with robust test statistics are reported.
(3) Finite-sample corrected t-statistics are in parentheses.
(4) Hansen(k): test of the overidentifying restrictions, asymptotically distributed as Chi-square(k) under the null.
(5) Time and industry effects are controlled in all estimations by adding time dummies from 1996-1999 (year 1995 as the benchmark) and light manufacturing, heavy manufacturing, chemical, and other industries dummies (mining and utility industry as the benchmark). These time and industry dummies are also used as additional instruments.
(6) Instruments used in the level equations in the system GMM estimations are the lagged-one first differences of the explanatory variables.
(7) ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.
(8) Explanations of variables: see notes for Table 1.

Given that there are many non-SOEs in our sample who did not undertake dwelling house and welfare facilities investment every year during the sample period, the data on the investment ratio are truncated. This may bias our GMM estimation results, especially since the median of the data is zero. Therefore, we conduct another robustness check on the results using Tobit estimations. We use the Xttobit routine in STATA to run the random effect Tobit models for the specifications (10), (12), (13), and (14). Although this does not allow us to successfully estimate all four specifications (probably due to a problem regarding the weighting matrix in the maximum likelihood estimation), we obtain some informative results that lend support to our GMM estimation results. The Tobit estimation results are displayed in Table 6. The overall picture is consistent with that provided by our GMM estimation results. First, the investment fundamental, i.e. profitability, is positively related to the investment ratio. Second, the estimated coefficient for the interaction between the proxy for social objectives (the SOE dummy, state equity, or social burden) and profitability is negative (but significantly so in particular when considering social burden). Third, the estimated coefficient of the proxy for social objectives is significantly positive. These results once again support the notion that social welfare investment undertaken by Chinese enterprises that are SOEs, that have higher state equity, and that have heavier social burdens is inefficient due to the lack of profit concerns, i.e. social objectives still remain dominant over profit concerns in motivating social welfare investment undertaken by these firms.

Table 6. Tobit Estimation Results

Social objective determinant		$(\pi/S)_t$	$(\pi/S)_t$ * determinant	Determinant	$(W/S)_t$	$(I/K)_{t-1}$	Chi-square (p-value)	observations	% Obs. not censored
SOE dummy	(1)	na	na	na			na	na	na
	(2)	0.0017**	-0.0025**	0.0065***	-0.0002		73.32	3813	26.01%
		(1.91)	(-2.16)	(5.25)	(-0.20)		(0.00)		
	(3)	0.0015**	-0.0014	0.0041***		0.3898***	0.15	3049	24.40%
		(1.68)	(-1.30)	(3.39)		(7.73)	(0.35)		
	(4)	0.0014	-0.0014	0.0040***	-0.0004	0.3903***	0.14	3049	24.40%
		(1.54)	(-1.24)	(3.29)	(-0.42)	(7.74)	(0.35)		

Table 6. Coutinued

Social objective determinant		$(\pi/S)_t$	$(\pi/S)_t$ * determinant	Determinant	$(W/S)_t$	$(I/K)_{t-1}$	Chi-square (p-value)	observations	% Obs. not censored
State equity	(5)	0.0023**	-0.0037**	0.0074***			407.94	3813	26.01%
		(1.65)	(-2.17)	(3.71)			(0.00)		
	(6)	na	na	na	na		na	na	na
	(7)	0.0012	-0.0012	0.0042***		0.3897***	0.15	3049	24.40%
		(1.40)	(-1.08)	(3.39)		(7.72)	(0.35)		
	(8)	0.0011	-0.0012	0.0041***	-0.0004	0.3902***	0.14	3049	24.40%
		(1.26)	(-1.02)	(3.30)	(-0.42)	(7.73)	(0.35)		
Social burden	(9)	-0.0048***	-0.0026***	0.0045***			74.40	3813	26.01%
		(3.38)	(-2.66)	(4.05)			(0.00)		
	(10)	0.0063***	-0.0036***	0.0053***	-0.0045		677.83	3813	26.01%
		(2.84)	(-2.40)	(3.17)	(-1.48)		(0.00)		
	(11)	0.0036***	-0.0016**	0.0029***		0.3895***	0.18	3049	24.40%
		(2.62)	(-1.72)	(2.66)		(7.76)	(0.37)		
	(12)	0.0034***	-0.0016**	0.0029***	-0.0008	0.3902***	0.17	3049	24.40%
		(2.47)	(-1.68)	(2.61)	(-0.62)	(7.77)	(0.33)		

Notes:
(1) Data source: *Chinese Enterprise Survey (1995-1999)*.
(2) "na" indicates not being able to obtain the estimation results
(3) Z-statistics are in parentheses.
(4) Chi-square (p-value) is the likelihood ratio test on the percent contribution of the panel-level variance component to the total variance. A significant Chi-square test statistics indicates that the panel level variance component is important and that the panel estimator differs from the pooled estimator.
(5) Time and industry effects are controlled in all estimations by adding time dummies from 1996-1999 (year 1995 as the benchmark) and light manufacturing, heavy manufacturing, chemical, and other industries dummies (mining and utility industry as the benchmark).
(6) "Determinant" in columns 4 and 5 should be replaced by the corresponding (possbile) social objective determinant used in the estimations. They are the SOE dummy, state equity, and social burden, respectively.
(7) ***, ** denote significance at the 1% and 5% level, respectively.
(8) Explanations of variables: see notes for Table 1.

7. Evidence: Changes in the Impact of Social Objectives over Time

In the previous section we found that social welfare investment undertaken by Chinese firms that have stronger social objectives is inefficient due to the lack of profit concerns, i.e. social objectives are still dominant over profit concerns in motivating social welfare investment undertaken by these firms. This result lends support to the multi-task theory of Chinese SOEs (Bai *et al.* 2000). As far as social welfare investment is concerned, an average Chinese SOE, despite being restructured into joint stock cooperation, is still functioning as a social welfare provider on behalf of the government at least to some extent. However, we wonder whether the SOEs reform and the development of the whole market system in China mitigate the impact of social objectives. In this section we explicitly test the change in the impact of social objectives on social welfare investment over time. We modified the empirical model (10) by introducing the interaction term between the relevant variables and a time trend:

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i$$

$$+ \beta_4 Time * \left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_5 Time * SOE_i + e_{it} \tag{15}$$

In the estimations we check the robustness by controlling for other variables used in the previous section, i.e. by controlling for the wage ratio and the lagged-one investment ratio. Besides using the SOE dummy, we also use social equity and social burden as the proxy for social objectives as we did in the last section. Using this empirical specification we are particularly interested in how the impact of social objectives changes along with the passage of time:

$$\frac{\partial^2 (I/K)_{it}}{\partial (\pi/S)_{it} \partial SOE_i} = \beta_2 + \beta_4 Time \tag{16}$$

Based on (16) we are able to see how the impact of being a SOE on investment sensitivity changes over time. If the estimated coefficient

of β_2 remains significantly negative (consistent with what we found for β_2 in the previous section), and the estimated coefficient for β_4 is significantly positive, then in the long run and as time passes, the impact of social objectives on investment sensitivity declines and when time goes infinite, the impact of social objectives disappears. The similar reasoning holds for the estimate of β_3, which captures the direct (own) impact of social objectives on the level of investment. If the estimated coefficient of β_3 is significantly positive as we found in the previous section, and the estimated coefficient for β_5 is significantly negative, then in the long run, the direct impact of social objectives on the level of investment declines and when time becomes infinite, this impact disappears.

The GMM estimation results based on (15) and its variations are reported in Tables 7, 8, and 9 for the SOE dummy, state equity, and social burden, respectively. As we can see from these tables, no matter what the proxy is, there is clear-cut evidence that the estimated coefficient for β_2 is significantly negative and the estimated coefficient for β_4 is significantly positive. These results indicate that the impact of social objectives is less important along the passage of time. Similarly, as we found before, the estimated coefficient of β_3 is significantly positive, which indicates that the firms that have stronger social objectives in general have more social welfare investment. But since the estimated coefficient for β_5 is significantly negative, we see that the positive connection between social objectives and social welfare investment is also declining over time. Tables 7, 8, and 9 provide a clear indication that the impact of social objectives had been declining over time, supporting the notion that Chinese enterprises in general and Chinese SOEs in particular are becoming more aware of profits along with the progress of economic transition.

Table 7. Change in the Impact of Not-For-Profit Social Objectives over Time, with the SOE Dummy as the Possible Social Objective Indicator

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + \beta_4 Time *\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_5 Time * SOE_i + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + \beta_4 Time *\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_5 Time * SOE_i + \beta_6\left(\frac{W}{S}\right)_{it} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + \beta_4 Time *\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_5 Time * SOE_i + \beta_6\left(\frac{I}{K}\right)_{i,t-1} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_3 SOE_i + \beta_4 Time *\left(\frac{\pi}{S}\right)_{it} * SOE_i + \beta_5 Time * SOE_i + \beta_6\left(\frac{W}{S}\right)_{it} + \beta_7\left(\frac{I}{K}\right)_{i,t-1} e_{it}$$

	(1)	(2)	(3)	(4)
$(\pi/S)_t$	0.0039**	0.0031***	0.0028	0.0028
	(2.74)	(3.02)	(1.24)	(1.30)
$(\pi/S)_t * SOE$	-0.0061***	-0.0048***	-0.1003*	-0.0101*
	(-3.33)	(-3.18)	(-1.72)	(-1.83)
SOE	0.0062***	0.0051***	0.0132*	0.0134*
	(3.77)	(3.63)	(1.83)	(1.94)
$Time*(\pi/S)_t *$	0.0005**	0.0004*	0.0012*	0.0013*
	(1.96)	(1.70)	(1.68)	(1.78)
$Time * SOE$	-0.0009***	-0.0008***	-0.0019*	-0.0020*
	(-2.93)	(-2.63)	(-1.66)	(-1.75)
$(W/S)_t$		-0.00002		0.00007
		(-0.18)		(0.27)
$(I/K)_{t-1}$			0.8363***	0.8377***
			(3.91)	(4.00)
m_1	-5.58	-5.53	-4.10	-4.18
m_2	-0.81	-0.83	0.69	0.70
Wald test Chi-square	$H_0 : \beta_1 = 0$ 7.53	$H_0 : \beta_1 = 0$ 9.09	$H_0 : \beta_1 = 0$ 1.53	$H_0 : \beta_1 = 0$ 1.70
	$H_0 : \beta_2 = 0$ 11.08	$H_0 : \beta_2 = 0$ 10.13	$H_0 : \beta_2 = 0$ 2.95	$H_0 : \beta_2 = 0$ 3.37
	$H_0 : \beta_3 = 0$ 14.19	$H_0 : \beta_3 = 0$ 13.21	$H_0 : \beta_3 = 0$ 3.33	$H_0 : \beta_3 = 0$ 3.78
	$H_0 : \beta_4 = 0$ 3.84	$H_0 : \beta_4 = 0$ 2.89	$H_0 : \beta_4 = 0$ 2.81	$H_0 : \beta_4 = 0$ 3.15
	$H_0 : \beta_5 = 0$ 8.59	$H_0 : \beta_5 = 0$ 6.93	$H_0 : \beta_5 = 0$ 2.77	$H_0 : \beta_5 = 0$ 3.07
Hansen test	8.76(18)	16.71(26)	10.25(11)	10.24(12)
Obs.	3813	3813	3049	3049

Table 7. Coutinued

	(1)	(2)	(3)	(4)
	$(\pi/S)_{t-2\ldots}$	$(\pi/S)_{t-2\ldots}$	$(\pi/S)_{t-2\ldots}$	$(\pi/S)_{t-2\ldots}$
	$((\pi/S)_t * SOE)_{t-2\ldots}$	$((\pi/S)_t * SOE)_{t-2\ldots}$	$((\pi/S)_t * SOE)_{t-4\ldots}$	$((\pi/S)_t * SOE)_{t-4\ldots}$
Instruments used in the first difference equations	SOE	SOE	SOE	SOE
	$(Time*(\pi/S)_t * SOE)_{t-2\ldots}$	$(Time*(\pi/S)_t * SOE)_{t-2\ldots}$	$(Time*(\pi/S)_t * SOE)_{t-4\ldots}$	$(Time*(\pi/S)_t * SOE)_{t-4\ldots}$
	$Time * SOE$	$Time * SOE$	$Time * SOE$	$Time * SOE$
		$(W/S)_{t-2\ldots}$	$(I/K)_{t-3\ldots}$	$(W/S)_{t-4\ldots}$
				$(I/K)_{t-3\ldots}$

Notes:

(1) Data source: *Chinese Enterprise Survey (1995-1999)*.

(2) The two-step estimates with robust test statistics are reported.

(3) Finite-sample corrected t-statistics are in parentheses.

(4) Hansen(k): test of the overidentifying restrictions, asymptotically distributed as Chi-square(k) under the null.

(5) Time and industry effects are controlled in all estimations by adding time dummies from 1996-1999 (year 1995 as the benchmark) and light manufacturing, heavy manufacturing, chemical, and other industries dummies (mining and utility industry as the benchmark). These time and industry dummies are also used as additional instruments.

(6) Instruments used in the level equations in the system GMM estimations are the lagged-one first differences of the explanatory variables.

(7) ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

(8) Explanations of variables: see notes for Table 1.

Table 8. Change in the Impact of Not-For-Profit Social Objectives over Time, with State Equity as the Possible Social Objective Indicator

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_3 SE_i + \beta_4 Time *\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_5 Time * SE_i + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_3 SE_i + \beta_4 Time *\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_5 Time * SE_i + \beta_6\left(\frac{W}{S}\right)_{it} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_3 SE_i + \beta_4 Time *\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_5 Time * SE_i + \beta_6\left(\frac{I}{K}\right)_{i,t-1} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_3 SE_i + \beta_4 Time *\left(\frac{\pi}{S}\right)_{it} * SE_i + \beta_5 Time * SE_i + \beta_6\left(\frac{W}{S}\right)_{it} + \beta_7\left(\frac{I}{K}\right)_{i,t-1} e_{it}$$

	(1)	(2)	(3)	(4)
$(\pi/S)_t$	0.0025	0.0024**	0.0028	0.0019
	(1.48)	(2.31)	(1.31)	(1.17)
$(\pi/S)_t * SE$	-0.0059**	-0.0057**	-0.0072**	-0.0052
	(-2.17)	(-2.55)	(-2.24)	(-1.92)
SE	0.0056**	0.0065***	0.0077**	0.0074**
	(2.02)	(2.72)	(2.26)	(2.35)
$Time*(\pi/S)_t * SE$	0.0007*	0.0007*	0.0009*	0.0007*
	(1.67)	(1.83)	(1.88)	(1.82)
$Time * SE$	-0.0009*	-0.0011**	-0.0012**	-0.0012**
	(-1.76)	(-2.16)	(-2.01)	(-2.11)
$(W/S)_t$		-0.00008		-0.0001
		(-0.90)		(-0.83)
$(I/K)_{t-1}$			0.0515	0.0555
			(1.20)	(1.38)
m_1	-5.56	-5.55	-4.76	-4.82
m_2	-0.82	-0.82	-1.01	-1.01
Wald test Chi-square	$H_0 : \beta_1 = 0$ 2.19	$H_0 : \beta_1 = 0$ 5.32	$H_0 : \beta_1 = 0$ 1.71	$H_0 : \beta_1 = 0$ 1.36
	$H_0 : \beta_2 = 0$ 4.72	$H_0 : \beta_2 = 0$ 6.52	$H_0 : \beta_2 = 0$ 5.01	$H_0 : \beta_2 = 0$ 3.69
	$H_0 : \beta_3 = 0$ 4.07	$H_0 : \beta_3 = 0$ 7.37	$H_0 : \beta_3 = 0$ 5.13	$H_0 : \beta_3 = 0$ 5.53
	$H_0 : \beta_4 = 0$ 2.78	$H_0 : \beta_4 = 0$ 3.36	$H_0 : \beta_4 = 0$ 3.52	$H_0 : \beta_4 = 0$ 3.32
	$H_0 : \beta_5 = 0$ 3.10	$H_0 : \beta_5 = 0$ 4.66	$H_0 : \beta_5 = 0$ 4.03	$H_0 : \beta_5 = 0$ 4.44
Hansen test	10.12(12)	14.74(19)	26.97(19)	29.20(22)
Obs.	3813	3813	3049	3049

Table 8. Coutinued

	(1)	(2)	(3)	(4)
	$(\pi/S)_{t-2\dots}$	$(\pi/S)_{t-2\dots}$	$(\pi/S)_{t-2\dots}$	$(\pi/S)_{t-2\dots}$
	$((\pi/S)_t * SE)_{t-4\dots}$	$((\pi/S)_t * SE)_{t-4\dots}$	$((\pi/S)_t * SE)_{t-4\dots}$	$((\pi/S)_t * SE)_{t-4\dots}$
Instruments used in the first difference equations	$SE_{t-3\dots}$	$SE_{t-3\dots}$	$SE_{t-3\dots}$	$SE_{t-4\dots}$
	$(Time*(\pi/S)_t * SE)_{t-4\dots}$	$(Time*(\pi/S)_t * SE)_{t-4\dots}$	$(Time*(\pi/S)_t * SE)_{t-4\dots}$	$(Time*(\pi/S)_t * SE)_{t-4\dots}$
	$(Time * SE)_{t-3\dots}$	$(Time * SE)_{t-3\dots}$	$(Time * SE)_{t-3\dots}$	$(Time * SE)_{t-4\dots}$
		$(W/S)_{t-2\dots}$	$(I/K)_{t-2\dots}$	$(W/S)_{t-3\dots}$
				$(I/K)_{t-2\dots}$

Notes:

(1) Data source: *Chinese Enterprise Survey (1995-1999)*.

(2) The two-step estimates with robust test statistics are reported.

(3) Finite-sample corrected t-statistics are in parentheses.

(4) Hansen(k): test of the overidentifying restrictions, asymptotically distributed as Chi-square(k) under the null.

(5) Time and industry effects are controlled in all estimations by adding time dummies from 1996-1999 (year 1995 as the benchmark) and light manufacturing, heavy manufacturing, chemical, and other industries dummies (mining and utility industry as the benchmark). These time and industry dummies are also used as additional instruments.

(6) Instruments used in the level equations in the system GMM estimations are the lagged-one first differences of the explanatory variables.

(7) ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

(8) Explanations of variables: see notes for Table 1.

Table 9. Change in the Impact of Not-For-Profit Social Objectives over Time, with Social Burdens Perceived by the Managers as the Possible Social Objective Indicator

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it}*SB_i + \beta_3 SB_i + \beta_4 Time*\left(\frac{\pi}{S}\right)_{it}*SB_i + \beta_5 Time*SB_i + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it}*SB_i + \beta_3 SB_i + \beta_4 Time*\left(\frac{\pi}{S}\right)_{it}*SB_i + \beta_5 Time*SB_i + \beta_6\left(\frac{W}{S}\right)_{it} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it}*SB_i + \beta_3 SB_i + \beta_4 Time*\left(\frac{\pi}{S}\right)_{it}*SB_i + \beta_5 Time*SB_i + \beta_6\left(\frac{I}{K}\right)_{i,t-1} + e_{it}$$

$$\left(\frac{I}{K}\right)_{it} = f_i + f_t + \beta_1\left(\frac{\pi}{S}\right)_{it} + \beta_2\left(\frac{\pi}{S}\right)_{it}*SB_i + \beta_3 SB_i + \beta_4 Time*\left(\frac{\pi}{S}\right)_{it}*SB_i + \beta_5 Time*SB_i + \beta_6\left(\frac{W}{S}\right)_{it} + \beta_7\left(\frac{I}{K}\right)_{i,t-1} e_{it}$$

	(1)	(2)	(3)	(4)
$(\pi/S)_t$	0.0041**	0.0039**	0.0023	0.0021
	(2.20)	(2.12)	(1.39)	(1.22)
$(\pi/S)_t*SB$	-0.0042***	-0.0036**	-0.0026*	-0.0029**
	(-2.61)	(-2.33)	(-1.80)	(-1.96)
SB	0.0047**	0.0046**	0.0035*	0.0037**
	(2.41)	(2.20)	(1.90)	(2.03)
$Time*(\pi/S)_t*SB$	0.0004**	0.0003*	0.0003**	0.0004***
	(2.48)	(1.69)	(2.19)	(2.64)
$Time*SB$	-0.0005**	-0.0005*	-0.0005*	-0.0006**
	(-1.96)	(-1.72)	(-1.83)	(-2.14)
$(W/S)_t$		-0.0001		-0.0001
		(-0.60)		(-0.64)
$(I/K)_{t-1}$			0.7499***	0.7583***
			(5.96)	(6.65)
m_1	-5.56	-5.55	-5.25	-5.51
m_2	-0.78	-0.78	0.67	0.68
Wald test Chi-square	$H_0 : \beta_1 = 0$ 4.86	$H_0 : \beta_1 = 0$ 4.48	$H_0 : \beta_1 = 0$ 1.93	$H_0 : \beta_1 = 0$ 1.49
	$H_0 : \beta_2 = 0$ 6.81	$H_0 : \beta_2 = 0$ 5.43	$H_0 : \beta_2 = 0$ 3.25	$H_0 : \beta_2 = 0$ 3.85
	$H_0 : \beta_3 = 0$ 5.80	$H_0 : \beta_3 = 0$ 4.82	$H_0 : \beta_3 = 0$ 3.60	$H_0 : \beta_3 = 0$ 4.10
	$H_0 : \beta_4 = 0$ 6.14	$H_0 : \beta_4 = 0$ 2.84	$H_0 : \beta_4 = 0$ 4.80	$H_0 : \beta_4 = 0$ 6.98
	$H_0 : \beta_5 = 0$ 3.83	$H_0 : \beta_5 = 0$ 2.96	$H_0 : \beta_5 = 0$ 3.36	$H_0 : \beta_5 = 0$ 4.56
Hansen test	11.29(11)	19.17(16)	12.44(15)	10.05(16)
Obs.	3813	3813	3049	3049

Table 9. Coutinued

	(1)	(2)	(3)	(4)
	$(\pi/S)_{t-2\ldots}$	$(\pi/S)_{t-2\ldots}$	$(\pi/S)_{t-2\ldots}$	$(\pi/S)_{t-4\ldots}$
	$((\pi/S)_t * SB)_{t-4\ldots}$	$((\pi/S)_t * SB)_{t-4\ldots}$	$((\pi/S)_t * SB)_{t-4\ldots}$	$((\pi/S)_t * SB)_{t-2\ldots}$
Instruments used	$SB_{t-3\ldots}$	$SB_{t-3\ldots}$	$SB_{t-3\ldots}$	$SB_{t-4\ldots}$
in the first	$(Time*(\pi/S)_t * SB)_{t-4\ldots}$	$(Time*(\pi/S)_t * SB)_{t-4\ldots}$	$(Time*(\pi/S)_t * SB)_{t-4\ldots}$	$(Time*(\pi/S)_t * SB)_{t-4\ldots}$
difference	$(Time * SB)_{t-3\ldots}$	$(Time * SB)_{t-3\ldots}$	$(Time * SB)_{t-3\ldots}$	$(Time * SB)_{t-3\ldots}$
equations		$(W/S)_{t-2\ldots}$	$(I/K)_{t-3\ldots}$	$(W/S)_{t-4\ldots}$
				$(I/K)_{t-3\ldots}$

Qq'+Notes:
(1) Data source: Chinese Enterprise Survey (1995-1999).
(2) The two-step estimates with robust test statistics are reported.
(3) Finite-sample corrected t-statistics are in parentheses.
(4) Hansen(k): test of the overidentifying restrictions, asymptotically distributed as Chi-square(k) under the null.
(5) Time and industry effects are controlled in all estimations by adding time dummies from 1996-1999 (year 1995 as the benchmark) and light manufacturing, heavy manufacturing, chemical, and other industries dummies (mining and utility industry as the benchmark). These time and industry dummies are also used as additional instruments.
(6) Instruments used in the level equations in the system GMM estimations are the lagged-one first differences of the explanatory variables.
(7) ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.
(8) Explanations of variables: see notes for Table 1.

8. Conclusions

Based on the facts that Chinese SOEs have been restructured into stock corporations and that the social function of Chinese SOEs has been declining, we conjectured that Chinese SOEs may now behave as western corporations in making social welfare investment decisions. More specifically, we conjectured that social welfare investment undertaken by Chinese SOEs has mainly become profit‐driven.

We set up an illustrative model to describe the CSR investment

behavior of a firm, which shows that the presence of social objectives in the firm's objective function should enhance the sensitivity of CSR investment to the fundamental variable if the investment is motivated by profit concerns to the extent that guarantees a certain level of investment efficiency. We then test the model prediction by applying a panel of Chinese enterprises during the period of 1995-1999.

Our first empirical finding is that despite the corporatization reform, social welfare investment undertaken by Chinese SOEs is still inefficient due to the lack of profit concerns, which suggests that social objectives still remain dominant over profit concerns in motivating the SOEs' social welfare investment. This result is consistent with the prediction of the multi-task theory of Chinese SOEs (Bai *et al.* 2000).

Furthermore, we explicitly test whether the impact of social objectives changes over time. The results show that the impact of social objectives declines as time passes, suggesting that the corporatization movement and the economic transition as a whole have induced Chinese SOEs to be more aware of profit concerns.

References

Arellano, M. and S. Bond. 1991. "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations." *Review of Economic Studies*, 58, pp. 277-297.

Bai, C.E., LU, J. and Z. Tao. 2005. "Divergent Interests between Central and Local Governments: Testing Theories of Public Ownership." Working Paper, School of Economics and Management. Tsinghua University.

Bai, C.E., LI, D., Z. Tao and Y. Wang. 2000. "A Multitask Theory of State Enterprise Reform." *Journal of Comparative Economics*, 28, pp. 716-738.

Barnea, A. and A. Rubin. 2006. "Corporate Social Responsibility as a Conflict between Shareholders. Working Paper. University of British Columbia.

Baron, D.P. 2001. "Private Politics, Corporate Social Responsibility, and Integrated Strategy." *Journal of Economics and Management Strategy*, 10(1), pp. 7-45.

Blundell, R. and S. Bond. 1998. "Initial Conditions and Moment

Restrictions in Dynamic Panel Data Models." *Journal of Econometrics*, 87, pp. 115-143.

Friedman, M. 1970. "The Social Responsibility of Business is to Increase its Profits." *New York Time Magazine* 33, pp. 122-126.

Hussain, A. 2000. The Social Role of Chinese Enterprises. M. Warner ed. *Changing Workplace Relations In the Chinese Economy*, pp. 57-76. London: Macmillan.

Jensen. M.C. 2001. "Value Maximization, Stakeholder Theory and the Corporate Objective Function." *Journal of Applied Corporate Finance*, 14, pp. 8-21.

Lin, J.Y., F. Cai and Z. Li. 1996. *The China Miracle: Development Strategy and Economic Reform*. Hong Kong: The Chinese University Press.

Lin, Y.M. and T. Zhu. 2001. "Ownership Restructuring in Chinese State Industry: An Analysis of Evidence on Initial Organizational Changes." *China Quarterly*, 166, pp. 305-341.

Naughton, B. 1995. *Growing Out of the Plan*. New York: Cambridge University Press.

Navarro, P. 1988. "Why do corporations give to charity?" *Journal of Business*, 61 (1), pp. 65-93.

Tirole, J. 2001. "Corporate Governance." *Econometrica*, 69(1), pp. 1-35.

Whited, T.M. 1992. "Debt, Liquidity Constraints, and Corporate Investment: Evidence from Panel Data." *Journal of Finance*, 47, pp. 1425-1460.

Windmeijer, F. 2005. "A Finite Sample Correction for the Variance of Linear Efficient Two-step GMM Estimators." *Journal of Econometrics*, 126, pp. 25-51.

Genesis, Evolution, and the Changing Role of SEZs in Asia: A Comparative Analysis of Taiwan, Korea and India

Aradhna Aggarwal

1. Introduction

Since the early 1990s, there has been a sharp increase in the number of special economics zones (SEZs)[1] across the world. The number of SEZs increased from a mere 79 in 29 countries in 1975 to 3500 in 130 countries in 2006 (Table 1). The total employment in SEZs almost tripled within 10 years, from 22.5 million in 1997 to 66 million in 2006. While China alone employed 40 million people in SEZs in

Table 1. Growth of Zones Worldwide: 1975-2006

	1975	1986	1995	1997	2002	2006
No. of counties with zones	29	47	73	93	116	130
No. of zones	79	176	500	845	3000	3500
Average no. of zones per country	3	4	7	9	26	27
Total employment (Mn) of which	na	na	na	22.5	43	66
China				18	30	40
Rest of the world	0.8	1.9	na	4.5	13	26

Source: ILO (2003, 2007).

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1) Technically, SEZs are a special variety for export zones. However, through out this study, the term "SEZs" would be used as a generic term for all types of export dominated zones.

2006, up from 30 million in 2002, the growth in SEZ employment was faster outside of China where it doubled from 13 million to 26 million between 2002 and 2006.

Not only has the number of SEZs increased lately, but also their variety. New types of 'zones' have evolved and are subsumed within the category of SEZs, with different terminologies being used to differentiate them. There have been dramatic differences in the ways in which these zones have been conceived, developed, managed, regulated and governed. The present study analyzes the evolution of SEZs in three countries, namely, Taiwan, Korea and India. All the three countries started this program roughly around the same time. India established its first Zone in 1965; Taiwan and Korea in 1966 and 1970, respectively. It would therefore be of interest for academics, policy makers and empirical researchers to examine their experiences vis-a-vis the SEZ policy and draw relevant lessons which could be considered in pursuit of SEZ-led development strategies. The study examines the background of SEZ establishment, investigates the evolution of SEZ policies, compares the basic characteristics of newly emerging zones, and evaluates the economic performance of zones in light of current policy changes, in these countries and draws important policy implications.

2. Background of the Establishment of SEZs

2.1. Taiwan

During a half century of Japanese occupation from 1895 to 1946, Taiwan was largely developed as an agricultural base to supply foods and raw materials for industrialization in Japan (Tze 2005, Wade 2003). The Taiwanese economic structure at the end of the War was therefore predominated by primary economic activity where agriculture represented 48 percent of the GDP and accounted for over 50 percent of the total employment. The first major effort to raise the potential of the economy was made in 1952 when the first four-year plan was introduced with a focus to develop the industrial sector along with agriculture-related activities. The government, like many other developing countries, adopted strong import substituting policies to encourage manufacturing activities. The strategy was to focus on low capital,

low skills and basically labor- intensive manufactured products in the initial phases of growth. These industries created jobs and reduced unemployment, yet they developed quite fast and the domestic market was almost saturated by 1956. Export outlets had to be found for further expansion. The government therefore sought to encourage exports (Ying 1995). The first export processing zone was set up in 1966 as part of the government policy of expanding exports of the labor-intensive products in world markets in the import substituting regime. The idea was inspired by the success of Hong Kong's free port. The 'Statute for the Establishment and Administration of Export Processing Zone' was promulgated in 1965 and, the first EPZ was inaugurated in December 1966 on 68 hectares of reclaimed land in the port of Kaohsiung with stated objectives of creating employment opportunities, absorbing industrial investment both domestic and foreign, promoting exports, and introducing modern manufacturing and managerial practices (EDEPZ 1987, as quoted in Ying 1995).

By 1969, as applications to set up businesses in the KEPZ far exceeded the space available (68 hectares), the government decided to go ahead with plans to open two more zones: one large zone (90 hectares) in Nantze, just outside of Kaohsiung; and one smaller zone near Taichung (23 hectares).

2.2. Korea

Korea achieved independence in 1945 with the fall of the Japanese colonial rule after the Second World War. The growth process could not be initiated immediately after liberation due to the ensuing civil war (i.e. Korean War, 1950-53). The period between 1953 and 1961 was one of slow recovery of the war-ravaged economy. During the reconstruction period, import substitution of consumer durables was attempted by guaranteeing a secure, though limited, market. Also, the government undertook a heavy investment in human resource development in the early years. Formal education system was strengthened at all levels, which resulted in a dramatic increase in the literacy rate. The first Five-Year Economic Development Plan was launched in 1962 (ten years after Taiwan). In the initial phase of growth, the government adopted a two-pronged strategy. It followed rigorous export-oriented policies in mature industries like food and

textiles (in the 1960s), metal, shipbuilding and chemicals (in the 1970s) and an import-substituting strategy in the consumer goods sector. In order to bring about the economy of scale and compete on the basis of cost advantage in mature industries, the government intentionally promoted large firms (*Chaebols*). For import substitution in consumer goods industries also, the major responsibility was assigned to *Chaebols*. The government gave large import-substituting projects to *Chaebols*, provided them low-interest loans and helped them in importing technologies (Kim 2008, World Bank 2006, Aggarwal 2001).

Since the country's own technological capabilities were limited, the dual trade policy placed a continuous pressure on firms to acquire foreign technologies. To meet the industry demand, the government encouraged the transfer of foreign technology embodied in capital goods and turnkey plants by assigning low-protection to the capital goods industry. Highly restrictive policies were adopted towards FDI to shield domestic firms from foreign competition. FDI was encouraged only in export-oriented sectors to promote exports of the manufacturing goods.

The policy led to massive imports of foreign capital goods though it did facilitate a rapid acquisition of technology. This raised the problem of foreign exchange reserves drain. It was against this backdrop that the government planned to build its first export processing zone in 1970, in Masan, with the objective of encouraging FDI in export-oriented sectors to promote exports and competitiveness of Korea in manufacturing (Ying 1995, Kumar 1989, Lee 2008). In Jan 1970, it announced the Export Processing Zone Law and the construction of Masan EPZ began. The idea of building an EPZ in the coastal area was initially proposed by the Federation of Korean Industries (FKI) in 1969. Subsequently, the Economic Planning Board dispatched a delegation of ten members to Kaohsiung zone to study the development plan, problems encountered by them and their solution. The EPZ legislation was thus based on the Kaohsiung model. However, it allowed only foreign direct investors to invest in EPZs, which was different from Taiwan where both foreign and domestic investors could invest. By 1972, 26 foreign companies had moved into the zone. In 1973, Iksan EPZ was also constructed on Korea's west coast.

Unlike Taiwan, thus, Korea introduced EPZs to attract FDI to facilitate technology transfer and promote competitiveness of the

manufacturing sector to support its export-oriented pattern of industrialization. The Korean government intended to increase export and employment, and enhance technical capabilities by inducing foreign capital into EPZs.

2.3. India

India inherited the same agriculture-dominated economic structure as Taiwan and Korea at the time of independence, with agriculture contributing more than 50 percent to the total GDP. The process of industrial growth was initiated as early as in 1948, when the government announced its first Industrial Policy Resolution, IPR 1948. Like Taiwan (and in contrast to Korea), India pursued import-substitution policies across all sectors. However, unlike Taiwan and Korea, a particular emphasis was placed on the basic and heavy industries. Labor-intensive products in mature industries in which the country had a comparative advantage in world markets were considered to have low elasticity with little scope of providing a boost to industrialization. An accelerated growth rate in the productive capacity of the capital-goods industries was seen as important for raising savings and investment rates; diversifying the industrial sector and promoting manufactured exports. Given the negligible R&D base, FDI was allowed over a wide range of industries and several incentives were given to induce FDI (Aggarwal 2001). The country, however, faced a severe foreign exchange crisis in the early 1960s due to multiple crises such as, the failure of agriculture, growing imports, and wars with neigbouring countries. To give incentive to exports, several export promotion programs were initiated. In 1965, the government set up the first EPZ (in Asia) in Kandla, Gujarat, as part of these programs. Thus the EPZ policy was introduced into an import-substituting regime just as in Taiwan. However, unlike Taiwan, it had no clear-cut policy direction. It was not supported by any legislation or administrative infrastructure. It was set up as one of several export programs initiated by the government of India to promote exports in the import substituting regime (Aggarwal 2004, Kundra 2000).

3. Evolution of SEZs

3.1. Taiwan

3.1.1. Evolution of EPZs (1966 onwards):
Over the years, the Taiwanese economy underwent several transformations.

- In the initial phase, the economy was dominated by matured labor-intensive industries such as textiles, manufacturing of footwear, and low value added electronic items.
- In the 1970s the government adopted the 'Secondary Import and Export Substitution Policy'. The approach called for sloughing off industries that were deemed internationally uncompetitive, such as low-end textiles, electronics, and footwear; while increasing local and foreign investment in strategic industries, e.g. microelectronics and capital equipment ((Ranis and Schive 1985:93). Results of the new policy included a new tier of import-substitution industries, namely, iron and steel industry, and chemical industry, namely, petrochemical industry and construction of a high-technology industrial park.
- By the early 1980s, salaries and wages had risen significantly. The increase in labor cost had reduced the competitiveness of Taiwanese exports. The energy crisis in the 1970s had further increased costs of raw materials and parts, thus making Taiwanese products even less competitive. The government realized that Taiwan had to move into production of high technology products. The government identified eight strategic fields in 1983; namely, energy, sophisticated raw materials, information, automation, bio-engineering, laser technology, medical cure for hepatitis and food technology (Kwong 2001: 88-89). The criteria selected to identify strategic industries were "large linkage effects, large market potential; high technology intensity, high value added; low energy coefficient, and low pollution". In 1984, the government adopted a policy of liberalization, internationalization, and institutionalization, aimed to upgrade the industrial sector, and build Taiwan into a science- and-technology island.

In accordance with the shift in the industrial structure, EPZs

were also upgraded from labor-intensive traditional industries to technology- and capital-intensive high-tech industries, in addition to the establishment of more science parks to reinforce the efforts in the domestic markets. The most influential tool for reorganizing the manufacturing structure was the fiscal incentive schemes specified in the 'Statute for the Encouragement of Investment (SEI)'. The Statue spelled out the criteria and categories eligible for tax incentives, which were upgraded frequently depending upon the changing economic conditions. In the beginning from 1966-1968, all EPZ enterprises were exempt from taxes for a period of five years. During the 1970s, incentives were concentrated on intermediate and capital goods being imported and on new export sectors. Traditional export items ceased to be eligible. As the focus shifted to technology intensive industries the lists were further upgraded (Wade 2003, Smith 1997). The 'Statute for the Establishment and Administration of Export Processing Zone' was also amended five times during this period to steer EPZs towards changing economic roles. Article 6 of the Statue clearly states:

'Depending on economic development policy, location, and area of the Export Processing Zone, the Ministry of Economic Affairs decides the business variety within the Export Processing Zone' (EPZA, Taiwan website).

In the late 1990s, when the focus shifted to the development of the logistics industry EPZs were used as the vehicle to promote the industry (Invest Taiwan website). In 2001, the Warehouse Trans-Shipment Special Zone Plan (EPZA, Taiwan website) was launched. Under the plan, the emphasis has been placed on logistic firms. EPZs are replete with storage and transportation centers; which provide, alongside ships and aircraft, pick-up and delivery services for speedy onward shipment of goods by land, sea, or air. Furthermore, export processing zones have been establishing logistics facilities well-equipped with necessary software and hardware, organizing specialized international marketing companies, promoting international industrial cooperation, assisting companies in bringing in specialists and training personnel, and helping companies to create their own brands and market internationally so that enterprises attain sustainable development[2].

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2) In 1980, Taiwan set up science park to promote indigenous high tech industries. The objective was to lure back scientists and professions and to promote enrollment

Since the introduction of the Plan, the EPZs have increased in total area from 192 hectares to 844 hectares. As of July 2007, 9 EPZs were operating in the country. These EPZs have attracted NT$284 billion in investment, which is greater than the total amount of investment in EPZs in the thirty years prior to the plan.

3.1.2. Setting up of Free Trade Ports (2003 onwards)

In response to economic globalization and digitization as well as emergence of the knowledge and service economy, the government established two major directions aimed at enhancing Taiwan's national competitiveness in the service sector in the late 1990s. Twelve strategic service industries were identified as engines that would provide the drive to re-create Taiwan's economic miracle. Keeping this firmly in view, the Act for the Establishment and Management of Free-trade Ports was enacted in 2003. This Act was created to promote the development of global logistic and management systems; attract high value added manufacturing; make possible vigorous promotion of trade liberalization and internationalization; facilitate the smooth flow of personnel, goods, funds, and technology; upgrade Taiwan's national competitiveness; and furthering national economic development. To encourage foreign companies to use Taiwan as an international logistics and distribution center, a provision has been included in the 'Income tax act' that allows net profits earned by a foreign company or its Taiwan branch from sales through a Taiwanese logistics and distribution center to be exempt from income taxes if certain requirements are met. Since the "Act for the Establishment and Management of Free Trade Zones" took effect in July 2003, five Free Trade Zones have been approved and all are now in operation. Apart from the Taoyuan Air Cargo Free Trade Zone, which is a Build-Operate-Transfer (BOT) project, the other Free Trade Zones are managed by each Port Bureau. There are still several industrial parks and export

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in scientific education. A park was set up with US #500m. Five year tax holiday, R*D grants, university cooperation programme, recreation, medical, shopping restaurants, Most of the firms are in integrated circuits and computers and computer peripheral. The Legislative Yuan has passed the of Agricultural Biotechnology Park Establishment and Management Act, as proposed by the Council of Agriculture (COA), and the new act has been promulgated by the president and implemented.

processing zones, such as the Changhua Coastal Industrial Park and Mailiao Port, which are awaiting approval for their applications to become Free Trade Zones.

Table 2. Description of EPZs and FTZs in Taiwan

Export Processing Zone	Area (Hectare)	Major industry	Free trade port	Location	Area
Taichung Export Processing Zone	26.2	Digital cameras and opto-electric products	Keelung Free Trade Zone	Keelung City	71.16
Chungkang Export Processing Zone	177.0	Auto and metal	Taipei Free Trade Zone	Taipei County	79.00
Douliou Silk Weave Zone	268.0	Textile	Taoyuan Air Cargo Free Trade Zone	Taoyuan County	35.00
Nanzih Export Processing Zone	97.8	Integrated circuits	Taichung Free Trade Zone	Taichung City	536.00
Kaohsiung Export Processing Zone	72.0	R&D and LCDs	Kaohsiung Free Trade Zone	Kaohsiung City	415.41
Chenggong Logistics Park	8.4	Logistics			
Siaogang Air Freight Logistics Export Processing Zone (Suspended)	54.5	-			
Linguang EPZ	9.0	R&D and LCDs			
Kaohsiung Software Park	7.9	IT			
Pingtung Export Processing Zone	124.1	Auto and bio tech			

Source: EPZA, Taiwan.

3.2. Korea

3.2.1. Evolution of Free export zones (1970 onwards)
In the initial phase, only foreign (including majority owned local) firms were allowed to operate in EPZs, then termed as 'free export zones'. They were largely involved in labor-intensive processes such as textiles, footwear and electronic parts manufacture. Foreign firms did not forge subcontract relations with firms outside. Since one of the objectives of attracting foreign investment was to promote technology transfers, in the second phase of their development, the government encouraged outsourcing by firms in the export zone. The Export Processing Zone Law was amended to allow outsourcing of production processes outside the zone. The third phase started in the 1980s when Korean firms were also allowed to invest in free export zones. During this phase, zones became more specialized and more capital intensive. Since the 1980s, there has been a steep decline in employment in free export zones but exports have actually increased. This reflects the fact that production became increasingly automated and technology intensive (Ying 1995).

Table 3. Evolution of SEZs in Korea

FTZ: mfg. type	Year of establishment	Area (Ha)	FTZ: Logistics oriented	Year of establishment	Area (Ha)	FEZ	Year of est.	Area (km^2)	Infra cost (W Tn)
Masan	1970	95.4	Busan	2002	545.1	Incheon	2003	204	14.7
Iksan	1973	31.0	Gwangyang	2002	675.5	Busan/Jinhae,	2003	109	7.7
Gunsan	2000	125.4	Incheon	2003	229.4	Gwangyang	2003	89	8.1
Daebul	2002	115.6	Incheon Airport	2005	301.5	Daegu/Gyeongbuk	-	-	-
Donghae	2005	24.8				Yellow sea	-	-	-
Yulchon	2005	34.3				Saemangeum/Gunsan	-	-	-

Source: Jeong (2008).

There were only two EPZs in Korea until the year 2000. In 2000, free export zones entered into an expansion phase (Table 3). Between 2000 and 2005, four more zones were set up: the total area of FEZ's

at this point was 4,265,000m^2 with investment total of $738m, and exports worth $3.7 billion. Four of the manufacturing FTZs are presently operating and two are under construction (Jae-gon 2008). The government has been pushing for additional free export zones as a way to bolster regional economies. Since 2004, they have been termed manufacturing-oriented free trade zones (MOEA website).

3.2.2. Duty free zones (2000 onwards)

In 2000, Korea introduced 'duty free zones' with the aim of improving competitiveness of the logistics industry through improved added value from transshipping, distribution, repackaging, multiple-country consolidation, processing and manufacturing. Under the policy, four logistics oriented (three ports and one airport) zones are operational while one port is under construction. In 2004, after legal revisions, they were integrated into free trade zones. They are now called, logistics-oriented FTZs. The Ministry of Knowledge Economy manages manufacturing FTZs, while the Ministry of Land, Transport and Maritime Affairs oversees logistics FTZs.

3.2.3. Free Economic Zones (2003 onwards)

Since the 1997 economic crisis, the Korean government has been concerned with how to attract FDI without lowering restrictions on FDI which characterize the service sector in the rest of the economy. In this context, setting up of FEZs has been regarded as the main axis of the FDI policy. In 2002, Korea devised the concept of 'free economic zones' as part of its efforts to attract more foreign investment, particularly in the service and R&D sectors; spearhead South Korea's plan to transform itself into a financial, logistics and business hub of Northeast Asia, and to act as a test-bed for corporate deregulation intended to help revive the sluggish domestic economy (Lee 2008, Jeong 2008, Ahn 2007). The Act on Designation and Management of Free Economic Zones was adopted in December 2002 and was effective as of July 1, 2003. In 2003, the Free Economic Zone Committee was inaugurated and Free Economic Zone Planning Office was set up. A total of 6 FEZs have been designated and are under operation. Three zones: Incheon, Busan/Jinhae, Gwangyang Bay Area are being developed in the first phase. The second phase would witness the development of three more zones: Yellow Sea, Daegu/Gyeongbuk

Knowledge Creation, and Saemangeum/Gunsan. These FEZs will develop into zones for R&D and knowledge-based industries. In each FEZ a distinct growth model has been adopted:

- Incheon FEZ is envisioned as a logistical center for international business, finance and tourism.
- Busan-Jinhae FEZ (BJFEZ) aims to become a center for telecommunications and high technology industries, and maritime logistics.
- Gwangyang FEZ is expected to emerge as an international maritime logistics center and an industrial cluster for petrochemicals and steel.
- Yellow Sea FEZ is to specialize in automobiles, IT, biotechnology, value-added logistics
- Daegu-Gyeongbuk FEZ will focus on knowledge-based services (eg. education, medicine, fashion), manufacturing (eg. IT, materials
- Saemangeum-Gunsan FEZ is to be a hub for automobiles manufacture, shipbuilding, environment, tourism and leisure

These zones would allow the government to "experiment" with liberalization without fueling fear about opening all sectors at once. They are expected to emerge as logistics centers of Northeast Asia. With Northeast Asia emerging as one of the world's three largest trading regions (along with EU and the NAFTA), countries in and around the region are fiercely competing to take the initiative to become its business hub. Creation of Korean FEZs is an effort in that direction. Taiwan has already set up FTZs to repeat the country's miracle, this time in the service sector. Unlike Taiwan's FTZs, however, FEZs of Korea are more ambitious. They are being conceptualized as world-class cities with cutting-edge airports, ports and office facilities as well as first-rate schools, hospitals, financial services, malls, leisure services and tourist facilities.

3.3. India

3.3.1. Evolution of EPZs (1965-2000)

In India, the first zone was set up in Kandla as early as in 1965. It was followed by the Santacruz Export Processing Zone which came into operation in 1973. The government set up five more zones during the late 1980s. These were at Noida (Uttar Pradesh), Falta (West Bengal), Cochin (Kerala), Chennai (Tamil Nadu) and Visakhapatnam

(Andhra Pradesh). Operationally, an overall inward-looking trade policy with numerous controls and regulations influenced the EPZ policy also (Kundra 2000). The policies were rigid and the package of incentives and facilities were not attractive. Zone authorities had limited powers. There was no single 'window facility' within the zone. Entrepreneurs had to acquire individual clearances from various state government and central government departments. Day-to-day operations were subjected to rigorous controls. Custom procedures for bonding, bank guarantees and movement of goods were rigid. In 1991, a massive dose of liberalization was administered in the Indian economy. In this context, wide-ranging measures were initiated by the government for revamping and restructuring EPZs also (See Kundra 2000 for details). The focus had been on delegating powers to zone authorities, providing additional fiscal incentives, simplifying policy provisions and providing greater facilities. Until 1997, EPZs were set up by the central government only. Thereafter, private EPZs were also allowed. Surat EPZ which became operational in 1998 was set up in the private sector.

3.3.2. Special Economic Zones (2000 onwards)

A major shift in approach and policy was introduced, when the government launched a new scheme of Special Economic Zones (SEZs) in 2000. The main difference between the SEZ and the EPZ was that the SEZ was conceived to be developed as an integrated township with fully-developed, world-class infrastructure whereas the EPZ was just an industrial cluster. Further, while EPZs were set up mainly by the central government, SEZs were permitted to be set up in the public, private, or joint sectors or by the state governments or any of their agencies. . Several incentives, both fiscal and non-fiscal, were extended to the units operating in SEZs and measures were adopted to improve the quality of governance of the zones. However, no legislation was enacted to govern SEZs. The policy relating to the EPZs/SEZs was contained in the Foreign Trade Policy while incentives and other facilities offered to the SEZ developer and units were implemented through various notifications and circulars issued by the concerned Ministries/Departments. Eventually, all the existing eight EPZs were converted into SEZs and 11 new SEZs were set up by 2005. However, the policy did not motivate the private investors

into action in a significant way (Aggarwal 2006).

Considering the fact that competitiveness of the manufacturing sector had been declining due to various institutional bottlenecks, creation of SEZs was regarded as one of the most effective ways to address these bottlenecks and promote manufacturing in the economy. It was therefore considered important to provide a significant 'push' to the policy by enacting a comprehensive act with attractive features. After 40 years of EPZ/SEZ experience, a comprehensive SEZ Act was promulgated in 2005. The Act became operative w.e.f. February 2006 when SEZ rules were also finalized. In addition to the SEZ Act of the central government, there are SEZ Acts of the state governments also which cover state subjects. With the introduction of this Act EPZs ceased to exist. The objectives of the policy are to promote economic activity, generate employment, encourage domestic and foreign investment, and improve foreign exchange inflows. The Act provides an overriding SEZ policy framework to satisfy the requirements of all principal stakeholders in an SEZ‐developer & operator, occupant enterprise, out-zone suppliers and residents. The scope and coverage of the SEZ scheme has also been enlarged by permitting a wide variety of economic activities including trading, re-engineering and re-conditioning.

As expected, introduction of this Act generated confidence among investors to commit substantial funds for development of infrastructure and for setting up units, after the enforcement of the Act. As of February 2010, 574 SEZs have been formally approved. Of them, 369 are already notified and 105 have already begun operations. Huge amounts of resources are being invested in the zones[3] A total number of 2761 units have been approved to operate in these SEZs with the employment of 489, 831 persons.

4. Major Characteristics of SEZs in Taiwan, Korea and India: A Comparative Analysis

Table 4 presents basic characteristics of the existing SEZs in the three countries. These include, structural characteristics, composition

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3) www.sezindia.nic.in.

of economic activity, organizational characteristics, administration, fiscal and other benefits and finally, location.

Table 4. Major Characteristics of SEZs in Taiwan, Korea and India

Structural characteristics
Taiwan
EPZ: Industrial clusters
FTZ: Industrial clusters
Korea
Manufacturing type FTZ: Industrial clusters
Logistics type FTZ: Industrial clusters
FEZs: High-class cities
India
Various types of SEZs:
• Enterprise specific SEZs (Single unit SEZs)
• Industrial clusters of specific sector such as IT SEZs, Pharmaceutical SEZs
• Industrial cities with multi product economic activities
• FTZs
• Port based SEZs
Composition of economic activity
Taiwan
EPZ: High-tech, High value-added and low pollution Industries, warehousing and transportation service center.
FTZ: Trading and logistics
Korea
Manufacturing type FTZ: Multi-product high-tech, high value-added manufacturing
Logistics type FTZ: Trading and logistics
FEZs: High tech services, R&D, non polluting high tech manufacturing
India
Various types of SEZs:
• Multi product manufacturing SEZs,
• Multi service SEZs.
• Sector specific SEZ. (high tech SEZs such as Pharmaceuticals, Biotech, Petrochemical, High end electronics SEZ; Skill intensive: IT, gems and jewelry; low tech: textiles, and footwear
• Free trade zones focusing on trading and logistics
• Port based SEZs

Table 4. Coutinued

Organizational Characteristics

Developers

Taiwan: National government

Korea: FTZ: National government

　　　FEZ: District government under the supervision of the national government

India: State government, private companies (public sector, private sector, and foreign companies; state governments in collaboration with private companies)

Governing Agency

Taiwan: EPZ: Ministry of Economic Affairs

　　　FTZ: Port Bureaus

Korea: FTZ: Manufacturing type: Ministry of Knowledge Economy; Logistics type: Ministry of Land, Transport and Maritime Affairs

　　　FEZ: Regional Land Departments

India: Ministry of Commerce, Government of India

Apex administrative agency

Taiwan: EPZ: EPZ Authority

　　　FTZ: The inter-agency "Free Trade Zone Coordinating Committee" set up under the Executive Yuan

Korea: FTZ: FTZ Authority

　　　FEZ: FEZ Authority

India: Board of Approval

Legal Apparatus

Taiwan: EPZ: Statute for the Establishment and Administration of Export Processing Zone

　　　Promulgated on January 30, 1965; Amended on December 30, 1967; November 25, 1971; December 24, 1979; December 5, 1988; May 7, 1997; May 30, 2001; and May 30, 2006)

　　　FTZ: Act for the Establishment and Management of Free Trade Port Zones

Korea: FTZ: Law for Establishment of Free Trade Zone

　　　FEZ: FEZ Act

India: SEZ Act 2005

　　　SEZ Rules 2006

Fiscal incentives

Taiwan

• Reduced taxes for transshipment businesses where operators pay tax on 10% of revenue

Table 4. Coutinued

Fiscal incentives
• Tax incentives as stipulated in the Statute for Upgrading Industries • Goods for export from EPZs are exempt from Commodity Tax • Customs duty exemption on machinery and equipment, raw materials, fuel, materials and semi-finished products that are imported for private use, and finished products transshipped by trade/warehouse operators. • Zero business tax on exported goods, exported labor, purchased goods • Deed tax exemption on newly built plants in EPZs and buildings purchased from the EPZA • Housing tax at EPZs half of normal rate (1.5 % vs. 3%)
Korea
• Exemption from corporate taxes for the first three years and a 50 percent reduction in these taxes for the following two years, if investment exceeds $10 million. • Exemption from corporate taxes for the first seven years and a 50 percent reduction in these taxes for the following three years, if investment exceeds $10 milllion. • A flat rate of 17 percent in income taxes for foreign corporate executives. • Exemption from acquisition, registration, property, and aggregate land taxes for the first three years, with a 50 percent reduction for the following two years for foreign investors • The cash grant amount for renting or purchasing land, training employees and funding of facilities depending on the company size, industry type and investment amount • Setting up of foreign investment ombudsman's office in each economic zone to assist foreign companies and their employees.
India
• Income Tax Holiday for unit holders in SEZ) For first five years: 100%; Next five years: 50% of the profit; Next 5 years: profits ploughed back • Tax Holiday (Developers): Deduction of 100% of profits derived from developing a SEZ for a Period of 10 consecutive assessment years out of the first 15 years from the year in which the SEZ is notified by the Central Government • Other exemptions for both developers and units: Capital Gain, Dividend Distribution Tax, Minimum Alternate Tax, Service Tax, Securities Transaction Tax, Import Duty, Excise Duty, Central Sales Tax/VAT

Table 4. Coutinued

Other Benefits
• **Taiwan**: Foreign investors enjoy the same rights and privileges as domestic investors. • Foreign investors may hold a 100% stake in an EPZ business, and may also negotiate joint investments with ROC government or domestic enterprises. • Foreign and Overseas Chinese investors may apply for outward remittance of profits, capital gains and interest. • Foreign / overseas Chinese invested companies and joint ventures who maintain a foreign / overseas Chinese shareholder stake above 45% within a period of 20 years are exempt from expropriation or government purchase. • Intellectual property rights and ownership rights are protected by the law. • Investments may be transferred to overseas and domestic companies, in accordance with Article 13 of the Company Law.

Korea: Rental fee exemptions
India • 100% export earnings maintainable in $ account • Minimal restrictions on business payments outside India • Unlimited credit period for export realization • Re-export of defective imports • OBUs allowed in SEZs. These units provide cheaper finance at international rates to SEZ units. Banks setting up OBUs are entitled to tax benefits as per the rules. Similar deductions available to units of International financial Centres. • Domestic material suppliers get all the export benefits on supplies to SEZ units. • Domestic sales unlimited subject to full duty payment

Labour flexibility
Taiwan: Labour flexibility Korea: labour flexibility India: no labour flexibility

Sub contracting
Taiwan: Subcontracting allowed Korea: Subcontracting allowed India: Subcontracting allowed subject to certain restrictions

DTA Sales
Taiwan: Goods from EPZs may enter the domestic market (Note: Goods sold domestically will be subject to local taxes after deducting added-value taxes)

Table 4. Coutinued

DTA Sales
Korea: No restriction after paying full custom duty
India: No restriction after paying full custom duty

Location
Taiwan: Near ports and airports
Korea: Near ports and airports
India: Anywhere in the country

Major findings are as follows:
- While Korea and Taiwan have adopted a focused approach, India's SEZ policy has been quite broad-based. Structurally, Taiwan has been using them to promote industrial clusters while Korea has shifted its focus to the development of world-class cities. In India however, SEZs include different types of zones. While some SEZs are industrial clusters, others are cities. There are single-enterprise-SEZs as well.
- Both Korea and Taiwan regulate the development and operations of SEZs centrally. Both the countries have created a well-organized administrative infrastructure which is monitored centrally. In India however, powers are shared between the central government, state governments and the zonal administration. There is no central administrative agency. The Board of Approval monitors approval of SEZs and policy making. The policy implementation does not come under its jurisdiction. Central government has virtually no control over the state subjects, which has created a problem of lack of coordination between various agencies.
- Furthermore, the SEZ Act in India covers only the central government-related policy matters. State subjects are not covered by the Act. Thus the Act does not insulate SEZs from the overall economic environment in the country, which is the primary objective of setting up SEZs.
- Both Korea and Taiwan are utilizing SEZs to upgrade their industrial structure by focusing on high-tech industries. In India however, the objective of the policy is to promote economic activity. Almost all economic activities are covered by SEZs except cultivation.

- In Korea and Taiwan, ownership of SEZs is in the hands of the national government. In India however, SEZs are being developed by state (provincial) governments, private companies (including foreign companies) and public-private partnerships. Though the objective is to attract private investment in the development of infrastructure, this has created a problem with planned regional economic development. The government has no control over site selection for SEZs and their planning. Furthermore, land acquisition is the responsibility of private developers. The State Government does not assist them in land acquisition. This has led to serious friction between land owners and urban industrialists in the country, affecting the viability and attractiveness of the policy.
- Several benefits are being offered to SEZ units in all the three countries. However, these incentives are highly focused in Korea and Taiwan. While Korea is wooing FDI by directing these incentives to foreign investors, Taiwan is upgrading high-tech industries. In India however, these benefits are offered over a wide range of industries and investors. This is because the objective is to promote economic activity, in general. This has raised an issue of equity. It is considered as a discriminatory policy and is being questioned by many.
- Finally, both Korea and Taiwan offer insulation from labor market rigidities. However in India, SEZs do not enjoy labor market flexibility. This may hamper the growth of labor-intensive SEZs.

The success of SEZs is contingent upon a coordinated package of highly developed infrastructure, efficient and self-sufficient legal- regulatory framework, realistic goals, strategic geographic location and attractive incentives. A comparative analysis given above suggests that governments in all the three countries have been offering attractive fiscal incentives. Korea has been the most liberal, followed by India and Taiwan. In relative terms however, India seems to be highly dependent on fiscal incentives. The vision is very broad and the policy seems to offer too little.

5. Performance of SEZs: Taiwan, Korea, India

5.1. Taiwan

5.1.1. Export Processing Zones

Foreign investment: Historically, Kaohsiung had been the most successful EPZ in Taiwan. Kaohsiung attracted 30 percent of Taiwan's FDI in 1967 and 39 percent in 1972. During the first 20 years, FDI increased continuously from USD$ 8.32 million in 1966 to USD$138 million in 1985. During 1985-89 FDI declined for a short period due to the recession worldwide. However, adjustment in the Taiwanese currency and decreasing cost competitiveness of labor-intensive industries led to a shift from traditional to higher value added industries during this period. The share of electronics and precision instruments increased from 58% in 1975 to 67% by 1990 while that of metal and other labor-intensive products declined from 42% to 33 percent during the same period. FDI picked up again in 1989. By 1990, 88 enterprises existed in Kaohsiung EPZ with a total investment of $ 170.38 million, with foreign investment accounting for $140 million (82%) while the rest (18%) was local investment. They were thus instrumental in attracting FDI in the initial stages of growth. While Japan was the largest source of FDI accounting for 57% of total investment, USA's share was also as high as 35%. The most important sector was electronics (56%) followed by garments (11%), metal products (9.6%), and machines (8.8%), and miscellaneous.

Linkages with the domestic economy: EPZs during this period helped not only in attracting FDI but they also generated technological spillover effects. The procurement of domestic raw materials which comprised only 8 percent of the total in 1970 reached 70 percent by 1979. Forward linkages were not significant. Until 1987, the DTA sales were not allowed by EPZ units. The rule was relaxed in 1987 and units could sell 50% of their products in the domestic markets. Even as domestic sales were allowed, their percentage in total sales remained negligibly small. However, EPZs were instrumental in pushing the country to become world power in electronics industry. 'The Nantze, Kaohsiung and Taichung export processing zones have

been Taiwan's "cradles of manufacturing" where most of the country's electrical and electronic manufacturing industries started up some four decades ago. These zones have also been the prime movers behind Taiwan's economic growth over the past years.'[4]

Employment: EPZs also contributed to solving the problem of unemployment. By 1973, employment reached 52, 209 which was the highest level employment ever attained by the zone. NEPZ and TEPZ were also set up in the early 1970s. Of the two, NEPZ grew sharply and by the late 1980s, outperformed KPEZ in terms of employment. Its employment reached 32, 000 while that of KEPZ declined to 22, 509. The level of employment in TEPZ remained at 11, 000.

In 1991, there were 241 units with total investment of USD $886 million and employment of 66, 151 workers. By 2000, the number of units increased to 260 with total investment of over US$4.3 billion and employment of 67, 451. Since 2001, the EPZs have increased in total area and investment, an expansion that occurred as part of the Warehouse Trans-Shipment Special Zone Plan. As of July 2007, 382 manufacturers were working in the EPZs with investment almost doubled to US$8 billion. However, employment declined somewhat to 66, 261. This shows a structural shift of EPZs in favor of high-tech industries and the changing role of EPZs as employment generators to a strategic tool for promoting high-tech industries.

Exports**:** EPZs represented 9.4 % of total exports in 1973. The share of Kaohsiung alone was over 7%. Following the development of the economy of Taiwan, however, the share of KEPZ declined to 2.4 percent by 1986. The total share of the three EPZs in national exports declined slowly to 6% by 1986. What is, however, more important to look at is the share of EPZ trade surplus in the national trade surplus. The share of trade surplus in three EPZs accounted for over 50% of total trade surplus of the economy till the mid 1980s. This reflects the fact that they led the transition of the economy from import substitution to an export-oriented regime. After the economy was shifted from import substitution to an export-oriented regime the

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4) As reported in http://www.chinapost.com.tw/business/2008/06/10/160340/Vintage-export.htm, June 10, 2008.

share of EPZs started declining. However, the average share of EPZ surplus in trade surplus remained as high as over 20 percent during 1991-2000 (figure 1), with the percentage declining thereafter. It was mainly due to rising imports in EPZs which in turn could be attributed to the upgrading of EPZs.

Figure 1. Share of Trade Surplus in National Trade Surplus: 1991-2007
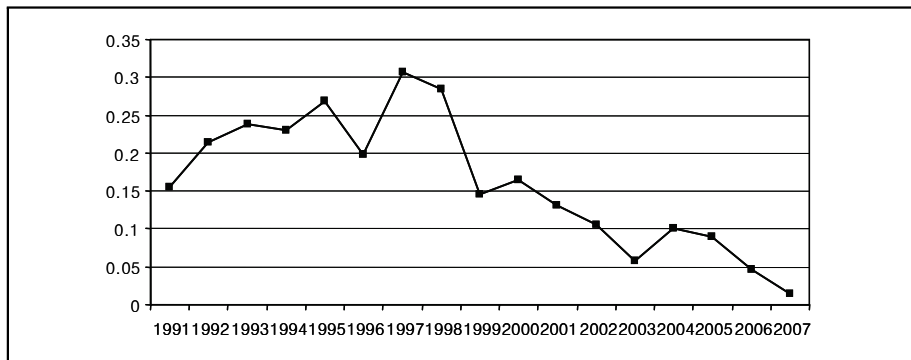
Source: Based on EPZA, Taiwan.

Clearly, EPZs in Taiwan played a crucial role in
• employment and foreign exchange generation in the earlier stages of economic growth;
• structural transformation of the economy in the take off stages; and
• upgrading technological aspects of the economy in the advanced stages of growth.

However, there have been variations in the performance of EPZs (Table 5). Historically, KEPZ has played a key role in the growth of the economy. It was outperformed by NEPZ in the late 1980s, which has come to occupy an important position since then. TEPZ was also set up in the early 1970s along with NEPZ but it is rather small, spread across about 26 hectares of land. CEPZ is one of the largest EPZ and has been in existence for the past 10 years. However, it has yet to show vitality and energy in its activities.

Table 5. Performance of EPZs in Taiwan: 2008

EPZ	Exports ($ mn)	Share in EPZ exports	No. of units	Share in total investment
NEPZ	1, 312, 731	66.26%	138	57.8%
KEPZ	283, 362	14.30%	82	17.4%
TEPZ	246, 809	12.46%	49	17.6%
CEPZ	99, 543	5.02%	44	1.8%
PEPZ	20, 809	1.05%	12	1.1%
CSPK			42	4.2%

Source: Ministry of Economic Affairs, Taiwan.

Table 6 presents the current status of investment in other EPZs. The only EPZ that has attracted substantial investment is Linkuang EPZ. Apparently, while zones have been effective in addressing economic growth and development objectives, they have not been uniformly successful.

Table 6. Performance of Selected Smaller EPZs in Taiwan: 2008

	Area (hectare)	No. of Approved Investment	Amount of Approved Investment ($USD)	No. of Factories Formally Start Working
Linkuang Export Processing Zone	9.0	27	382, 550, 000	24
Kaohsiung Software Indust.Park	7.9	3	239, 910, 000	—
Chengkung Logistics Park (CLP)	9.0	0	150, 330, 000	3
Kaohsiung Air Transportation and Logistics Park	54.5	1	29, 670, 000	—

Source: Ministry of Economic Affairs, Taiwan.

5.1.2. Free Trade Port Zones

The Taichung Port Free Trade Zone is the largest and the most successful free port, harbor-based zone in the country. It has achieved a remarkable performance in Free Trade Zone (FTZ) promotion due to its best location and perfect harbor facilities. The Taichung Free Trade Zone is situated close to the Taichung Port Export Processing Zone, Taichung Port Industrial Zone, Changhua Coastal Industrial Zone, Central Taiwan Science Park, Taichung Industrial Park, Machinery Technology Industrial Park and Tanzih Export Processing Zone. These areas together create regional agglomeration economies. Up to January of 2008, 16 operators started their operations in the zone. These included Tonglit Logistics Co; APE, Ltd. Taiwan Branch; Ver Green Group; Wan Hai Lines; and US Catscan Co. The zone outperformed the initial target of 4 operators, as projected to the Ministry of Communication at the beginning of 2007. The free trade zone has been recording the highest trade value and cargo volume among the four major harbors in the country since 2007. The value of export and import trade at the free trade zone reached US $317.39 million in the first half of 2009. The volume of cargo handled at the harbor amounted to 459, 000 tons in same period.

The Kaohsiung free trade zone has also attracted 17 enterprises such as American President Lines, Hanjin Pacific Co., Yang Ming Lines, Pacific Harbor Stevedoring Corp. There are 11 enterprises entering the Keelung zone, including Yes Logistics Corp., Evermore Port Business Co., and United Logistics International Corporation. Taipei is, however, struggling and has attracted only 1 unit, until recently.

The Taoyuan Air Free Trade Zone is the first BOT (Built-Operate-Transfer) project of free trade zone establishments, developed by the Civil Aeronautics Administration in collaboration with the Far Glory Group. It is close to the Hsinchu Science Park, Linkou Industrial Zone, Jhongli Industrial Zone, Guanyin Industrial Zone and Wugu Industrial Zone and creates regional cluster effects. As of December 2007, there were already 81 enterprises in this zone; including ASML, Taiwan, Corsair Memory, Inc., A-Data Technology Co., Power Quotient International Co., etc. DHL Express declared their expansion plans in Taoyuan Air Free Trade Zone in September 2007.

By the end of February 2006, there were 18 tenants in port-based FTZs and 70 in Taoyuan Airport FTZ. The number increased sharply

within the next two years though the performance has not been uniform. These FTZs are expected to be the main axis of the global operations development plan of the government of Taiwan.

5.2. Korea

5.2.1. Free trade zones of manufacturing types (EPZs)

Investment: The EPZ in Masan is regarded as the most successful EPZ, as it has the longest history and has had excellent results. In the first 5 years, FDI increased from $1.23 million to over $88 million. By 1975, the SEZ was fully occupied and the government set up another EPZ in Iri. During 1980-1985, investment declined due to the oil crisis followed by global recession. However, this proved to be a period of major capital restructuring. Several small firms and traditional firms closed down, and in place newer, more automated firms emerged. The share of electronics and precision instruments industries increased from 56% in 1979 to 78% in 1989 while that of metal and traditional sector declined sharply during the same period. By 1990, it attracted a total 70 enterprises with $218 million investment. Of this $186 mn (85.4 percent) was constituted by FDI, the rest was local investment. Japan alone invested 97% of the total FDI. Unlike Kaohsiung, the share of US was only 2%. The most important item was electronics

Table 7. Performance of Manufacturing Type FTZs: December 2007

	Total firms (No.)	FF (No.)	Exports (USD $ Mn)	Imports (USD $ Mn)	Investment (USD $ Mn)	Foreign I (USD $ Mn)	Employ-ment
Masan	83	52	3256	1921.2	213.5	135	7318
Iksan	31	6	150.4	82.6	44	5.3	1501
Gunsan	13	6	13.9	0.51	157.3	5.8	1200
Daebul	26	21	280	13.0	240.3	1.3	3063
Donghae							
Yulchon		1			0.05	0.05	20

Source: Jeong (2008).

products with a share of 65.7%, followed by precision products (12.35), metal (11%), and misc. (1%).

Currently, FTZs of manufacturing types are dominated by domestic investment (Table 7). Masan is the only FTZ attracting substantial FDI; the share of FDI is negligibly small in other EPZs. Four EPZs were set up in the post 2000 period: Gunsan, Daebul, Donghae and Yulchon. Of them, only two‑Gunsan and Daebul‑succeeded in attracting investment; the other two could not take off.

Linkages with the domestic economy: What has been important is the fact that the EPZs have had significant spillover effects. In the beginning, over 80% of total imports were from overseas markets. However, this ratio improved over time. The average share of domestic imports in total imports was 25% in the 1970s which increased to 40% by 1990. At the same time, in 1974, the Korean government allowed outsourcing of production processes. This was necessitated by the fact that the zone was fully occupied and firms had difficulty in expanding their facilities within the zone. Outsourcing proved to be instrumental in the development and technological upgrade of firms located outside EPZs. Unlike Taiwan, forward linkages were also operative. Since 1980, the government allowed 100% domestic sales in all industries except electronics, where only 5% sales could be made. This led to increases in domestic sales immediately to 14.7% in 1981, increasing further to 36% in 1990. EPZs thus played a key role in stimulating and updating economic activities in the domestic economy.

Employment: Masan was instrumental in generating employment in the initial stages. Employment increased rapidly to over 21, 000 by 1973. Thereafter, it continued to increase slowly, peaked at over 36, 000 in 1987 and then declined continuously thereafter. Employment opportunities triggered large scale migration in the initial phases and stimulated economic activity in the region, thereby contributing to the regional economy. However, by 2007, employment declined to 6, 706 in Masan. Other EPZs could not compensate for this decline in employment.

Exports: The share of EPZ exports in national exports had never

been high in EPZs. It reached the peak at 3.99% in 1964, and declined thereafter. In 1990, the export share of Masan was a mere 1.21%. Unlike Taiwan, Korea's trade balance remained unfavorable until 1985. However EPZs generated positive trade surplus during this period. Thus EPZs covered up some of the deficit in the balance of trade. In late 1986s when trade surplus appeared, Masan contributed significantly to the total surplus. It constituted 69% of the total trade surplus.

With rapid economic growth taking place in the Korean economy, the role of EPZs has been marginalized. Their export share in 2007 was less than 1% though their trade surplus still formed over 11 percent of the national trade surplus.

Clearly, just as in Taiwan, EPZs in Korea also played a crucial role in

- initial stages‐in stimulating economic activity, generating employment, and attracting FDI in manufacturing;
- take off stages‐in building technological capabilities in the manufacturing sector; and earning foreign exchange

Their role has become marginal in advanced stages of growth. The steady decline in labor figures could be regarded as positive, reflecting the economy's move from labor-intensive light industries to technology-intensive electric and electronic sectors (Jeong 2008) but their export share also declined gradually. However, they still continue to add to foreign exchange inflows in a major way. This is in contrast with Taiwan where EPZs are being used strategically, in advanced stages of growth, to transform the economy into a hub of high-tech business.

5.2.2. Free Trade zones

Busan and Gwangyang logistics-oriented free zones have proved to be major stimulants of FDI. More than 90% of total investment attracted by these FTZs is of foreign origin. In absolute terms however, FDI inflows remain small. The importance of these FTZs lies in the fact that they are instrumental in the transformation of these regions into free economic zones.

Table 8. Performance of Logistics Oriented FTZs: December 2007

	No. of firms	Foreign firms	Cargo (000' tons)	Investment $ mn)	Foreign I ($ mn)
Busan Port	25	22	19970	130.9	121.5
Gwangyang	15	13	9820	321	284.7
Incheon	12	2		Existing companies moved in	
Incheon airport	546	15		108.9	

Source: Jeong (2008).

5.2.3. Free Economic Zones:

Setting up of FEZs is an unprecedented drive to boost foreign direct investment (FDI). They are the test buds for deregulating the economy for FDI. Three FEZs are being developed in the first phase: Incheon, Busan, and Gwangyang. Of the three, Incheon has emerged as the fastest growing FEZ. According to newspaper reports, over the past five years, IFEZ has attracted more than $9 billion in foreign investment, the largest amount among the country's three free economic zones. If a number of signed memorandums of understanding (MOUs) between the IFEZ Authority and multinational investors and businesses are included, the figure swells to $42 billion. The zone has also attracted investment worth $688 million from domestic investors and companies over the same period. It is hoped that by 2014 it would include 50 million square feet of office space, 9, 000 new homes, a 100-acre park, top-ranked schools, a golf club, international universities and world-class medical facilities. It is expected that by 2020, when development is completed in the zone, around 4.84 million new jobs will be created to help lower the unemployment rate by 0.2 to 0.3 percent and produce a 1 percent increase in gross domestic product per year. Further, US $27.6 billion is expected to flow in as FDI by 2020.

Despite the global downturn, development work in Incheon proceeded at a constant pace. Incheon zone managed to receive just under $500 million of $6.6 billion pledged as foreign direct investment as of the end of April 2009, with Songdo developers 'Gale and POSCO'accounting for a large share.

Meanwhile, two other FEZs in Busan-Jinhae (BJFEZ) and Gwangyang have also attracted a large amount of FDI over the past 4 years. Both these FEZs have attracted many international companies and turned into logistics and industrial hubs for Northeast Asia. While BJFEZ has attracted the auto giant Renault-Samsung Motors, port operators CSXWT, and British leisure facility developers Snowbox, the Hong Kong conglomerate Hutchison Whampoa, the Dutch logistics firm Steinweg; the U.S-based construction firm HRH have signed MOUs with Gwangyang FEZ. Despite the uncertain economic environment, the government hopes to boost FDI by 7 percent this year to $12.5 billion, with FEZs spearheading its efforts.

Evaluation of the FEZ policy after 5 years in 2008, however revealed that the progress had been slower than what was hoped. Major issues being faced by FEZs were:
- High cost of land
- Bureaucratic procedures and slow approval process (approval takes up to 12 months)
- Insufficient incentives
- Restrictive regulations on FDI
- Image of Korea as a closed society
- Tough competition from China, and
- Overheated competition among FEZ authorities (Busan-Jinhae calls itself a "Northeast Asia business hub," Saemangeum-Gunsan in the southwest is the "hub of biz frontier in East Asia," and Gwangyang the "greatest logistics and business hub of Northeast Asia.")

Several measures were taken by the government to bolster FEZs. These included,
- extension of period of tax breaks from 5 years to 7years,
- elimination of restrictions on FDI in FEZs (for instance, FDI is now allowed for hotels and saunas at medical centers);
- delegation of authority to municipal mayors and provincial governors to give permission to free economic zone (FEZ) development plans to reduce bureaucratic red tape;
- permission to overseas institutional (not only individual) investors to invest in the domestic hospital business;

- easing of immigration rules for investors engaged in logistics and research center developments who report at least $5 million and $2 million respectively in investments;
- easing of the visa issuance process for employees who are to work in foreign-invested companies in FEZ

The government also plans to lift the price ceiling on new apartments to be built in the nation's free economic zones in a bid to draw in more foreign investment.

FEZs are benchmarked against Dubai, Shanghai-Pudong, Hong Kong, Singapore, and Tianjin Binhai and it is believed that these measures would help FEZs catch up with their counterparts in competing nations.

5.3. India

5.3.1. EPZs (1965-2005)

India was the first Asian country to set up an export processing zone (EPZ) in Kadla in 1965. Eight EPZs were set up between 1965 and 2000. All these were set up by the central government and are known as the "Central Government" EPZs. However, statistics show that these zones could not make a significant contribution to exports and employment and investment in manufacturing at the macro level.

Investment: Kandla was the oldest EPZ in Asia and was larger than any EPZ in Korea or Taiwan but it was completely outperformed by the latter two in terms the scale of operations. Santacruz, located in the port city of Mumbai, was the most successful EPZ during this period. A small EPZ covering a mere 39 hectares of land, it attracted $63.4 million worth of investment by 1998. However, like other EPZs, it was also dominated by domestic investment. Total investment in seven EPZs in 1998 stood at a mere $407 million, generating a miniscule 0.33 percent of the total manufacturing investment in that year. Most of this was domestic investment. While most developing countries including Taiwan and Korea used their zones as platform for attracting export-oriented FDI, the share of FDI in total SEZ investment in India was negligible.

Employment: Total EPZ employment increased from 70 to around 89, 000 between 1966 and 2002. Total employment increased continuously, but despite the fact that most EPZs were larger than their Taiwanese and Korean counterparts in terms of size, none of them except Santacruz could individually generate impressive levels of employment. The share of SEZs in total manufacturing employment was 0.38 percent in 1988. It increased to 1 percent by 2000 and remained slightly over 1 percent in the post-2000 period. Their contribution at the regional level has also been limited. Aggarwal(2006) shows that the potential of the zones in contributing to human resources development could not be fully exploited due to very limited success of the zones in attracting investment.

Table 9. Zone-wise Employment and Number of Units: 1980-2002

Year	Kandla	Santacruz	Cochin	Falta	Chennai	Noida	Vizag
Year of establishment	1965	1973	1989	1986	1985	1986	1994
Size of the zone (ha)	417	39	43	117	109	129	150
I in 1998	23.8	63.6	58.6	45.1	34.6	121.6	60.2
	1.3	8.4	9.6	3.1	28.4	12.3	-
1980	3500 (54)	2500 (37)					
1985	8510 (114)	7500 (59)	56 (2)	40 (1)	150 (1)	1000 (6)	
1990	10000 (136)	12500 (101)	2279 (23)	280 (7)	6146 (39)	4000 (50)	
1995	10147 (91)	22000 (156)	5800 (36)	1650 (24)	12334 (82)	9500 (111)	406*
2000	12518 (109)	32105 (212)	4356 (48)	2308 (72)	10563 (94)	10181 (146)	3340 (16)
2002	9821 (96)	38525 (197)	5107 (49)	2579 (80)	13171 (85)	16284 (109)	3340 (18)

Note: 1997; Parentheses provide information on number of units.
Source: Ministry of Commerce.

Exports: Average annual exports increased from 0.5 million during 1966-70 to 1.988 billion during 2000-2003. The share of EPZs in national exports peaked in 1986 when it reached 5 percent of manufacturing exports. It compares well with the share of EPZs in Korea and Taiwan during this period. However, unlike the other two countries, EPZ exports in India were directed to USSR and other East European countries during this period. Kandla was almost completely dependent on the USSR markets for exports. Exports to these countries were possible because of protected export markets offered to Indian firms under the umbrella of bilateral trade arrangements (Kumar 1989). Market competitiveness was not a major consideration. After the collapse of the USSR, EPZ units had to compete in highly competitive markets in USA and Europe where they could not sustain their performance due to lack of competitiveness. A number of units closed down in Kandla. As a result, units dealing in second hand goods were invited into the EPZ to sustain employment levels.

Figure 2. Share of EPZs in Total Exports, Manufactured Exports and Employment
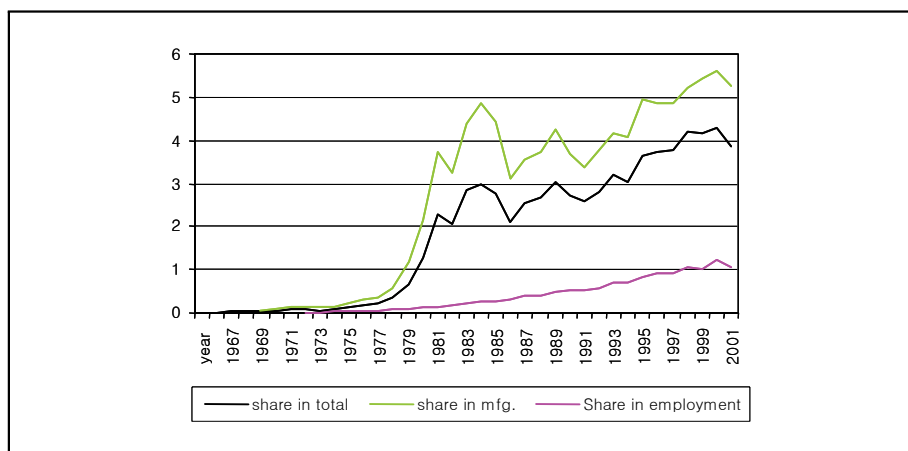
Source: Aggarwal (2004).

Since Kandla was the largest EPZ, overall performance of the EPZ sector was affected adversely and their share in total exports declined sharply. In the 1990s it grew again and slowly reached 5.2%

which was marginally higher than the previous peak. This recovery could be attributed to a rapid expansion in Santacruz EPZ and the emergence of 5 new EPZs.

Since the mid 1980s, Santacruz expanded rapidly, made possible beginning in 1986 when gems and jewelry units were permitted in the zone. However, since the value addition component is small in gems and jewelry, foreign exchange earning potential remained below average. In the 1990s, growth in other EPZs also contributed to overall EPZ export performance but their macro effects remained small.

Structural shift: Table 10 presents sectoral composition of economic activity in EPZs. It clearly indicates that there had been a shift in the composition of economic activities from drugs and engineering sectors to electronics and gems and jewelry. This does not, however, represent systematic patterns of the contribution of EPZs to the domestic economy. Exports of drugs and engineering products were directed to the erstwhile USSR. After the Soviet collapse, gems and jewelry and electronics exports replaced them. Exports in the electronics sector were dominated by software exports.

Table 10. Sectoral Composition of EPZs in India: 1985-2002

Year	Drug	Electronics	Engineering	Gems	Textiles	Others
1985	24.1	19.3	39.0	0.0	14.2	3.4
1990	26.4	24.6	27.4	10.6	8.8	2.1
1995	5.2	30.3	27.9	25.1	6.8	4.7
2000	5.0	39.8	5.6	35.2	8.2	6.2
2001	6.2	33.6	4.7	35.2	10.2	10.1
2002	6.2	33.6	4.8	42.3	7.2	5.9

Source: Aggarwal (2006).

Santacruz EPZ played a pivotal role in promoting exports of gems and jewelry and software items. It is, for instance, a little known fact that the foundation of the modern jewelry industry in India was laid in SEEPZ in Mumbai in 1987-88 when it was open to the gems and jewelry sector. It is here that the "wax setting/casting

techniques" was introduced into jewelry production, which made large-scale production possible and dramatically transformed the jewelry industry in India. SEEPZ is still a leader in the introduction of the latest technologies in this industry. Santacruz was also instrumental in creating the base for the growth of the electronics industry through technology transfers, spillovers and demonstration effects. The Indian software saga also began in earnest in SEEPZ Mumbai (Aggarwal 2007). Though Tata Consultancy Services (TCS), Bombay, started exporting software in 1973-74, the real breakthrough came when Tatas entered into a partnership with Burroughs (TBL), an American company, in 1977 to establish a unit in SEEPZ to export software and peripherals. In 1985, Citibank established a 100-percent foreign-owned, export-oriented, offshore software company in SEEPZ. This company drew attention to the possibilities available for offshore software development in India. SEEPZ thus made an important contribution to the diversification of country's exports.

Linkages with the domestic economy: EPZs could not form strong connections with the rest of the economy in terms of traditional indicators such as, domestic procurement of raw materials, domestic sales, and outsourcing. It was due to tight government regulations on transactions between domestic and SEZ units. However, many of the successful domestic EPZ entrepreneurs expanded their business in the economy and contributed to the diversification of the industrial sector. There is thus evidence of learning- by -exporting for EPZ manufacturing units which had a spillover effect on the economy.

While there are success stories at the industry level, overall gains were not substantial and could not become visible. Most zones failed to make an impact because of the lack of government commitment to the program and a well-designed policy framework within which EPZs could be used strategically. Policy reversals, poor site selection, failure to provide world-class infrastructure, strict regulations, and poor regulation of zones contributed to the slow growth of EPZs.

5.3.2. Special Economic Zones

Investment and Employment: The primary objectives of the SEZ policy are to promote activity, encourage investment and generate

employment. Evaluation of the policy in terms of these parameters reveals that the SEZ Act has led to a tremendous growth in the establishment of SEZs in India. Only 8 export processing zones were set up across 7 states during the period 1965-2000, occupying an area of 2521 acres with 95000 people employed. Between 2000 and 2005, 11 new EPZs were set up. However the scenario transformed completely after the SEZ act was passed in 2005. As of Feruary 2010, formal approvals were given to 574 new SEZs across 23 states, with 350 of them across 16 states already notified. Of the total 369 notified SEZs, 105 are operational.

In India, the term "SEZs" is being used in a broader context. It subsumes a number of categories including:
  • free trade zones (FTZs),
  • export processing zones (EPZs),
  • export oriented units (EOUs), and
  • special economics zones (SEZs).

While Free Trade and Warehousing Zones (FTWZs) are equivalent to FTZs, most sector-specific SEZs are export processing zones (EPZs). The tiny captive SEZs are similar to EOUs. Therefore, technically speaking, only 9 to10 large multiproduct zones are SEZs. The total area of 552 approved SEZs as of September 2008 was only 70, 037 hectares. These SEZs may become instrumental in generating huge employment and investment outside the agricultural sector, which is already burdened with 60 percent of the population.

Employment and investment: As of December 2009, the direct employment in newly-notified SEZs stood at 227, 669 people while the total investment was to the tune of USD$25.7 billion. The total employment and investment figures for SEZs were staggering at 489, 831 and $ 28.5 billion, respectively. As of February 2006, 40 years after the first EPZ was set up, total employment and investment stood at 134, 704 and $888 million respectively. Within 3 years of the enforcement of the new policy, employment increased by 0.36 million workers and investment by over $27 billion (Table 11).

Table 11. Employment and Investment in SEZs in a Comparative Framework

	Total as on 31st December 2009 (US $bn)	Total as on Feb 2006	Incremental since Feb 2006
Investment (US $ billion)	28.5	0.8877	27.6
Employment (no.)	489, 831	134, 704	355, 127

Source: Ministry of Commerce, India.

Indirect employment and investment**:** In addition to direct investment and employment, SEZs are expected to create indirect investment and employment, also by generating economic activity in the rest of the economy. It is difficult to measure in a meaningful way indirect employment and investment generated by SEZs. In general, SEZs, which are better-integrated into the domestic economy, are likely to contribute more significantly to the rest of the economy than the SEZs that are isolated enclaves of production. The SEZs' potential for generating indirect benefits may be gauged by 'value addition'. Since most newly-notified SEZs are in nascent stages of development, export-import data may not be comparable. However, Table 12 provides some insight into value addition made in these SEZs.

Table 12. Value Addition in Newly Notified SEZs

SEZ	Sector	Export	Import	Vale addition per unit of export
Hyderabad gems	Gems & Jewelry	2.82	2.51	11.0
Divi lab	Pharmaceutical	468.01	106.15	77.3
Apache	Footwear	151.28	27.22	82.0
Jodhpur	Handicraft	55.3537	0.8744376	99.4

Source: DC Office, Vizag and relevant SEZs.

Apparently, newly-notified SEZs are well-integrated in the domestic

economy. India is an emerging economy with a large industrial base. Therefore, it has substantial absorption capacity ensuring large potential spillover effects of SEZs. There are several other ways in which SEZs have augmented investment and employment in the rest of the economy. For instance, setting up of SEZs has created demand for physical infrastructure. This has stimulated directly not only the infrastructure industry but also the real estate industry. The real estate sector is subservient to the development of over 250 other ancillary industries. Furthermore, there has been increasing demand for financial and various other supporting services such as hotels, restaurants, tourism, transport, housekeeping, and security, which are not negligible. Almost all companies in SEZs are providing subsidized food, free health services and transport services. Each SEZ has a fire station, expansive landscapes, elaborate security arrangements, own administrative set-up and a customs office. The Ministry of Commerce compiles information on employment generated *within* SEZs on account of the demand for peripheral activities and construction. This is termed as "indirect employment". It stood at 220, 506 as of 31 March 2008. In fact, this is a fraction of total indirect employment generated by peripheral activities demanded in SEZs. All these activities generate not only employment but also investment, which is not quantifiable.

Induced investment and employment: Once additional incomes are generated, there is increase in the demand for various goods and services such as housing, education, health, transport, banking, trading and so on. This, in turn, has a multiplier effect on investment, income and employment. The larger the value addition, the greater is the multiplier effect.

Promotion of Exports: Table 13 reveals that the enactment of the SEZ policy provided a major push to the SEZs' export performance. The average annual growth rate of physical exports (outside India) zoomed to 92 percent in 2007-08.

Table 13. Export Performance of EPZs in India Over the Period 1966-2002

(Unit: US $ million)

	Average annual total exports	Average annual export growth rate (%)
1985-1990	-	12.7
1991-2000	1054.54	14.23
2001-2004	2769.63	22.93
2004-05	18,314	32.00
2005-06	22,840	24.70
2006-07	34,615	52.00
2007-08	66,638	92.00
2008-2009	996.880	50%

Source: Ministry of Commerce.

Table 14 shows that the share of manufacturing-sector exports from EPZs in total exports of merchandise productsincreased slowly from 0.07% to 5.1% by 2005-06. After the SEZ policy came into effect in 2006, it rose sharply to 11 percent (after excluding software exports) within 3 years by 2008-09. Apparently, exports from SEZs rose much faster than from the domestic tariff area. While the national exports are expected to grow at the rate of 3.4 percent, projections for the SEZ export growth rate are set at 87%.

Table 14. Share of Zones Innational Exports of Merchandise Goods

(Unit: %)

Year	Total exports
1973-74	0.07
1979-80	0.34
1985-86	2.96
1992-93	2.57
1995-96	3.04
2000-01	4.17
2003-04	4.71
2005-06	5.1
2008-09	11.0

Source: Author's calculations based on the Ministry of Commerce data.

Structural shift: A large chunk of India's population is trapped in agriculture- a low productivity sector. This is because there are no alternative employment opportunities. Due to heavy and increasing population burden on the land, land holdings in most parts of the country are small and fragmented, making agricultural practices economically unviable. Farmers are caught in a vicious cycle of low-productivity and poverty. It is therefore important to promote economic activity outside agriculture and wean away labor from agriculture to other sectors. SEZs can become an instrument in this shift from a low productivity sector to a high productivity one. This would not only improve overall productivity of the country but would also affect productivity of agriculture by raising the land-to-person ratio in the country.

Structural shift in the industrial sector: Within the industrial sector, re-allocation of economic resources from low value-added sectors into higher value-added sectors is crucial in order to create and sustain the competitiveness and growth of the economy. Table 15 presents a sectoral composition of SEZs in India. It shows that the SEZs of different generations co-exist in India. While Apache in Andhra Pradesh, Cheyyar in Tamil Nadu, Brandix in Andhra Pradesh, and Apparel Park in Gujarat are the prominent examples of labor-intensive low-tech, first-generation SEZs; IT, auto components, electronic components, gems and jewelry, and metal fabrication are skill intensive second generation SEZs; and biotech, pharmaceuticals, and petrochemicals are in high-tech, third-generation zones. The second-and-third-generation SEZs involve more advanced technology, skills and initial capital investment, and higher learning possibilities that, in turn, may produce dynamic externalities for creating new paradigms and industries

Several new industries are emerging in these SEZs. These include:

- Electronics manufacturing industries: Nokia SEZ SIPCOT hightech SEZ, Flextronics, and Velankani SEZ.
- Aerospace industry: Andhra Pradesh Industrial Infrastructure Corporation Ltd SEZ in Hyderabad, Belguam SEZ
- Solar energy: Moser Baer, Fab City
- Wind mill: Suzlon SEZs at Coimbator Varodara, Mangalore

and Kandla
• Bio tech: Serum SEZ in Pune, Gnome Valley SEZ in Hyderabad,

Table 15. Sectoral Composition of SEZs

	IT	Other services	Electro	Bio/phar	Eng	Petro Chem	Power/port	Tex/leathe	Food	Gems & jew	MP
AP	38	2	2	5	1			4	1	1	3
CH	1		1								
GJ	7		1	2	5	1	1	2		1	4
GOA	1			2							
HR	18	2		2	2			1			
JH	0				1						
KL	4		1				2		1		
KN	16		1	3	2	1		1	1		
MH	21	1	1	6	2		1	1	2	1	2
MP	3				1						
ORS	2				2						
PB	1			1							
RJ	2		1					2			
TN	26	1	6		4			5			
UT	2										
UP	14		1		1						
WB	7		1								
Total	163	6	16	21	21	2	4	16	5	3	9
% of total	61.28	2.26	6.02	7.89	7.89	0.75	1.50	6.02	1.88	1.13	3.38

Source: MOC.

The policy was launched with great expectations to give a major thrust for export-oriented industrial estates to improve the export competitiveness of firms in world markets. However, soon it was caught in a country-wide controversy due to land acquisition. The upsurge against land acquisition was exploited by political parties to target the government. The government went on defensive because it

did not want the SEZ policy to become an election issue for opposition parties. The government itself appeared a house divided. In the aftermath of violence in some places, state governments were directed not to acquire land for SEZs. Many states started dragging feet and adopted the policy of 'go slow'. The center put on hold clearances for new special economic zones (SEZs) for a few months in 2007. Furthermore, serious differences cropped up between the Commerce and Finance ministries over the policy. While the Commerce Ministry had been pitching for commercial viability of SEZs, the Finance Ministry had been expressing serious apprehensions on the revenue outgo due to tax exemptions and SEZs being turned into realty projects. The Reserve Bank of India directed the banks not to treat SEZ's as infrastructure projects but as real estate development activity. This not only raised the cost of debt but also prohibited SEZ developers to go for external commercial borrowings. Massive intellectual support to the agitation against SEZs came from the media, activists, and academia; from both the right and the left. These populist controversies sent wrong signals across the world regarding the sincerity of the government with respect to its policy and discouraged both local and foreign investors. The government responded to this controversy by diluting not only the policy but also its support to SEZ investors. This in turn affected the investors' confidence badly. The recession that set in 2008 also affected exports and SEZs adversely. Furthermore, the much-hyped single window is still not applicable. While the approval process is efficient and quick, post-approval implementation of the project is a slow and tedious task. Multiplicity of authorities and separate rules and regulations in the states lead to unnecessary delays in execution of various projects. The lack of cooperation from state governments has also become a matter of concern. Though the SEZ policy has been in effect since Feb. 2006, state laws are not amended suitably. This provides a loophole in the system and is a major roadblock for the entrepreneurs to take advantage of the SEZ benefits.

Despite these roadblocks and the global recession, the policy was initiated, and made useful contribution to investment and exports. However, there is need to evaluate the performance of the policy and address the issues being faced by investors at the earliest possible moment. It is of concern that SEZs have not attracted FDI despite

attractive tax incentives. Some argue that the role of FDI in SEZs is generally overrated while that of domestic capital is underrated. Evidence suggests that the backward linkages forged by foreign investors in SEZs are rather weak (Jenkins 1997). However, FDI is associated with transfers of technical, marketing and managerial capabilities. It also provides access to international distribution channels and enables a country to develop non-traditional exports. It is therefore important to analyze the factors that have kept FDI away.

6. Conclusion

All three countries, namely Taiwan, Korea and India; adopted SEZ policies almost at the same time. While Korea and Taiwan adopted a dedicated strategic approach toward their development and steered the economy to a higher growth path using EPZs as a strategic instrument, India in the initial phases used them simply as an export incentive scheme to generate foreign exchange in an import-substituting regime. No concerted efforts were made to insulate them from the investment climate prevailing in the domestic economy. Both Korea and Taiwan achieved phenomenal success in terms of their impact on the industrial growth, India however failed to exploit the potential of SEZs. Its EPZ saga remained, to a certain extent, success stories.

Recently, all the three countries have moved to the next stage of evolution of their SEZ policy. While Taiwan is creating SEZs to promote high-tech industries; Korea is attracting FDI through them, to transform the country into a business, logistics and financial hub of the region. India's policy on the other hand, has been quite broad-based. The country is still focusing on the static benefits of SEZs namely, employment and foreign exchange generation, though with a more dedicated approach. Thus Korea and India have adopted two extreme approaches. Korea is highly focused while India's vision is very broad. Taiwan is situated in between the two countries. Thus, each country has had a different models, and different patterns of EPZ evolution and their contribution. However an overview of their experience offers useful lessons to policy makers.

The literature on EPZs is insistent that a streamlined, prompt and

efficient bureaucracy in all stages of the creation and running of an EPZ, efficient customs controls, appropriate location, world class infrastructure, and attractive incentives are crucial to the success of EPZs (Madani 1998, Aggarwal 2006b). There has also been much debate over the issues of public and private ownership of EPZs. However the role of strategic intervention regardless of whether EPZs are in the private or public sector is less appreciated. While synthesizing the experiences of the three countries the present study however reveals that a strategic policy intervention that includes vision, commitment, the creation of legal and institutional framework, and a continuously unfolding and dynamic set of policies is a key to the success of EPZs, and that there is a compelling need for intervention in ensuring the success of EPZ-led industrialization. A strategic approach harnesses the opportunities and confronts the challenges of the instrument. One of the major ingredients of the strategic approach is vision i.e. the clarity about the objectives and realism about the underlying model. The goals set for EPZs need to be realistic, achievable and flexible in comparative national and international frameworks. Another important ingredient is strong commitment that reflects in intense focus on growth, knowledge of the necessary and sufficient conditions for growth, and belief in the strategy adopted for growth. The third key ingredient of a strategic approach is the creation of legal and institutional framework. A simple and transparent legal framework influences the attractiveness of the zone to foreign and domestic investors. The fourth crucial decision is how to design policies that are coherent and consistent with other national policies, and are suitable for achieving the goals set for the zones. Constraints need to be identified and addressed. A related decision is how to provide institutional support to foster backward and forward linkages between EPZs and the domestic economy, and stimulate industrialization. From the three cases studied here, it is apparent that the desirable institutions lead to a gradual and strategically conceived integration of EPZs with the rest of the economy. Finally, as the outside economy progresses into the more advanced stages and economic realities change, EPZ policies and vision need to be re-oriented to make them responsive to changing economic environment and needs. They need to be able to move up the value-chain to higher-value added goods based on

continued upgrading and improvement and technological innovation A strategic policy of promoting investment in the development of local suppliers and local value chains, and investment in skill development can lead to their technological sophistication. EPZs thus need to be seen as part of the overall industrial strategy with two way linkages with industrialization in the rest of the economy..

In short, much depends on the spirit of experimentation with imaginative policymaking informed by a strategic medium- to long-run vision and commitment. Pragmatic and flexible approach, dynamic learning and institution-building are essential components of a strategic EPZ policy.

References

Aggarwal, A. 2001. "Technology Policies and Acquisition of Technological Capabilities in the Industrial Sector: A Comparative Analysis of the Indian and Korean Experiences, Science." *Technology and Society*, Vol. 6, No. 2, pp. 255-304. *Sage Publication, Peer Reviewed Journal.* (July-December)

———. 2004. "Export Processing Zones In India: Analysis of the Export Performance." ICRIER Working Paper 148

———. 2006a. "Special Economic Zones: Revisiting the Policy Debate." *Economic and Political Weekly*, Vol. XLI, No. 43 and 44, (November 4-10)

———. 2006b. "Performance of Export Processing Zones: A Comparative Analysis of India, Sri Lanka and Bangladesh." *Journal of Instaflag Institute*, Vol. XXX, No. 1, pp. 33-122. Arizona: World EPZ Association.

———. 2007. "SEZs, Spillovers and Industrial Diversification: A Case Study Of India." Mimeo. Washington DC: World Bank.

Ahn, Y.D. 2007. Foreign Direct Investment In Korea's Free Economic Zones. Presentation.

EDEPZ. 1987. The Establishment and Development of Export Processing Zones in China, by EPZ administration, Taiwan.

Heather, Smith. 1997. "Taiwan's Industrial Policy in the 1980s: An Appraisal." *Asian Economic Journal*, Vol. 11, No. 1.

International Labor Organization (ILO). 2003. "Employment and Social

Policy in Respect of Export Processing Zones (EPZs) International Labor Office, Governing Body, Committee on Employment and Social Policy." Geneva: ILO.

_____. 2007. Export Processing Zones Statistics, International Labor Organization. Geneva: ILO. Available at: http://www.ilo.org./public/english/dialogue/sector/themes/epz/stats.htm.

Jae gon. 2008. *Direction for Free Trade Zone Policy KIET Industrial Economic Review*. The Korea Institute for Industrial Economics and Trade. (June)

Jeong, H-G. 2008. Experience of Korean Economic Special Zone and Its Implications for Central Asian Countries. Presentation made to Uzbekistan Government.

Kim, C.K. 2008. *Korea's Development Policy Experience and Implications for Developing Countries*. KIEP.

Kumar, R. 1989. *India's Export Processing Zones*. Bombay: Oxford University Press.

Kwong, K. S. *et al.* 2001. *Industrial Development in Singapore, Taiwan and South Korea*. Singapore: World Scientific.

Lee, S.C. 2008. "Korea's Experience on Special Economic Zones (SEZs) and its Implications for Uzbekistan." *Feasibility Study on Establishing Special Economic Zones in Uzbekistan*. Korean Institute of International Economic Policy.

Ranis, Gustav and Chi Schive. 1985. "Direct Foreign Investment in Taiwan." In W. Galenson. *Foreign Trade and Investment,* pp. 85-137. Madison: University of Wisconsin Press.

Tze, K.S. 2005. Comparative Economic Structure and Performance in Taiwan and Singapore http://www.rchss.sinica.edu.tw/capas/publication/.../28_03_02.pdf.

Wade, R. 2003. "Governing the Markets: Economic Theory and the Role of Government in Industrialization."

World Bank. 2006. Korea as a Knowledge Economy: Evolutionary Process and Lessons Learned, World Development Studies ed.

Ying Z. 1995. "The Role of Export Processing Zones in East Asian Development." Ph.d. Thesis Submitted to Melbourne University.

Enhancing the Rural Development Policy Space: Will the Saemaul Movement be Adaptable to Africa?

Gbadebo Olusegun Abidemi Odularu

1. Introduction

1.1. Introduction

Rural development remains at the root of poverty alleviation in Africa. Despite concerted efforts by governments and donor agencies in reducing poverty, it is becoming increasingly clear that poverty is essentially a rural phenomenon.

Though many national and international economic development programs have generated some measure of pro-poor growth, more still needs to be done in order to successfully reconstruct rural communities. In addition to the various activities targeted at fostering rural development in Africa, these efforts will be more effective if increasing number of Africans take independent decisions to become self-willed, diligent, committed and willing to cooperate among themselves. This will result in the provision of more roads, bridges, job opportunities, schools, storage facilities for agricultural produce, pipe-borne water, and other economic and social amenities. Consequently, rural communities will become secure in terms of food supply and developed, poverty will be alleviated, rural income will rise, and rural-urban migration will be mitigated.

The Saemaul Movement (SM), which was developed and still being implemented in South Korea, could improve the policy space in reconstructing rural Africa. It continues to spread to other parts of the developing world as an effective program for raising rural productivity, alleviating poverty, fighting environmental pollution/degradation and

driving towards achieving the United Nations Millennium Development Goals (UNMDGs). In fact, SM has proven to be an innovative way of organizing development ideas in order to allow communities to adjust their activities within the context of their natural endowments and self-will.

Against this background, this study poses the following questions: What is the SM? Could the SM be adapted to the African socio-economic setting? What are the pre-conditions for adapting the SM to Africa? What are the workable intervention strategies for adapting the SM to Africa? It is hoped that the answers to these questions will improve our understanding on adapting the SM and widening the rural development 'policy space' in Africa.

1.2. Objectives of the Study

The major objective of this study is to explore how adaptable the SM could be to Africa, given the economic, political (leadership and administrative institutions), social and cultural environment in the region. More specifically, it will briefly discuss the SM. Further, it will present the outstanding features of rural communities in Africa. Next, it will document evidences of the existence or absence of social capital in African rural communities, as a crucial pre-condition for the take-off of the SM. Lastly, it will recommend targeting strategies to ensure the successful adaptation and implementation of the SM in Africa.

1.3. Rationale for the Study

One basic demand-side rationale behind this study is that many African countries hope to learn from the successful Korean development model. Thus, by sharing its rural reconstruction strategy such as the Saemaul Undong, Korea will be able to offer comprehensive and long-term capacity-building programs to help Africa overcome its socio-economic obstacle of rising malnutrition and declining rural incomes. Adopting and implementing the SM in Africa will effectively complement the goals of the New Partnership for Africa's Development (NEPAD's) Comprehensive Africa Agricultural Development Program (CAADP) by addressing the problems of worsening poverty, food

insecurity, agricultural stagnation, and environmental pollution.

African rural communities are characterized by malnutrition, poor healthcare, poor educational services, lack of pipe-borne or potable water, high unemployment, economic backwardness, environmental pollution, among other problems. The fact that these problems undermine the living conditions of the rural dwellers, and also based on the fact that government at all levels in Africa cannot resolve all these problems alone, the principles of the SUF could make development and food security possible for rural communities in Africa. With agriculture being the most dominant economic activity which employs about 70% of the rural labor force, the SM will provide particular attention to the rural poor.

The SM objectives complement the objectives of the rural development programs of other international initiatives such as the United States (US) Initiative to End Hunger in Africa (IHEA), the Millennium Village Project (MVP), the United States Agency for International Development (USAID), the United Nations Food and Agricultural Organization (FAO) and the International Fund for Agricultural Development (IFAD). Further, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), the United Nations Project Office on Governance (UNPOG), and the United Nations Economic Commission on Africa (UNECA) have recognized and approved the SM as an effective and sustainable community-driven development strategy for providing basic rural infrastructure. In fact, the UNECA and UNPOG, in partnership with other regional players on Sustainable Modernization on Agricultural and Rural Transformation (SMART) / Green Revolution (GR) are currently making frantic efforts to finalize a project proposal and mobilize resources for the implementation of SM in Africa.

1.4. Organization of the Study and Sources of Data

Section II provides a quick overview of SM. Section III presents the distinct characteristics of rural communities in Africa. The next section explores the existence of social capital in African communities as a critical pre-condition for the implementation of the SM. Section IV concludes the study by recommending the intervention / targeting strategies to ensure the successful implementation of the SM in Africa.

The data and information for this study will be generated from

secondary repositories through the Korea Institute for International Economic Policy (KIEP) Library and the internet. Various reports by the World Bank, Department for International Development (DFID), African Development Bank (AfDB), KIEP, FAO, IFAD, Organization for Economic Cooperation and Development (OECD), the USAID, the Sahel and West African Club (SWAC), the UNECA and the Forum for Agricultural Research in Africa (FARA) will be consulted in carrying out this study.

2. The Saemaul Movement

The Korean strategy for reducing rural poverty and becoming one of the developed countries in the world today is largely attributed to the SM. The SM, as an economic plan to develop the villages, was the key to the Korean development when it was initiated by the government in the 1970s. The background to the formation of the SM (New Village Movement) or Rural Development and Spiritual Moderni- zation Campaign in Korea were as follows: the burgeoning gap in development between urban and rural areas prior to industrial development; and the growing dissatisfaction of farmers as rural dwellers became increasingly aware of the widening gap in the standard of living between urban and rural areas in the late 1960s. Table 1 presents a summary of the evolution and concrete achievements of the SM.

While the three principles of the SM were diligence, self-help and cooperation, the two pillars of the strategy were motivation (carrots and competition) and training & fostering 'missionaries', or official advocates, of the movement. In motivating the rural dwellers, government provided 335 bags of cement freely to each of the total 33, 267 villages during the winter of 1970-71, and instructed that the cement should be used for their community's needs based on the villagers' consensus. Thereafter, in 1972, the government selected 16, 600 successful villages, and further supplied an additional 500 bags of cement together with one ton of steel rods to each of these selected villages. Thus, this incentive policy based upon competition was repeated, providing more incentive for better performance.

The pillar of training and fostering missionaries within the Korean

rural reconstruction campaign offered nation-wide training and education programs for poverty reduction and spiritual modernization. It rendered nation-wide training for politicians, government officials, village leaders and farmers. In fact, while village leaders played a crucial role in inducing the villagers' participation in the movement, the President awarded medals to advocates who succeeded in eliminating poverty.

While the operational strategy for government support include the best-first principle, the step-wise principle, the learning-by-doing principle, and the matching-fund principle; the Ministry of Home Affairs (MOHA) conducted a nationwide village survey, classifying all the villages into three categories based on the degree of their economic performance: basic (underdeveloped) village, self-help (developing village) and self-reliant (developed) village.

Over time, the concept of the Saemaul Udong was extended from rural to the urban areas, where it expanded rapidly in scope of participation and range of activities such as the 'factory Saemaul', 'urban Saemaul' and 'school Saemaul'.

One of the success stories of the Saemaul Undong is the land ownership and land reform, which is one of the problems bedeviling poor people in rural communities. Land reform was implemented in two sequential stages: (i) redistribution of vested lands by the United States Military Government in Korea (USMG/D) in 1948; (ii) land reform program implemented by the Korean Government during the period 1950-1952. Consequently, 800, 000ha (41.4%) were distributed to small farmers; approximately 1.5 million farmers (70%) received land to become owner-tillers; and about 50% of the farmers who did not own land under the tenancy system became landowners.

Table 1. Evolution of the SM

	Stage	Priority Projects	Characteristics	GNP per capita (in US Dollars)
1	Foundation and groundwork (1970-73)	Improving living environments: Expanding roads inside villages, constructing common laundry facilities, improving roofs, kitchens, and fences. Increasing income: Expanding agricultural roads, improving farmland and seeds, division of labor. Attitude reform: Fostering diligence and frugality, and a cooperative atmosphere.	Launching and igniting the campaign. Government-initiated activities. Top priority on improving living environment	257 in 1970 375 in 1973
2	Proliferation (1974-76)	Increasing income: Straightening rice field ridges, consolidating creeks, encouraging combined farming, operating common working places, identifying non-farming income sources. Attitude reform: Attitude changes through Saemaul education and public relations activities. Improving living conditions: Improving housing and water supply systems, operating village centers.	Expanding program scope and functions. Increasing income and changing attitudes. Earning national understanding and consensus	402 in 1974 765 in 1976
3	Energetic Implementation (1977-79)	Rural areas: Encouraging the construction of more modern housing, encouraging growth of special-purpose plants, running industrial facilities to combine agriculture and manufacturing.	Larger units of implementation by developing	966 in 1977. 1, 394 in 1979.

Table 1. Coutinued

	Stage	Priority Projects	Characteristics	GNP per capita (in US Dollars)
3	Energetic Implementation (1977-79)	Urban areas: Paving alleys, cleaning, establishing order. Corporations and factories: Enhancing productivity, conserving materials, promoting sound labor-management relations.	linkages among villages in the same region. Economies of scale. Appearance of distinct unit characteristics.	966 in 1977. 1, 394 in 1979.
4	Overhaul (1980-1989)	Social atmosphere: Kindness, order, selflessness, cooperation. Economic development: Combined farming, improvements in distribution, credit union activities. Environmental activities: Cleanliness, developing parks throughout the country, building better access roads.	Reborn as a civil sector-organization. Enhancing the role division between government and civil sectors. Escape from inactivity and contraction.	1, 507 in 1980. 4, 934 in 1989.
5	Autonomous Growth (1990-1998)	Sound atmosphere: Developing traditional culture, emphasizing hard work, sound lifestyles, and recovery of moral ethics. Economic stability: Economic recovery, urban-rural direct trade, diligence and frugality. Living environment: Cultivating better community environments, emphasizing autonomous living.	Reinforcing the basis of autonomy and self-reliance. Meeting the need for liberalization and localization. Efforts to overcome economic crisis.	5, 503 in 1990. 10, 548 in 1996.

Source: The National Council of Saemaul Undong Council in Korea (2003).

3. Outstanding Features of Rural Communities in Africa

Africa, with a total surface area of 30.3 million sq. km's, is the world's second largest continent after Asia. However, poverty in Africa is predominantly rural with more than 70 percent of its poor people living in rural areas and dependent on agriculture for food and livelihood (IFAD 2005). Thus some of the general characteristics of African rural communities include economic stagnation, poor production, low incomes, rising vulnerability of poor people, lack of access to markets, marginalization from government social safety nets and poverty alleviation programs, rising HIV/AIDS profile, food insecurity, malnutrition, poor healthcare, poor educational services, lack of pipe-borne or potable water, high unemployment, high illiteracy rate among the population and particularly high among females, low primary school enrollment, low or no access to safe drinking water, low infrastructure, environmental pollution / mismanagement, among other problems.

African rural economy, which was almost exclusively agricultural, generated half of the region's GDP. Over the last five decades, cities have expanded to become connected with each other and with rural areas. The rural sector's working population, despite being more numerous, now play a shrinking role in the economy, particularly in favor of the informal urban sector, and account for about 30% of the Africa's GDP. Although the rural economy is gradually and lightly diversifying (agricultural products processing, mining, handicraft, trade, transport, and tourism), it is still dominated by agricultural activities whose share in the income of the rural population will long remain preponderant.

According to Seung-Hun Chun, Gill-Hang Huh, Chull Yoo, & Mi-Ae Choi (2007), SM could be effectively transferable to African countries if the countries have 'coherent, well-governed local communities and leadership with strong will for development. Thus, understanding the basic characteristics of African rural communities is very crucial in ascertaining the workability of the SM in Africa. Table 2 presents these peculiar features.

Africa exhibits much diversity in rural farming communities in terms of size, assets, market orientation, income, diversification of activities, reliance on migrants' earnings and vulnerability to risk.

Table 2. Distinct Features of African Rural Communities

Thematic area	Characteristics
Decentralization and democratization	Though still at the learning stage, one crucial characteristic is that rural communities are gradually being transformed through rural democratization process with the setting up of decentralized territorial units (Coulibaly & Hilhorst 2004; Djire 2004; IIED 2006), thus promoting efficient management of rural development programs such as local conventions (Coulibably & Hilhorst 1999) through which local governments exercise their authority in managing and accessing their natural resources.
Socio-organizational and institutional dynamics: increasing presence of socio-economic organizations.	Significant strengthening of socio-economic organizations (due to liberalization policies and globalization) has played vital roles in meeting agricultural services needs of rural farmers. Some of these needs include production techniques, inputs, funding and access to markets. Examples of these organizations include the Federation des Nationale des Groupements Naam (FNGN) (Zoundi 2003); the Professional Association of Distributors of Agricultural Inputs (CAGIA), the Farmers' Sub-district Unions (USPP) of Benin, and the service cooperatives for the supply of inputs and marketing set up by the Federation des Paysans du Fouta Djallon (FPFD) in Guinea (SWAC 2008).
Prospects of ruraldevelopment in Africa	Given the scarce and deteriorating natural resources, insufficient rainfall, climate change, liberalization policies, demographic growth; growing number of rural dwellers adopt other coping strategies such as engaging in non-farming, income-generating activities in the informal sector.

Table 3 presents three classifications of rural farms in Africa, based on the following criteria: levels of market involvement, access to technology and exposure to risk. Though, African communities fall in the second and third group, this categorization is not watertight because seasonal and annual mobility exist between the categories. For instance, a bumper harvest in a given season may provide the means for a household to invest in new equipment and pursue a more market-oriented strategy in the future.

Table 3. Classification of Rural Farming Communities in Africa

Type 1	Globally competitive and market-oriented farmers, who are politically well-connected, export-driven and exposed to the risks from fluctuations in global market prices. Some of the major crops grown by these farmers are cocoa, coffee, flowers, vegetables and cotton.
Type 2	Locally-oriented, undercapitalized, with access to and control over land, farmers take relative importance as a factor in achieving a balance between food production and cash crop activities. Though farmers diversify in order to protect themselves from climatic and market risks, this depends largely on their access to land and sizes of their households.
Type 3	Though the objective of farmers is food production to meet subsistence needs, some part of the harvest could be sold to generate cash income. Within communities, farmers represent poorer households with limited access to inputs, equipment and markets. Households are characterized by fragile livelihoods, unskilled and uneducated persons, limited access to productive resources, and dependent on low-wage labor.

Sources: Vorley (2002), 'Sustaining Agriculture: Policy, Governance and the Future of Family Based Farming – A Synthesis Report of the Collaborative Research Project Policies that Work for Sustainable Agriculture and Regenerating Rural Livelihoods,' IIED Publications; Zoundi (2003), Zoundi, J. S. (2003), Technological Innovation and the Transformation of Agriculture and Family Farms in West Africa, SWAC, Paris.

While emphasizing the complexity and dynamism of African rural communities, their manifest features vary across the agro-ecological zones, from one country to another, and between different socio-cultural groups. Within this diversity however, there exists some basic commonalities among these communities, relating to the particular connection between the structure and composition of the household and its associated farm assets and activities. This has far-reaching implications for how decisions are made regarding the choice of farming systems, crop types, development projects, the organization of community labor and its allocation to different tasks, management of communal lands and other assets. Table 4 presents some basic features of how farms are managed in African rural communities.

Table 4. Farm Management in Rural Communities

Themes	Basic Features
Family labor (an element of social capital)	Farms production is largely based on family labor, which, while often unpaid, is assured a return in the form of longer term rights and expectations. Thus, farms rely on labor contributions from their various members who, in return, will receive food and shelter, support in times of illness and old age, and help with costs of marriage, tax payments, and so on. In addition, commitment of labor to the farm enterprise ensures its members maintain their rights to the family's property, when a division of the estate takes place. It is crucial to note that this web of mutual obligations and rights is under strain in many areas, as a result of economic pressures, shifts in religious and cultural values, and the breakdown of large domestic groups into smaller nuclear units.
Non-family labor (an element of social capital)	While agricultural production relies heavily on family labor, non-household labor often provides a significant additional source. Many rural farmers rely on hiring labor from other families in the village or on seasonal farm workers for land preparation, cultivation, harvesting and processing their crops. This may be due to insufficient labor being available within the family (as a result of illness, or out-migration) or due to a strategy of agricultural expansion.
Set of activities	A range of crop and livestock production, fishing, hunting and gathering, trade and craftwork (Zoundi 2003).
Elements of social networking (social cohesion and social capital)	Farms often rely on a set of social networks linking relatives and neighbors in near and more distant locations, through which mutual support is provided. Maintenance and investment in these networks constitute an important element in the household's strategy since they can provide an essential safety net in times of crisis. Within the farm, access to land and farm assets tends to be acquired through inheritance or other social arrangements, such as loans.
Farm management	Land and associated assets (equipment, livestock, etc) of farms are under the authority of the household head. He is responsible for the following: collective management of these assets, allocation of labor between different activities, management of grain stores, and adoption of innovative strategies. In practice, household head will

Table 4. Coutinued

Themes	Basic Features
Farm management	often delegate daily management of fields and animals to a younger brother, while monitoring activities closely. The principal objective is provision of food for family members. Then, the remaining farm produce is sold in order to generate cash for satisfying other needs such as clothing, medicines, school fees, investment in new equipment, and tax payments. Further, surplus crops may be stored to protect against future harvest failure, or sold and reinvested in livestock, other assets or social networks.

Table 4 reveals that farms in African rural communities share three broad and striking features:

- A **socio-cultural** dimension: agriculture is mainly reliant on the human resource base of the family, through a web of relationships and strategies, both individual and **collective**, and reinforced by values of solidarity and long-term commitment.
- An economic dimension: by engaging in a series of farming activities, farms operate within the framework of consumption, storage and selling.
- A technical dimension: ability to maintain and improve land and other natural resources in order to reduce exposure to risks.

It is pertinent to note that farms in African rural communities tend to work on relatively small areas of land. For example, in Ghana, a 1997 study showed that about 800, 000 cocoa smallholders, with an average farm size of 3 hectares, of which 60% had less than 2 hectares, and 80% less than 4 hectares (Owusu, Osei & Baah 2002). In Benin, farm holding size averages 3.3 hectares (Minot, Kherallah, Soule & Berry 2001). For Mali, cotton is grown by more than 200,000 farm households averaging 15 people, cultivating 10 hectares. This is partly explained by the prioritization of consumption over commercialization. However, with the adoption of liberalization policies, there has been a growing need for cash, resulting in a gradual shift in how land and labor are allocated between food and cash crops. Table 5 further expatiates on the basic characteristics of farms in African rural communities.

Table 5. Salient Features of Farms in African Rural Communities

Characteristics	Farms in African Rural Communities
Role of household labor	Significant. It plays a vital role in determining the success of farms. Households are expected to work on joint family field for a certain period of time, and use the remaining period to fulfill personal interests. Regarding skills management, family heads strike the right balance between collective and individual economic activity.
Community linkages	Very strong inter- and intra- village connection, which is based on solidarity, trust, and mutual help between household and broader group.
Priority objectives	Basically for subsistence (household) consumption, though the remaining could be stocked or sold.
Diversification	Very high. This is one of the effective ways to reduce and avoid exposures to risks (mainly environmental). In risk-prone areas, farmers operate within large domestic units in order to access farm equipment (plough teams per person) as well as greater food security (harvest per person). Rural dwellers also diversify their activities to cope with changes such as rising levels of migration within and out of community.
Flexibility	Since diversification is quite high, flexibility is also invariably high. It enhances the responsiveness of farms to prevailing market and agro-ecological conditions.
Size of holding	Quite small, averaging between 5 and 10 hectares and highly diverse in size and structure. They vary in size from small nuclear groups, comprising of a married couple and young children, to larger complex units in which there are several married couples, their children and aged parents. Sizes and structures are partly determined by cultural values, market forces, demographic processes, and skillfulness of household heads.
Access to market	This is either very weak or inadequate partly due to priority objective of basically providing food for subsistence of the household.
Land access	This is mainly by inheritance and social arrangements. Sale of land to community members is forbidden.

Table 5. Coutinued

Characteristics	Farms in African Rural Communities
Responses to civilization	Fairly large farms have undergone considerable changes - broken up into smaller, nuclear families in response to younger men seeking greater autonomy from their elders and their authority.
Responses to demographic and market shocks	Tremendous changes due to social, economic (agricultural, trade), social, geographical, and cultural factors and policies.

Nevertheless, major farms in African rural communities face peculiar problems:

- High illiteracy rate and poor access to educational facilities limit abilities of farmers to engage the formal sector - producer organizations, or government. Further, low levels of literacy undermine easy access to new technologies and innovative practices.
- With most smallholders claiming rights over land through customary procedures without formal paper title, the rising shortage of land and the rapid increase in value may make them vulnerable to stronger interest groups who have officially approved claims over land through formal procedures.
- Due to liberalization and privatization policies, existing cooperative movements or organizations are too poorly-developed to help small farmers negotiate effectively in inputs and outputs markets.
- Declining interest among youth in agriculture, which implies that little respect is given to local knowledge and ways of life such as traditional medicine, skills in local craftwork, or systems for classifying grasses, soils and trees.

4. Social Capital as a Pre-Condition for Adapting Sm to Africa

4.1. Introduction

Social capital refers to the institutions, relationships and norms that shape the quality and quantity of a society's social interactions. It is also a measure of trust, mutual support and participation by

people in the community in activities that strengthen their sense of social belonging and community well-being. It facilitates and coordinates socio-economic activities in all development processes.

Increasing body of evidence shows that social capital contributes to poverty reduction, rural reconstruction and sustainable development. Thus, increasing efforts are being made to identify methods and tools for measuring social capital. This is done in several innovative ways because of the multidimensional nature of the concept of social capital. Thus, researchers have compiled indexes from a range of approximate items, such as the level of trust in government, voting trends, memberships in civic organizations, and hours spent in volunteering.

4.2. Does Social Capital exist in Africa?

One of the critically important underlying factors why SM succeeded and still succeeds in South Korea is the vital role of social capital. On that basis, in order to adapt SM to the African rural communities and to ensure its successful implementation, it is pertinent to establish the existence of social capital in the African rural community.

As far as rural communities in Africa are concerned, Narayan and Pritchett (1997) construct a measure of social capital in rural Tanzania, using data from the Tanzania Social Capital and Poverty Survey (SCPS). This large-scale survey asked individuals about the extent and characteristics of their associational activity, and their trust in various institutions and individuals. They match this measure of social capital with data on household income in the same villages (both from the SCPS and from an earlier household survey, the Human Resources Development Survey). They find that village-level social capital raises household incomes. As a follow-up in another study, Temple (1998) and Temple and Johnson (1998), use ethnic diversity, social mobility, and the prevalence of telephone services in several sub-Saharan African countries as proxies for the density of social networks. They combine several related items into an index of 'social capability' as a basis for explaining significant amounts of variation in national economic growth rates.

Various authors have documented the existence of social capital in African communities. One of them is the World Bank study on institutions and social capital, under which many case studies

confirmed and validated the existence of social capital in Africa. The November 2005 Indigenous Knowledge (IK) Notes No. 86 discusses 'Nugormesese' as an indigenous basis of social capital in West Community. The article shows that, by functioning as the underlying mechanism of social capital, *nugormesese* served as an environment of trust, thus facilitating the relationships between and among the people in this farming area at the early stage in the development of cocoa and coffee. *Nugormesese* operated in facilitating binary relationships between the people either as members of the host communities and migrants, as landlords and tenants, as creditors and debtors, as farm owners and farm workers, or as farmers and non-farmers. It was a culture of mutual understanding and trust that developed particularly between the Buems ‐ the indigenous members of the host community ‐ and migrant farmers in the area. As an institutional framework, *nugormesese* served its social capital purpose well primarily because of its ability to create an environment of trust. This is because the role of effective institutions in the lives of people is analogous to the role of third parties in trilateral conflict management. In order to achieve its conflict management objective, the third party must be perceived by the adversarial parties as a repository of trust. However, over time, the effectiveness of *nugormesese* came under stress, hence the diminishing quality of its mediatory character. In addition, later generations fail to share the warmth and mutual understanding and trust that characterized the original relationship. Thus, the mutual needs and reciprocal assistance that used to bind them together had largely eroded.

Defining social capital as an interpersonal trust expressed through the relationships that exist among a society's members, its institutions, and organizations; Raid and Salmen (2000) test the following hypothesis: [i] the nature and degree of trust between the farmers and agricultural extension agents is key to improved agricultural productivity; and [ii] the degree and nature of trust between the contact groups and other members of the community determine the effectiveness of the groups as catalysts of community development.

Using social cohesion in Mali as an indicator of social capital, there exist striking differences in the abilities of cohesive and fractured villages in meeting community needs. Fractured villages record failures in construction and maintenance of public goods ‐ infrastructure,

water pumps, health clinics, community grain storage, et cetera. In addition, fractured rural communities are characterized by open conflicts between different ethnic groups, clans or family groupings. According to Reid and Salmen (2000), Table 6 presents the indicators of social cohesion as it relates to community performance.

Table 6. Indicators of Social Cohesion

Indicators	Tantoudji (High performer)	Kassame (low performer)
Village cleanliness	Village association weeds monthly	Main paths filled with weeds and trash.
Distribution of infrastructure according to need.	Most socio-economic amenities are in village center, equidistant from the different village sectors, with duplicate structures spread throughout village, that is, accessible to all.	Only two water pumps located at administrative building, 3 km away from village, because each half of village did not want to allow the other half access to water pump.
Ability to organize for maintenance or construction of public goods.	Two literacy centers built in village; communal grain storage; youth group purchased antenna and television for village; village credit association.	Loss of outside funding for road construction due to lack of organization; village bridge washed away because work never completed; school lacking three classrooms.
Number of organizations	Very dynamic women's group, village association, and youth group. Traditional groups are transformed to meet development purposes.	One informal women's group; one informal family farming group; village meetings rarely called or held.
Leadership	Village chief delegated responsibilities to members of different clans and ethnic groups.	Fight between two uncles for Chiefdom.
Physical condition of the Mosque	Several Mosques in good condition.	Mosque roof caving in.
Friday afternoon prayer attendance.	Filled to capacity.	Very few people present.

Source: Reid, C. & L. Salmen (2000), "Understanding Social Capital ‐ Agricultural Extension in Mali: Trust and Social Cohesion." Social Capital Initiative Working Paper No. 22. The World Bank Social Development Family Environmentally and Socially Sustainable Development Network.

These indicators measure the existence of social capital in the community, ability to mobilize for group activities (such as contact groups), and diffuse information within communities. Thus, it remains an extremely important factor in the planning, implementation and supervision of rural development projects like the SM.

The study reveals that women's associations are a vital and often neglected source of social cohesion, representing latent social capital with great potential for mobilization and development in most villages. Where the potential of women's associations (formal or informal) is recognized and built upon, development is more likely to be realized.

Reid and Salmen (2000) note that the most important single factor determining the success of any external intervention was the degree of social cohesion already existing in a particular community. The predisposition of a community's residents to attend association meetings, to gather together in places of worship, to build and maintain public infrastructure, is what creates the fertile ground for external initiatives, like SM, to take root, while emphasizing the predominant importance of the pre-existing social fabric of the community.

5. Conclusions and Recommended Intervention Strategies

World Development Report (2008) notes that decentralization and Community-Driven Development (CDD) contributes to agricultural and rural development sequentially; first focusing on basic services and public goods and lastly engaging in income-generating activities once the most basic needs have been met. It emphasizes that CDD can harness the potential of rural communities - their local knowledge, creativity, and social capital.

Having noted that social capital is a primary precondition for SM to be successful in African rural communities, it is crucial that the existing fabric of the villages is well understood before adapting the SM. Thus, there is a need to embark on a study in order to uncover the type and degree of social cohesion upon which the SM could be built upon.

SM representatives must be observers as well as active participants within these communities. They should be willing to work with women

and women's groups or institutions. In other words, given the existing administrative institutions in the African setting, such as village heads/ councilors, youth and women's movements (with various age-grades/ groups) and schools, this will facilitate the realization of the objectives of the rural reconstruction movement.

Trust should be established, encouraged and reinforced between the SM representative and the community, since trust underlies community cohesion. It is also crucial that trust is established between the SM representative and the central government agency for which s/he works or else, s/he becomes demoralized and less effective in communicating with the target population.

Socio-cultural training should be included at all levels, including tools such as mapping, participant observation and conducting conversational interviews. In less socially cohesive but prospective communities, social cohesion can be enhanced through community organization and local institution building, as well as literacy programs and other basic development assistance that can increase the capacity for mutually-reinforcing social interaction.

Regarding the selection of the communities, there is a need to measure the social capital in the communities based on certain criteria. The higher the social capital, the more adaptable the community will be in implementing the SM and positive reconstruction of its rural status.

Rural reconstruction programs like the SM need to adapt to the different levels of cohesion by understanding and analyzing pre-existing conditions in the communities in which it will be implemented; rather than coming with assumptions. Bearing in mind that a rural community is an organic and dynamic system consisting of continually changing sets of relationships, understanding these relationships while focusing on the level of cohesion in a community is very crucial. While SM could easily be adapted to cohesive villages by using traditional groups wherever possible, fractured villages could begin with literacy projects.

At this juncture, it is crucial to note that the SM cannot be exported to Africa wholesale, for it must be adapted. In actual practice of economic development, there is no substitute for careful analysis of particular national contexts, as an intervention strategy for stimulating economic growth. As Sala-i-Martin rightly noted (Snowdon 2006),

each country needs to develop its own market-supporting institutions because countries and regions develop economically with different, and often surprising, set of rules and institutions. For example, the growth take-offs of the UK, Japan, the 'Asian Tigers' and China have been quite different, and many economists would have doubted the Chinese model of capitalism in favor of the Structural Adjustment that was adopted by most African countries (ODI Briefing Paper 2008). By implication, the access strategies could be slightly different. Although all African countries share certain characteristics, the communities are not at the same level of social cohesion and rural development.

In order to further buttress the point that the SM as it was in Korea in the 1960s could not be exported to African hook, line and sinker; given the African socio-economic framework, SM should be adapted to prevailing circumstances and later up-scaled. This partly explains the cases of the Japanese One Village Movement, the Jeffrey Sachs Millennium Village Project, and the Chinese who adopted the Korean vocational training system in 1997, and officially launched the 'New Countryside Movement' benchmarking the SM (New Village Movement)' of Korea in 2006.

Replicating the best practices of the SM, as a rural community development program, with the objective of building the capacity of a community to formulate and implement village improvement plans is very important. After a community develops a plan, it should approach the government and request funding for its appropriate programmes, and then combine government resources and its own funds and in-kind investment to undertake village development. This approach empowers communities to hold the government accountable for the implementation of its policies.

For Korea to achieve its development cooperation objective in the 21st century, it could pursue some comprehensive and independent intervention strategies for its SM rural development program in Africa. Based on Korea's economic and strategic interests, as well as the existence of other ongoing rural development programs in Africa, the 53 countries could be classified into nine different categories. Given these two basic indicators, options for the intervention strategies could be as follows: High-High (HH), High-Medium (HM), High-Low (HL), Medium-High (MH), Medium-Medium (MM), Medium-Low (ML),

Low-High (LH), Low-Medium (LM), and Low-Low (LL). Table 7 captures the matrix of targeting strategies for the Korea‐Africa rural development cooperation.

Table 7. A Matrix of Intervention Strategies in Adapting the SM to Foster Rural Development in Africa

Other ongoing rural development programs	Korea's economic and strategic interests		
	High	Medium	low
High	HH	HM	HL
Medium	MH	MM	ML
Low	LH	LM	LL

Note: High (%): 60 ≤ x ≤ 99
      Medium (%): 40 ≤ x ≤ 59
      Low (%): 0 ≤ x ≤ 39

where 'x' represents both Korea's economic interests as well as other ongoing rural development programs. These strategies are based on the following assumptions:
  • From Korea's and Africa's economic standpoints, there exists scarcity of financial and human resources for promoting African rural development.
  • Every African country has a rural sector which is underdeveloped. In other words, the rural sector is characterized by abject poverty, high illiteracy, malnutrition, low socio-economic amenities, et cetera (as noted in the third section of this paper).
  • Then again, the rural sector possesses elements of social cohesion and capital within it. Community members possess elements of self-help, diligence and willingness to cooperate.
  • At the (local and) national level, there is strong leadership, good governance, friendly diplomatic / international relations, good human right records, socio-economic political stability, and above average economic growth rate (4%-5%).

Though a few African countries are rich in natural resources, with relatively high levels of information and communication technologies,

trade, and foreign direct investment; it is recommended that the proposed strategy for Korea's intervention should be independent in the sense that its interest in the resource-rich countries should not preclude its interest in promoting rural development in these same countries. In other words, the proposed targeting strategy to develop energy and natural resources, promote export industries, expand information and communication technologies and infrastructures should not be mutually exclusive of its access strategies of using SM to foster rural reconstruction (in the rural areas). This is related to the fact that both resource-rich and resource-poor countries have economically-backward rural communities.

However, all nine intervention strategies have near and far-reaching implications for Korea. For instance, **HH** implies countries where Korea has considerable economic interests as well as countries where there are other ongoing rural development programs like the Millennium Village Project, the Finnish Rural Development Program in Africa, the (partially) World Bank-sponsored FADAMA[5] development project, et cetera. A country ranking high in terms of Korea's economic interest could mean a familiar socio-economic and political terrain for Korea to operate and successfully introduce and implement SM in the rural areas. On the other side, the presence of other ongoing rural development programs has the advantage of Korea riding on already existing rural development institutional network to promote the SM. However, if such rural communities experience poverty reduction, then Korea's SM will be one of the programs that generate the success and will not receive sole credit. The contrast applies to the **LL** scenario. There

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5) The National FADAMA development project is a major instrument for achieving the Government's poverty reduction objective in the rural areas of Nigeria. Its beneficiaries are private economic agents who achieve their livelihoods directly or indirectly from the exploitation of natural resources in a given FADAMA area. The project will empower the FADAMA Community Association (FCAs) with the resource and the needed training and technical assistance support to properly manage and control these resources for their own development. FCAs would take charge of their own destiny through real empowerment. The project also adapt a socially inclusive and participatory process whereby all FADAMA participants collectively identify their development priorities and agree on their investment activities which would be outlined in a Community Development Plan (CDP).

exist other seven strategic options between these two extremes. In most cases, the two extreme strategies might not be the best intervention options, but the other options – **HM, HL, MH, MM, ML, LH, LM**, – could be workable for the Korean Government to explore in fulfilling the strategic and diplomatic interests of Korea and Africa.

Without overemphasizing the fact that Korea has a comparative advantage over other donor countries in its rapid rural development experience, African countries want to model their development after Korea. If Korea avails itself to this opportunity to help reduce poverty in Africa, using its rural reconstruction campaign – SM, it will raise Korea's status in the global community and among the comity of international donors/development partners. This will yield a win-win relation for the two partners.

The Korean Government, together with FARA (given its comparative advantage in facilitating and coordinating agricultural / rural development programs in various African countries) could pilot the project in the selected communities. The result and findings from these communities will be sped up, scaled up, spread out and scaled out to other African countries. Piloting the SM at the rural community levels will leverage FARA's experience as a continental multi-stakeholder agricultural research forum which strengthens the connection and consolidate the networks between farmers, civil society organizations, community leaders, researchers, and policymakers by aiming at improving the livelihoods of a rural farmer or a pastoralist.

In addition, FARA, as the technical arm of the African Union (AU), as well as the top agricultural research organization in Africa, would work with the Korea Institute for International Economic Policy (KIEP), the Korean International Cooperation Agency (KOICA), the Korea Institute for Development Strategy (KDS), the National Council of Saemaul Undong Movement in Korea, the United Nations Project Office on Governance (UNPOG), the United Nations Economic Commission for Africa (UNECA) and the African Development Bank (AfDB) in adapting the SM to African communities. Given this strong networking platform, it will be incumbent on African communities / countries to utilize this additional rural development 'policy space' productively.

References

Coulibaly, A., & Hilhorst T. 2004. *Implementing Decentralization in Mali: The Experiences of Two Rural Municipalities in Southern Mali*. IIED, Issue Paper No. 127. p. 34.

_____. 1999. *Elaborating a Local Convention for Managing Village Woodlands in Southern Mali*. IIED Drylands Issue Paper No. F78. p. 24.

Das Gupta M, Grandroinnet H, & M. Romani. 2003. "Fostering Community-Driven Development: What Role for the State?" World Bank Policy Research Working Paper 2969. Washingto D.C.: The World Bank Development Research Group.

Djire, M. 2004. *The Myths and Realities of Local Governance in Sanankoroba, Mali IIED*. Drylands Issue Paper No. 130. p. 44.

Frey-Lungula, N. 2008. "Applying the Korean Saemaul Movement in Africa: Successful Case Study in the D.R. Congo." Paper presented at the Ministerial Conference on "Leadership Capacity Development for Decentralized Governance and Poverty Reduction in Africa." 28-30th May, 2008, Yaounde, Cameroon. http://www.ungc.org/action.ddf?a=letter.html&c=5102&main=5&img_tp=2&menu_tp=7&vol=2 [Accessed 09/09/09].

IIED. 2006. "Making Decentralization Work for Sustainable Natural Resources Management in the Sahel: Lessons from a Program of Action-research, Policy Debate and Citizen Empowerment." London: IIED. p. 66.

IFAD. 2005. "Achieving the MDGs: Rural Investment and Enabling Policy." Discussion Paper‐IFAD Board of Governors, Twenty-eight session, IFAD, Rome (Italy). 16-17 February. p. 55.

FAO/IFAD/WFP. 2005. Meeting the MDGs: Financing for Food Security, Agriculture and Rural Development. Contribution by FAO, IFAD, and WFP. UN General Assembly 59th Session, New York, 27-28 June, p. 4.

Handbook for Saemaul Undong Movement. 2003. The National Council of Saemaul Undong Council in Korea.

Minot, N., Kherallah M., Soule GB. and Berry Ph. 2001. "Impact of Agricultural Market Reforms on Smallholder Farmers in Benin and Malawi." Results of Survey of smallholders farmers, communities, and villages, Vol. 1, IFPRI, Washington DC. p. 299.

Munyi E. N. 2008. "Exporting 'Saemaul' Movement." *The Korean Times*.

Opinion page (07-22-2008 15:36): http://www.koreatimes.co.kr/ www/news/opinon/2009/08/198_27972.html [Accessed 09/09/ 04].

Narayan, Deepa, & Lant H. Pritchett. 1997. "Cents and Sociability: Household Income and Social Capital in Rural Tanzania." World Bank Policy Research Working Paper No 1796. The World Bank.

Overseas Development Institute (ODI). 2008. Briefing Paper 33, 'Pro-poor Growth and Development: Linking Economic Growth and Poverty Reduction.' ODI, UK.

Owusu; J. G. K., Osei, Y. and Baah, F. 2002. "Current Issues in Agriculture in Ghana: The Future of Family Farming." Paper prepared for IIED, Dakar, Senegal.

Reid, C. & L. Salmen. 2000. "Understanding Social Capital ‐ Agricultural Extension in Mali: Trust and Social Cohesion." Social Capital Initiative Working Paper No. 22. The World Bank Social Develop-ment Family Environmentally and Socially Sustainable Development Network. Some social capital working paper series of the World Bank Social Development Family Environmentally and Socially Sustainable Development Network could be accessed on this permanent URL webpage: http://go.worldbank.org/ OEOSW08A20

Chun, Seung-Hun. 2007. "Sharing the Korean Experience for International Development". Paper presented at the ODA International Conference on *Searching for Effective Measures to Achieve MDGs*. Seoul, the Republic of Korea. March 7.

Chun, Seung-Hun and Gill-Hang Huh and Chull Yoo and Mi-Ae Choi. 2007. *Rural Development for Poverty Reduction in Africa: By Focusing on Transfer of Korea's Experience of Agriculture Development*. KIEP Regional Study Series 07-07, KIEP Series for Korea's Mid-to-Long-Term Economic Strategy 07-08-01.

Snowdon, B. 2006. "The Ending elixir of Economic Growth. Xavier Sala-Martin on the wealth and poverty of nations." *World Economics*, 7(1), pp. 73-130.

SWAC/OECD. 2008. Rural Transformation in the Sahel and West Africa by 2025: For Strategic Thinking on the Future of the Rural Environment. SWAC/OECD, Paris, France.

Temple, J. 1998. "Initial Conditions, Social Capital and Growth in Africa." *Journal of African Economies*, 7, pp. 309-347.

Temple, J. and Johnson, P. A. 1998. "Social Capability and Economic

Growth." *Quarterly Journal of Economics,* 113, pp. 965-990.

Toulmin C. and Gueye B. 2003. *The Transformation of West African Agriculture and the Role of Family Farms.* SWAC/OECD, SAH/D (2003) 541, Paris, France. p. 144.

United Nations Development Programme. 2008. "Fast Facts: An Overview of Millennium Villages Project." UNDP; The Earth Institute at Columbia University; Millennium Promise. www.millennium-villages.org.

Vorley, B. 2002. *Sustaining Agriculture: Policy, Governance and the Future of Family Based Farming‐A Synthesis Report of the Collaborative Research Project Policies that work for Sustainable Agriculture and Regenerating Rural Livelihoods.* IIED Publications.

World Bank. 2005. "Nugormesese: An Indigenous Basis of Social Capital in a West African Community". Indigenous Knowledge (IK) Notes, No. 86, November 2005. http://www.worldbank.org/ afr/ik/default. htm.

_____. 2008. "World Development Report, Agriculture for Development." The World Bank Headquarters, Washington DC, 20433.

Park, Young Ho and Yoon-Sun Hur. 2007. *Korea's Mid-to Long-term Economic Strategy for Africa.* KIEP Policy References 07-19.

Zoundi, J. S. 2003. *Technological Innovation and the Transformation of Agriculture and Family Farms in West Africa.* Paris: SWAC.

Characteristics and Significance of Socio-economic Development of the Far East and Baikal Region in Russia for the Period till 2025

Izotov D. A.

1. Introduction

In Russian Far East, long-term economic development plans have been implemented in many phases over a long period of time. The government has always set aside large budgets for these plans in order to allow them to reach their specific targets, even though they were not official initiatives formulated at the national level.

Among the plans mentioned above are: Industrial-military complex formation program (1930), Program for complex development of production forces of the Far East economic region and Chita region (1967, 1972); Long-term state program for development of production forces till 2000 (1987); the Federal purpose-oriented program "Economic and social development of Far East and Transbaikalia for the period of 1996-2005" (1996); the Federal purpose-oriented program "Economic and social development of Far East and Transbaikalia till 2013" (the revision of the 1996 version). Those regional development plans of the past and the present are differentiated from one another in purpose, time period and the scale of budget.

The special federal plans for regional development have also been in place throughout the 2000s despite Russia's economic crisis. The Russian Ministry of Regional Development sees as the obligation of the federal government the expeditious approval of plans for socio-economic development of the Far East, Buriatia, Trans-Baikal and Irkutsky regions (Baykal region) until 2025. The strategic goal of

regional development in the Russian Far East and the Baikal region is to accomplish the geopolitical task of giving its residents incentive to settle down. To that end, the development plans need to enhance the economy and socio-economic status of the region to levels on par with federal averages and create a comfortable living environment. Furthermore, the development plan includes the strategic goal of reforming economic structure and building the comprehensive infrastructure in transportation and energy.

2. Conditions for Emergence of Strategies for Socioeconomic Development of Russia's Far East and Baikal Regions for the Period till 2025

The history of high-scale economic development of Russian Far East is comparatively short – it only began towards the end of the 19th century during the construction of the Trans-Siberian railroad. The Far East economic region played a significant role in the economy and geopolitics of the former USSR. Moreover, it was geopolitical considerations that prevailed in determining the strategy of economic development of the country. Far East was seen as the reserve territory for agricultural migration and also as a home base for the Soviet Pacific Fleet and Far Eastern Forces. Geopolitical considerations had an explicitly political/military overtone during the Soviet times, which were not very different from the pre-revolutionary times. USSR as well as the former Russian Empire relied on this region as the 'rear area base' for military operations.

Politico-military aims of preventing probable aggression, and the imperative of maintaining

military-strategic parity in the Asia-Pacific region from the 30s to the 70s determined the massive investments in industry, oriented towards creation of relatively autonomous economic complexes in a time when the region considered to be a rear base area for military groups. This approach to regional development largely determined the industrial dynamic rates and structures. Simultaneously, it also laid the groundwork for what was to become an ineffective regional economic system, for the placement of industrial resources in the region was implemented on the basis of noneconomic criteria.

Aside from the function of maintaining the county's geopolitical strategy in the Far East and Pacific coast region, the Soviet Far East also became a supplier of a number of raw materials for the national economy. Existence of rich natural resources there was not considered to be a serious incentive for large investment through different periods. At the same time when the economic development of the region took place, they were determined by different criteria at different periods of time, with different systems of operation.

As it is already known, the most significant factor in maintaining regional economic growth is the promotion of investment activities. During the process of investment generation, a host of issues that could be solved only with direct governmental intervention arises. Federal purpose-oriented programs constitute one of the forms of regulation of investment activities by the government.

Purpose-oriented programs - is the common method of 'planned influence' on the economy for reaching complex and long-term goals with massive infusion of centrally accumulated resources in certain fields and regions. This method was used in the Far East region practically since the beginning of the era of centralized economy in the USSR. First complex development programs of this macro region took place in the 1930s to the 1940s, when the formation of massive-scale politico-military complex was conducted

Plans such as these for the Far East had been implemented, again, nearly since the beginning of centralized economy in the USSR. First complex development programs for this macroregion was implemented in the 1930s and 40s, when centrally-accumulated resources funded and made possible the large-scale formation of the industrial-political complex in the East of the country. Alongside with the State electrification Committee of Russia, Ural-Kuznetsk integrated plant, Turksib and some other projects, industrial-military base creation in Far East became paradigmatic example of program planning of territorial economic systems.

The main methods for attaining the goals of those programs were budget resources concentration and centralized financial assets' pegged to the budgets of main objects of new construction and reconstruction. Limited resources became an obstacle, but at the same time it compelled those in charge to choose carefully and set priorities. It was not hard to implement, for the number of main objectives and

respective objects in the programs were relatively small.

Far East was a region where attempts to implement long-term economic development programs had been made, which not only comprised official governmental plans, but always determined the concentration of resources under control of the central government in reaching a certain goal (goals).

Some of the main efforts in this regard were: Industrial-military complex formation program (1930); Program for complex development of production forces of the Far East economic region and Chita region (1967, 1972); Long-term state program for development of production forces till 2000 (1987); the Federal purpose-oriented program "Economic and social development of Far East and Transbaikalia for the period of 1996-2005" (1996); the Federal purpose-oriented program "Economic and social development of Far East and Transbaikalia till 2013" (revision of previously adopted program of 1996). The programs for regional development that have been implemented and are being implemented in the Russian Far East differ in objectives, planning horizons, budget financial assets concentration etc.

In 1930s the government attempted to resolve the problem of industrial-military complex creation in the East of the country. As a result two decrees concerning the economic development of Far East were issued from the Council of People's Commissars and Politbureau of Central Committee of the All-Union Communist Party. In accordance with these decrees plans for the creation of autonomous economic potential for the region that would support the defense-strategic goals of the country began.

By the beginning of 1960s, appeals to raise the level of complexity of economic systems became more and more persistent. As a result, difficulties thereafter were linked to the implementation of guarantees of the Center, which concerned the maintenance with central coffers of narrow-specialization economic complex with guaranteed supply of products for production-technical and consumption. During that period, the Far East region again started drawing attention of central governing bodies as the new raw materials base for the range of industry fields. In 1967 the Central Committee of the All-Union Communist Party and the Soviet Ministry of the USSR adopted the decree about the economic development of the Far East region.

In 1972 an additional decree followed from the Central Committee

of the All-Union Communist Party and the Soviet of Ministry of USSR, aimed at the strengthening of the previous decree and supplementary development of the defense productions in the Far East. But during period, the situation differed significantly from that of 1930s. The number of objectives that were to be solved rose significantly. Competition between potentially high-priority projects rose while the centralization of resource allocation weakened which gradually modified into competition between departments. As a result, planned objectives for basic socio-economic indicators were not fully completed.

The next experience with method of implementing programs for improving efficiency and competitive ability of the Far East region's was linked to the adoption in 1987 of the Long-term state program for the development of the Far East, Buryat ASSR and Chita for the period up until 2000 by the Central Committee of the All-Union Communist Party and the Soviet of Ministry of USSR. That program was the last attempt to change the situation at the expense of centralized reorganization and of capital investments, and their structural reorientation towards development in the social sphere development.

But political and economic upheaval in the country in the end of 1980s challenged the feasibility of deadlines and scales of project resources. In USSR there were no more real ramp up in sources of investments. Program tasks were not fulfilled in either industrial fields. Planned parameters of development were not reached in the social sphere also.

Amidst the hard circumstances of 1990s, when the reduction of government support for the Far East territories and Transbaikalia resulted in the exacerbation of economic and social problems, new Federal purpose-oriented program was elaborated, for by 1995 the range of critical problems that would preclude economic stabilization and improvement of social conditions had accumulated. This became the main rationale for persistent demands for change of state policy towards the Far East.

In 1996 under the pressure of local elites, President B.N. Yeltsin signed the new state programs for the development of the region for the period of 1996-2005. That program possessed the status as a "Presidential program", which was to guarantee the completion of

stated intentions of the federal center that were announced in the program.

The main aim of the program was the gradual change in the direction of regional development. General objective of the Program was determined as follows: to weaken as much as possible the influence of factors impeding the region's adaptation to the market economy conditions; take full advantage of excellent preconditions for development, and thus, to create the necessary conditions for quick recovery from the crisis, and accelerated future development compared to the mean growth rates for Russia.

However, goals of the program were unfulfilled, due to reasons such as insufficient financing, as well as drawbacks that were not considered during the project's initial stage. As a result, a new issue arose in 2000, whether to correct the existing program or announce a new program for the development of Far East and Transbaikalia that would fulfill the new conditions.

We can claim that the increase in the complexity of the means

Table 1. Rate of Completion of the Programs in the Far East and Transbaikalia Development

Document, decision	Tasks fulfillment, %
Decree of Council of People's Commissars and Politburo of Central Committee of the All-Union Communist Party. 1930	130
Decree of the Central Committee of the All-Union Communist Party and the Soviet of Ministry of USSR. 1967	80
Decree of the Central Committee of the All-Union Communist Party and the Soviet of Ministry of USSR. 1972	65
State purpose-oriented program for the period of 1986-2000 (1987)	30
«Presidential program» for the period of 1996-2005 (1996)	10

Source: Calculations based on archive materials of the Institute of Economic Research of the Far East Department of the Russian Academy of Science and International Association of Economic Cooperation of the subjects of the Russian Federation in the Far East and Transbaikalia.

that in turn determine the complexity of programming for such a region as Far East and Transbaikalia directly influences the effectiveness of efforts to complete investment tasks (table 1).

As a result, adjustments were made on the program for Economic and Social Development of Far East and Transbaikalia" and extended until 2010. This adjustment, unlike the regular "corrections" of the budget indices, involved the alteration of the initial principles of the program. Instead of assisting the formation of various sectors and providing directions towards reaching strategic aims for the region and the Russian Federation as a whole, all resources are to be concentrated on resolving internal problems in the Russian Far East. This means that the State program ceases to be the instrument of midrange strategic planning, but becomes a modified version of traditional plans for socioeconomic development of the territories or the modification of development plans for the local economy and social sphere, as it used to be in the old Soviet Union. In 2007 the new version of the program was adopted, a consequence of the new geopolitical strategy of state development. The period included in the Plan for the new version of the Program was extended until 2013. Recently, the issue of extending the duration period of the Far East program till 2018 is being discussed. [2].

Concerning the development programs of the region, main planning indices of which are being adjusted, a grand 'strategy' does not officially exist. Unlike the current programs, a likely 'Strategy' would deal with development conceptually and set long-term directions.

Formulation of the strategy of development of the Far East, Republic of Buryatia, and Irkutsk and Chita regions for the period till 2025 is being led by the ministry of regional development of Russia together with interested federal executive bodies as a part of the execution of protocol from the presidium of the State committee for the socioeconomic development of Far East, Republic of Buryatia, Irkutsk and Chita regions from December 12, 2007.

At the 4th Far East Economic forum in Khabarovsk on 2008, the project "Strategy for socioeconomic development of the Far East and Baikal region till 2025" was presented. The proposal for the strategy has already been submitted for consideration of the Federal Cabinet and it is highly probable that it will be adopted.

Thus the following issues could be raised: what is the content of

the strategy and how does this strategy for the development of the Russian Far East Russia differ significantly from the documents that had been adopted earlier? What are the qualitative effects of the Far East and Baikal region development following the implementation of the strategy in perspective, upon the politics of regional development along with economic and budget planning will make possible careful allocation of resources and main investment projects across the country; it can provide for the effective use of resources located in different parts of the country and to reduce the discrepancy between standards of living in the regions; provide coordination and directions for the creation of infrastructure for economic development and everyday living; and increases the availability of resources etc.

3. Contents of the Federal Purpose-oriented Program "Economic and Social Development of Far East and Transbaikalia for the Period until 2013" and Evaluation of its Implementation

3.1. Contents and characteristics of the Program

In November 2007 the new version of the Federal purpose-oriented program "Economic and Social Development of the Far East and Transbaikalia" was issued which was the result of the formation of a new geopolitical strategy for state development. The stated period in that version of the Program was extended till 2013. The aim of the program is to create infrastructure and a favorable investment climate for the development of high-priority sectors of the economy of the Far East regions and Transbaikalia while considering geopolitical interests and ways to safeguard the Russian Federation.

The resolution of several issues have been planned for achievement of the said objective including: maintain population in the region based on stimulation and creation of new jobs; lifting of restrictions related to infrastructure for economic development at the regional level; initiate development of a range of engineering infrastructure and social sphere development projects [16].

The distinctive feature of the new version of the Program is the alteration of the approach to financial resources allocation by changing the source of financing. In the program of 1996-2005 and till 2010 and

in the further amendments of 2002-2006, it was proposed that the main portion of funds for big financial commitments was to be taken from non‑budget sources, but in the new version, the main portion would come from the Federal budget (figure 1). In other words, in that version of the Program the new principle of financial resources centralization that was present in the programs of the territorial development till 1995, was implemented.

Figure 1. Program Financial Assets Allocation by Source of Financing
Federal Budget‑ Budgets of Regions‑ Non-budget Sources
Program of 1996-2005 till 2010‑ Program of 2008-2013

(Unit: %)
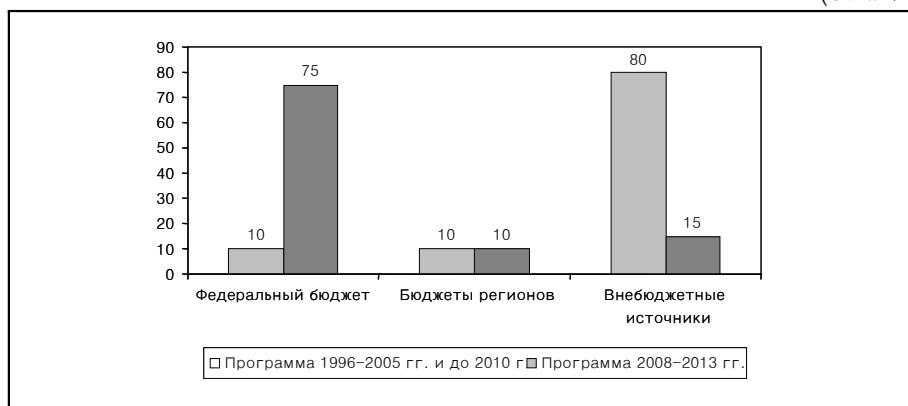
Source: [16].

One more distinctive feature of the new version of the Program is the strong orientation toward infrastructure. Volume of financial assets, directed towards enlargement and modernization of existing transportation systems and regional energy complexes, and construction of the new ones, comprises about 80% of the total (table 2).

As a result of implementation of planned programs, the growth of main macroeconomic indices in 2013 vis-a-vis 2007 was as follows: gross regional product‑ 2.6 times, investments in main capital‑ 3.5 times, number of economically active population‑ 1.1 times.

Territorial allocation of financial assets is a clear indication of patterns of priority in the investment policy. The largest volume of funds (more than 30%) has been slated for the development of Primorsk

Table 2. Structure of the Program Financial Assets Allocation by State Customers

(Unit: %)

Customers	Financing volumes, %
The Federal Road Agency, Federal Agency of Air, Railway, Marine and Inland Water Transport	53, 9
The Federal Energy agency	26, 0
The Federal Construction, Housing and Community Amenities Agency	13, 9
The Federal Healthcare, Social Development, Education, Culture and Sport Agencies.	3, 5
Other	2, 7

Source: [16].

territory, which is closely linked with the hosting of the APEC summit in 2012 in Vladivostok. 35% of the total funds is planned to be used for implementation of projects in the Kamchatka region, Sakhalin region and Republic of Saha (Yakutia) (table 3).

In August of 2008, the Program was revised once again with the total volume of financial assets increased from 567 to 700.5 billion rubles as a result, due to a two-fold increase in financing for the subprogram "Vladivostok development as the Center of International Cooperation in APR."

The structure of financial assets allocation by sources of financing in the 2008 version did not exhibit significant changes: the main financial burden is borne by the Federal Budget (more than 75%), a slight increase in the inflows of assets from the non-budget sources (15.7%) and the burden borne by the subjects of Federation decreased (8.9 %).

One of the components of the Program is the subprogram "Development of the Vladivostok City as center of International Cooperation in APR." The main stimulus for this program implementation is the hosting of the APEC summit in 2012. At the same time, the summit is not considered an end in itself, but rather one of the instruments for stimulating all of Primorye region, and preparations for the summit

should be combined with complex plans for the development of the Russian Far East. 284.2 billion rubles are planned for spending on realizing the projects included in the subprogram during the period of 2008-2012; more than 70% of this sum are from the Federal budget.

Table 3. Territorial Structure of Program Assets Allocation (including the Vladivostok subprogram)

(Unit: %)

Territories	Financing during the period of 2008-2013
Republic of Saha (Yakutia)	12, 9
Kamchatka region	10, 1
Primorye region	30, 9
Khabarovsk region	9, 3
Amur region	6, 5
Magadan region	5, 9
Sakhalin region	11, 5
Jewish Autonomous Region	2, 6
Chukotka Autonomous Region	3, 5
Republic of Buryatia	3, 7
Chita region	2, 2
Agin Buryat Autonomous Region	0, 9

Source: [16].

The strategic priority in the development of the regional economies till 2013 is the formation of a modern and safe transportation and energy infrastructure. The amount of money that are slated for spending on the extension and modernization of existing transport system and regional energy complexes, but also on the construction of new ones, composes little more than 70%, 2/3 have been allotted for the transportation system.

3.2. Intermediate results of the implementation of the Federal purpose-oriented program "Economic and Social Development of Far East and Transbaikalia for the Period up to 2013."

The program "Economic and Social Development of the Far East and Transbaikalia for Period up to 2013" adopted by the decree of the government of the Russian Federation under the date of November 21, 2007 (No. 801) with all sources of financing (including the program "Development of Vladivostok City as a Center of International Cooperation in Asia-Pacific Region") provides 46083.0 million rubles. The assets of Federal budget set aside for the program totaled 35110.0 million rubles (76.2% of the whole volume), funds from budgets of the subjects of the Russian Federation – 6732.0 million rubles (14.6%), funds from budgets of municipal formations – 559.6 million rubles (1.2%) and of non-budget sources – 3681.4 million rubles. (8.0%) [3].

The volume of funds produced by the Far East and Transbaikalia Territories provided by the Program for 2008 are slightly different from the volumes stated in the Program documents.

According to the regional data the total amount of funds was 33535.88 million rubles, including funds from the Federal budget – 23311.01 million rubles (69.5%), from budgets of the subjects of the Russian Federation – 5189.1 million rubles (15.5%), from budgets of municipal formations – 511.87 million rubles (1.5%) and funds from non-budget sources – 4523.9 million rubles. (13.5%)

Total volume of financial resources in the amended version for 2008 was 36153.06 million rubles, or 107.8% of the total value of financial resources, stipulated by the Program. IN this version, the share of the Federal budged was 63.8%, budgets of the subjects of the Russian Federation – 14.8%, budgets of municipal formations – 1.4%, and nonbudget sources – 20.0%.

In 2008 the implementation of the program "Economic and Social development of the Far East and Transbaikalia for Period up to 2013" was expected to attract 23170.64 million rubles by all sources of financing, which by amended data of 2008 would represent 64.1%. The situation with each respective source of financing was as follows: annual limit of the federal budget assets is at 65.5%, 77.3% for budgets of the subjects of the Russian Federation, budgets of municipal formations – 73.2% and non-budget sources – 49.3%.

19931.95 million rubles were gained by means of the Program in 2008, which is 86.0% of all assets. *(table 4).*

Table 4. Total Volume of Financial Resources Allotted, Provided in 2008 by the Program of the Far East and Transbaikalia Development up to 2013 (mil. rubles by 2008 prices)

	Financial assets Total	Including assets of:			
		Federal budget	budgets of the subjects of the Russian Federation	Budgets of municipal formations	Non-budget sources
Provided by the program in 2008	33 535.88	23 311.01	5 189.10	511.87	4 523.90
Amended version for 2008	36 153.06	23 065.41	5 348.11	506.64	7 232.90
Amended measures by % of volumes, provided by the Program	107.8	98.9	103.1	99.0	159.9
Actual assets	23 170.64	15 098.15	4 133.43	371.09	3 567.98
Funds by % of volumes, provided by the Program	64.1	65.5	77.3	73.2	49.3
Actually utilized	19 931.95	11 216.92	4 128.92	457.41	4 128.69
Financial assets gained	86.0	74.3	99.9	123.3	115.7

Source: [3].

In the Kamchatka region, the level of Federal financing in 2008 made up 72.2% of the annual limit, compared to 84.3% in 2007. Financing of the investment from the Federal budget began being implemented in the 2nd half of 2008, and the significant amount being assigned (1935.95 mil. rubles) for the small heat-electric generation plant in Koryak region in December of 2008.

A high priority in the program "Economic and Social Development

of the Far East and Transbaikalia for period up to 2013" in Kamchatka region for 2008 and for the near future is development of the regional economy, investment and construction activities. The Program includes the construction of meaningful facilities that will help enhance: the level of life in the region, fuel and energy complexes, transportation and communication; the region's social sphere and lastly, its engineering infrastructure.

At the same time, out of the 5125.1 million rubles provided by the Program for 2008, only 3307.87 million rubles or 64.5%, were from the Federal budget.

The serious problem in the Kamchatka region is the conditions of bridges on the roads, built only few decades ago. Their size and technical conditions do not fulfill the requirements for accomodating automobiles, and the majority of bridges in the region do not fulfill the seismological requirements and need to be reinforced.

In 2008 in Sakhalin, as a part of the "Economic and Social Development of the Far East and Transbaikalia for Period up to 2013" work on the exploration of Aniv gas fields, reconstruction and construction of electrical networks; reconstruction and technical improvement of the Oha heat-electric generation plant; construction of the 4th generator of the South Sakhalinsk heat electric generation plant; reconstruction of automobile roads "Ogonki-Nevelsk" and "South Sakhalinsk‐Oha"; reconstruction of water supply systems, water discharge and heat supply in Dolinsk; reconstruction and enlargement of regional oncology center; development of the "Gornyj vozdukh" sports complex.

For the implementation of the program "Social Economic Development of Kuril Islands (Sakhalin region) for 2007-2015" in 2008, funds totaling 2313.2 million rubles, including 2175.0 million rubles was provided from the Federal budget (94.0%).

In the Jewish Autonomous Region in 2008, the Federal purpose-oriented program "Economic and Social Development of the Far East and Transbaikalia for period up to 2013" ten investment projects concerning transportation, engineering and social infrastructure with the annual volume of 1212.0 million rubles had been implemented, including 1034.8 million rubles from the federal budget (85.4%). The reconstruction of roads, heat lines, systems of water supply and canals, construction of educational and medical care facilities had commenced.

In Transbaikalia region in 2008 the principal construction project of the region (Chita- Khabarovsk Roadway, Chita- Zabaikalsk Roadway) was financed from the Federal budget, as well as the activities of non-capital character- subsidies for housing for young families, citizens discharged from military service; victims of radiation catastrophes, including those injured during those catastrophes, and those forced to migrate; assistance for forests renovation, creation of the automated cadastral record system.

The quarter of the budget assets provided by the Far East-Transbaikalia Program in 2008 is to be spent on development of transportation infrastructure, with the rest of the amount - on development of engineering, social and water supply infrastructure.

As a result, in 2008, the major part of the total resources of the Program (about 70%) was concentrated in Kamchatka, Primorye and Khabarovsk regions.

The prolonged financial crisis forced corrections on previous decisions. Financial assets were being allocated primarily for completion of construction outlined in previous projects. However, some adjustments were made in several projects comprising the Far East and Transbaikalia Program.

So in 2008 the application was filed for financing of the extension of the prospective project "Complex development of South Yakutia" from the Investment Fund of the Russian Federation, which was expected to lead to the growth not only in the Republic of Saha (Yakutia), but also of neighboring regions. In the middle of June of 2009 at the session of the governmental committee on national-level investment projects the decision was made to reduce the volumes of project financing in 2009, though measures for further compensation in 2030 has been adopted.

Adjustments were also made on the program "Vladivostok City Development as Center of International Cooperation in APR». Now it is obvious that the estimated costs of the range of the objects are significantly higher than it had previously been stated, and certain activities of significance were not even included in the program. By the decision of the government of the Russian Federation, the volume of subprogram financing would not be changed, but the number of the objects are to be reduced.

Despite the existing economical difficulties resulting from the global financial crisis we should not expect the interruption of the governmental program for the development of the Russian Far East, as projects involved in the Program are aimed at strengthening Russia's overall political and economical image.

4. Contents and Characteristics of the Project: Strategies for Socioeconomic Development of the Far East and Baikal region up to 2025

4.1. Structure and objective priorities in strategies for socioeconomic development of the Far East and Baikal region for the long-term perspective

In spite of the crisis in the Russian economy in 2009, efforts for the realization of federal programs aimed at regional development continue to be made. By estimates of Ministry for Regional Development of the Russian Federation, the government is expected to accept the strategy for the socioeconomic development of the Far East, Buriatia, Trans-Baikal and Irkutsky regions (Baykal region) until 2025. The project strategy has already submitted to the cabinet ministers for consideration.

The major distinction of such a strategy from Federal Target program for the Far East and Trans-Baikal Regions up to 2013 is the absence of detailed methods, which is necessary for expenditure estimates. In fact, the strategy represents possible long-term direction of regional development. Strategic objective of regional development for the Far East and Trans-Baykal is the analysis and understanding of the impact of geopolitical issues on population settlement in the Far East and Baykal regions, for the formation of a developed economy in the region and raising living standard to comfortable levels for Russians residing in this territory, not to mention enhancement of the socioeconomic development to adequate levels.[2] It should be noted also that the structural reorganization of economy into regional economic units on government order continues to lose its significance. The Far East and Baykal regions are increasingly oriented towards the Asia-Pacific, because there is nothing in the interior of Russia that would

allow manufacturers in the Far East to enlarge their stake in a national domestic market. The other objective of the program is the development of complex infrastructure in terms of transportation and energy. The stimulation of business in the Far East and Baykal regions is hardly possible without appropriate infrastructure.

Accommodation of the strategy does not mean it will guarantee investments required for plan's execution by itself. That is why development of the Eastern part of Russia, being linked up with developing of the boundary cooperation with APR by the President and the government. One of the major purposes of this cooperation is to build up conditions for attracting foreign investments.

The structure of this strategic project is made up of 5 parts (with subsections) [10]:

1) Introduction (current aspects of socioeconomic development and competitive advantages of the Far East and Baykal regions; possible announcements and risks);
2) Status and perspectives of developing transportation, energy, IT, and social infrastructure of national significance
3) Socioeconomic development of constituent areas of the Russian Federation located in the Far East and Baykal regions.
4) Current status and perspectives of development in economical sectors in the Far East and Baykal (energy, transportation, forestry, fishing, agriculture, metal works, the chemical industry, machinery, construction, tourism, hydro-economical sector, ecology safety);
5) Cross-border cooperation between constituent areas of the Russian Federation with northeastern provinces of China and Mongolia, as well as economic interaction with other North East Asian countries (communication technologies and IT, energy resources, high technologies, mining/extractive sector, forestry, agriculture and fishery, tourism, social development, investments, ecology)

The absence of clear state strategy for the development of the Far East and Baykal region creates the risk of using this territory only as a source of energy and raw materials for the APR (Asian Pacific Region). In this case, Russia's integrated potential will not be realized

for the system of economical and territorial relations with Asia and Europe. Some of the major problems constraining realization of the economical potential of the Far East and Baykal regions are their economical and infrastructural isolation from the rest of Russia and developed Russian markets, undeveloped internal transport network of the territory despite its size, patchy settlement with low population density, peculiar methods of storage, high cost, subsidy and seasoned cargo for Arctic and northern part of the Far East.

Thereupon, realization of the plan including its priority measures would strengthen competitiveness across the board, and will provide an opportunity for the development of an effective economy and comfortable conditions for living in the Far East and Baykal regions. That all of the following must receive equal attention: investment programs in energy sectors of the Far East in accordance with improvement in energy safety, pointing of web in process flows, development of electrical grids and relevant sectors, creation of new generation capacity, potential revival of decentralized energy production and lowering the cost of production of electricity and heat; investment programs for the development of the transportation sector; and subsequent improvement of accessibility for transport and carrying capacity of Baykal-Amur and Trans-Siberian roads; improving the quality of logistics services and integration in international logistic systems.

The shifting of political and economic interests of Russia toward the East may translate into great economic and geopolitical benefits, including: geographical diversification of the markets of main budget-generating sectors of the economy of the Russian Federation; preventing risk of decreases in the economical and political control of the federal government in the Far East and Baykal regions; prevent threat from unchecked and continuous exodus from the Far East and Baykal regions; prevent reorientation of international transit cargo traffic towards routes by-passing Russia; preventing threat of flight of advanced raw material processing industries to other countries, as well as companies providing products and services with a high rate VAT.

Importance of identifying risks and the need for their prevention in terms of the strategy of developing the Far East and Baykal regions in a national program for achieving long-term goals must be

recognized.

To attain the objective of the strategy, there is a need to provide advanced comparisons of the average tempo of socioeconomic development of various constituent units of the Russian Federation located in the Far East and Baykal regions; which requires decisions on a number of issues, including: creating conditions for economical specialization of the respective constituent units of the Russian Federation in the Far East and Baykal regions; in accordance with their individual potential in natural-resources, industrial capacity, professional and scholarly manpower, into a network of federal development strategies; creation of strategies for socioeconomic development of the constituent regional and local units of the Russian Federation, and also strategic programs for major companies; demographic stability, relying on regional economic growth accompanies by good living standards for a civilians; reduction of barriers for socioeconomic integration of far eastern territories and the Baykal region with other regions of the Russian Federation; creation of legal bases for the maintenance of competitiveness of products and services in accordance with objectives for economic specialization; defining individual conditions for prices, tariffs, customs, taxes and budget policies; identifying the size of the population and labor resources required for solving economic problems that the regions face and improving quality of human capital; maintenance and support of traditional lifestyles of Russian Federation's various ethnicities.

The basic scenario to be developed for the Far East and Baykal regions are connected to innovative scenario in <The Concept for the Long-term Socioeconomic Development of the Russia up to Year 2020>, in turn predicated upon the maximal utilization of regions' competitive advantages, natural-resources and transit potential, stable growth of exports of competitive products and modernization of infrastructure.

According to the strategy, the realization of the scenario for basic development will promote growth of GRP (Gross Regional Production) in the Far East and Baykal regions, a higher tempo of growth compared to the other regions in Russia. As a result, from 2011 to 2025, Far tempo of growth of the GRP of the Far East and Baykal will exceed that of the Russian Federation by more than 0.5% per year. Basic scenario for implementation will lead to significant improvements in

living standards for those living in the Far East and Baykal regions. Population ratio earning incomes less than the minimum wage will be reduced from 24.5% to 9.6%.

During the period 2009-2025 3 stages of economical development could be completed in accordance with predicted socioeconomic changes in the Far East and Baykal regions.

The first stage (2009-2015) of development covers: exceeding the tempo of growth of investments in comparison with the rest of Russia; introducing energy-efficient technologies, significant increase in employment; realization of initial transport potential, and also promoting projects in economical industry and agricultural regions, that could stimulate investments in economy and generation of new centers of regional development.

Second stage (2016-2020) of development will cover: implementing large-scale projects in the energy sector; increase in transport potential, expansion of transit cargo-passenger traffic; increase in export share of advanced raw material processing.

Third stage (2021-2025) of development will cover: socioeconomic development of the Far East and Baykal regions, associated with Russia's efforts to assume a leading position in the world and significantly speed up integration of the Far East and Baykal regions with the world economy; development of innovation economy; realization of large-scale projects on extraction, processing and supply of hydrocarbon fuel; completion of large-scale projects in energy and transportation; strengthening of leading position of Russian science on most basic research areas; accelerated development of human capital.

The successful realization of current strategy depends on complex and synchronous interaction of government, businesses and society according to the principles of State-Private partnership in key investment projects, in the advanced economic growth territory.

As for the first stage, because of the strategic necessity of advancing development in the Far East and Baykal regions, significant participation of the federal government in solving social problems and infrastructural limitations to economical growth would be preferable.

Such a strategic direction for the development of the Far East and Baykal regions' development must be supported by a government package measures for its realization, including creating incentives and a system based on social preferences for the Far East and Baykal

regions, creation of an environment conducive to expedited development of the economy and social sectors, demographic consolidation and attraction of work-capable manpower.

Government support for the development of the Far East and Baykal's major economic sectors will be provided under the condition that the companies concerned will participate in modernization of their respective sectors with implementation of competitive native technologies and equipment. The conditions for realizing the integration of the transportation system of the Russian Federation will be created within the context of the international system of the APR.

Also, establishment of the Eastern pipeline investment fund will create a national system of pipelines that will provide for strategic transfer of oil to the western and eastern areas depending on the economical and political factors.

One thing that cross-border partnerships represent is the integration of the border regions within the framework of joint programs and plans for development cooperation. Strategic target for cross-border development of the Far East and Baykal regions with countries in Northeast Asia is creating an effective foreign trade structure which is able to provide high level socioeconomic development and higher standards of living. It will allow us to respond to socioeconomic developments and resolve geopolitical problems resulting from civilian emigration from the region. Some of the major aspects of the cross-border and transregional cooperation in Siberia and in the Far East are: reduction in exports of Russian natural resources and increase in exports of products with high VAT(Value-Added Tax) to the foreign markets; the extensive system of international transportation corridors through the territory of Far East and Baykal regions – Trans-Siberian and Baykal-Amur railroads and the Northern Sea Route, along with other corridors of regional significance connecting Northeastern provinces of China through Russian seaports in the Primorsky region with ports of Northeast Asian countries.

4.2. Far East and Baikal region development perspectives under conditions of Strategy of socioeconomic development for the period till 2025 implementation

It must be considered that the fact that the realization of all

aspects of the program's strategy entails a financial problem. The following scenarios for the development of the Far East and Trans-Baykal regions were proposed by scholars in the Far East as possible for implementation [5; 6; 7; 19].

Scenario 1 considers development without essential government support (maintaining developing trends appeared in 1990s), which means it assumes the absence of government financing in the Far East and Baykal development programs. In this case, the development will rely upon Trans-Baykal regions own reserves. Resurrection of economic potential to 1991 levels of 1991 would be possible (assuming changes the decreasing trend in production during 1991-2000) not earlier than 2020. However, reorienting the region away from the continental Russia may become such a burden that no integration process with the Asia-Pacific region could be even mentioned. It means that geostrategic efforts concerning the Pacific region will never be brought to conclusion. Significant socioeconomic damage and creation of risks to the Security of the Russian Far East are unavoidable as a result.

In this case, economic degradation is inevitable, leading to radical changes in a province dependent on sales of raw materials. The region's resource potential will only be utilized in accordance with demands of the world market. As a result, it will lead to a growing dependence of Russia on external suppliers (especially in base metals) instead of the Far East. Infrastructure of the region will be totally ruined that will accelerate deterioration of the transportation, energy and utility systems. The northern part of the Far East will suffer the most, due to its underdeveloped system of and lack of access to transportation, which will cause resettlements of many cities and towns.

Scenario 2. Significant government support at the initial stage and formulating proposals involving structure reconstruction of its economy will create new conditions for development on principles of self-financing. The basic suppositions of the said scenario are outlined below.

The Far East currently possesses the status as the largest base of natural resources in Russia, which satisfies industrial production needs of the country and provides significant income for regional budgets. The regional economical system should be opened to markets in the Asia-Pacific region and also for domestic markets for

purposes of effective interaction. Foreign trade relations are the only available compensation off-setting the region's remoteness from the Russian markets and the high cost of transportation.

Such a development scenario represents smooth transition of state regulation from conception of passive support measures to those for active support. In short, this scenario is based on fulfilling priorities specified in the Program for Development of the Far East and Baykal Regions. Also, this scenario foresees creation of highly efficient agricultural sectors which will be provided by enhancement of Russia's status in the Pacific Ocean area. It means that other dynamic sectors providing high tempo of growth will arise. Firstly, diversification of the machinery sector diversification is needed (i.e. acquisition of new technology systems, technologies for searching for new resources under the sea). Development of the latter will have great significance, affecting such areas as oil-and-gas production, aquaculture, physiologically active materials, and hard minerals. Traditional specialization in supplying mineral resources for the rest of Russia will be maintained, but extractive sectors will in turn be specialized for using the resources on the base of its maximal processing.

Scenario 3 stems from the fact that the Far East and Baykal regions possess potential advantages which could be used for a long period. This potential advantage is rooted in one major important factor – geographic position, which helps to reduce the distance from the point of extraction to processing areas in various locations in the Asia-Pacific region.

The main idea behind this scenario is the increasing export specialization of the region on the base of raw materials utilization as a foundation for socioeconomic development of the 4th quarter of the 21st century. According to this scenario, the type of regional development prevailing presently is less capital-intensive (at least on the first stage of its realization) compared to the type involving formation of more diversified industrial structure, that makes the later type more attractive.

It is necessary to create conditions for the unhindered flow of capital, people and technology between the Russian Far East and overseas, which would offer powerful incentives for Russian investments in the region. In an environment where competition formed in the

raw materials market due to Asia-Pacific countries with potential economies of scale, Far East and East Siberian regions could become exporters only in cases if the resource-consuming countries will participate in the processing. They should be given access to the exploitation of the land and biological resources by lease. Property internationalization is one of the most important factors for realization of current scenario in correlation with conditions in the resources markets in the Asia-Pacific countries. It is possible to assume that overseas partners involved in the extracting and processing would be able to initiate the process of diversification of economic activities.

Obviously, the export strategy needs to be at least as considered carefully in the face of politics surrounding import substitution. The region could be returned to the course of full integration with the domestic market.

One of the most significant conditions of region's developing according to the current scenario is improvement of its investment climate, as it will be necessary to offer advantages for potential investors. One of the methods for creating such an advantage is the organization of Free Trade Areas.

Lastly, the scenario considers that the regions will find their niche in international vertical division of labor which will allow them to utilize their resources correctly.

Scenario 4 considers integration with the Asia-Pacific specifically through close collaboration with China. The final purpose of this scenario is a union of economic areas of the Far East and Baykal regions with China, primarily with China's Northeastern provinces.

The first step toward realization of this plan will be the relaxation of customs control of the border and in cities along the Russian-Chinese border, and formation of a Free Trade region as a result. Such measures would be applied to the major part of the region later. Following step to be considered include slow relaxation and liberalization of the flow of capital, services, technology and labor; gradual integration of transportation and energy systems etc.

As a result, new economical system could form that would last several decades; a system based on the free labor distribution between the Russian Far East, Baykal region and China. It should be noted that China already has a high degree of integration with the economy of the rest of the Asia-Pacific region.

Scenario 5 is represented as an established model for the region's development. Primary advantage of the current strategy is it is centered on economic cooperation with Asia-Pacific and Northeast Asian countries. However, entering into international cooperation can only be realized at the expense of internal institutional resources without establishing firm ties with any one country. Given that the region's socioeconomic development is reliant upon on the raw material sector, and upon third industry sectors (tourism, services etc.) as a basis of the economy growth, the international market is the type of market that offers the greater advantage type of market is international market, while still maintaining ties with the domestic market as a a stabilization mechanism.

Theoretically, such a scenario could be initiated to create a self-sustaining system in the region. This system will aim for effective solution of the problems facing economic development of the region. Powerful government influence through funding and legislation for regional development will likely provide regulations and adjustment of the regional system into the desirable condition.

In fact, none of the scenarios from 2 to 5 could be realized by on their own. A more reasonable approach would be a combination of main elements of all extant scenarios, a fusion of strategic priorities and realization mechanisms; based upon the system of measures involving prior series of activities for socioeconomic development. Evaluation of the current system's realization process allowed us a generalized forecast for socioeconomic development for the Far East and Baykal regions.

The scenarios hitherto mentioned could be reorganized as two macro-scenarios [18]:

Macro-scenario 1. Inertial development without essential government support (development tendency of maintenance 1990). In this case, development of the Far East will be reliant on the region's internal resources. Incontrovertible degradation of the economy will happen together with nearly complete change of the region's narrow raw material market. Infrastructure would deteriorate and would cause collapse of transportation, energy and municipal systems. It can provoke large-scale population flight and negative changes in the age structure of the inhabitants. As a result, acute shortage of qualified human resources will translate into contraction of economic potential.

One more inevitable result is the collapse of environment management system along the state border and also strategic posture that was sustained vis-a-vis Asia.

Macro-scenario 2 represents a combination of different forms and degrees of governmental regulations. The main idea is the formation of the opened economy model with the governmental guarantees of stability.

5. Perspective Variant of Russian-Korean Cooperation at the Far East and Baikal Region of Russia

It is necessary to notice that Russia is the one of the most dynamic developing markets for South Korea, being 8th in the list of major suppliers to South Korea. However this relationship is not about the numbers, but prospects for growth. Implementation of projects involving the partner's investments in energy, chemical, petro-chemicals, car manufacturing and other sectors will allow increasing the volume of mutual trade. There are a number of trade agreements in the process of elaborating the terms for mutual scientific and design-experimental projects in high technology products production in South Korea under Russian licenses.

A partnership has been established in the building of fuel and energy complexes in the Far East and Siberia. There are also projects set up for energy transfer from Russia to the Far East, as well as projects involving the logistics sector. The agreement about continuous cooperation in exploration and exploitation of hydrocarbons at the edge of Western Kamchatka's has also been reached. Also, negotiations on supply of natural gas and building of pipelines to the Korean peninsula in order to establish an intergovernmental agreement in the gas industry, and potential mutual usage of an agricultural complex in the Primorsky region are in progress.

If the strategic project for the socioeconomic development of Far East and Baykal regions does get under way, much growth in the volume of trade between the Far Eastern and Baykal regions with South Korea is expected; and possible investment and participation of South Korea in the economy of the Far East.

Republic of Korea, with shortage of fuel and energy resources,

must compensate that shortage through imports. The above illustrates that the main sector of partnership between Korea and the eastern part of Russia will be primarily cooperation in fuel and energy, that would include exports of hydrocarbon to South Korea and attraction of additional South Korean investments in the sector.

Usage of natural gas by South Korea exceeds 20 bil. cubic meters. By 2015, South Korea's demand for gas will increase 1.5 times, and twice, or 45 bil. cubic meters of gas-per year, by 2020. South Korea has become the 10th largest consumer of energy in the world overall, 6th in petroleum consumption, and 2nd among liquid gas importers. South Korea is currently one of the leading petroleum importer as well, taking 4th place in the world. South Korea imports about 70% of its oil from the Middle East. However, because of high political risks in that region, Russia could become one of the alternate suppliers.

Geographical location, relatively well-developed infrastructure in the southern regions (railroad lines, sea ports, roads, communication) is useful for consolidation of economic relations between the Russian Far East and North East Asian countries (NEA). Aside from North Korea and Mongolia, the economic development of the other Northeast Asian countries for the last 15 years has been accompanied by the steady growth in gross energy consumption and continuous increase of Northeast Asia's share in the world consumption.

In estimating the positions of the competitors in the Far East, the energy consumption patterns of countries in Northeast Asia are crucially important. Correlation of consumption with production shows high dependence on the energy imported from major producers of energy﹣petroleum, natural gas, coal. Forecasts predict that other countries (Japan, China, South Korea) show that not only will there be further increases in gross energy demand, but also increase in imports from major energy exporters and expansion of the structure to include natural gas or electrical energy.

Therefore, it is inevitable that patterns of energy consumption among Northeast Asian countries will become important factors. The pattern of consumption and production in the leading countries in Northeast Asia (Japan, China, South Korea) shows high dependence of their energy sector on imports from the major energy exporters including such resources as petroleum, natural gas and coal. Existing forecasts of current developments concerning the energy supply

provide us evidence pointing to future increases in the gross demand for the energy resources and expansion of its structure to cover natural gas and electrical energy. Up until now, there was a shortage of suppliers of heat energy in the Far East and Siberia.

There are, at least, three critical problems concerning the energy issue: increasing gross demand on energy; increasing dependence of the region on petroleum from the Far East; relative high price of petroleum, oil products, and liquid natural gas due to the so-called "Asian rate".

The entry of Russia into Northeast Asia's energy market has great symbolic meaning, because the Far East is the only region with the big potential for different types of commercial energy resources. Total reserves of oil in the area amount to 11.4 billion tons, in addition to 26.8 trillion cubic meters of natural gas, 1.2 trillion tons of coal, and 1.2 trillion kW/h's (of annual production) of hydro-energy. Geographical proximity to Northeast Asia is a major positive factor for realization of energy projects in the Far East. Though thousands of kilometers still separate the centers of energy consumption from the Far East; however, the distance separating Northeast Asian countries from the Russian energy bases is still much preferable compared to distance between Northeast Asia and the Middle-East, Australia and Southeast Asia.

For the past 10 years, Russia had displayed its intention to integrate its energy sector with Northeast Asia, proposing several energy projects involving tens of millions of tons of oil or billions of kW/h of energy supply.

Among the projects are: oil products on the Sakhalin ledge, where "Sakhalin-1", "Sakhalin-2" oil drilling projects are being started. Koviktinsky gas project including gas field exploration in the Irkutsky region; transcontinental "East Siberia-Pacific coast oil-pipeline" project; gas extraction and gas transportation project in the East Siberia and the Far East for export to China and other countries in Northeast Asia; some large-scale and comparably small projects on the international energy trade. Among them: "East Siberia-China" energy line, "Sakhalin-Japan" energy line, "Primorsky region-Korean Peninsula" energy line, foreign trade projects with Mongolia, China and North Korea.

The gas exploration and transportation project is considered a slightly late, but strategically significant decision made by the Russian

government to build up a unified national political plan. This plan includes gas resource exploration of the East Siberia and the Far East, building infrastructure for transportation of gas to markets in China, Japan and Republic of Korea. Russian energy strategy has been laid down a schedule until the year 2020, and describes entry to the Asia-Pacific market in detail. It comprises the so-called "Eastern Sector" Russia's energy policy, and is repeated in the Socioeconomic Strategy for the Development of the Far East and Baykal until 2025.

The oil-and-gas reserves being explored in Siberia and Sakhalin represent ideal locations for new oil-and-gas complex, representing an annual output of 100-120 billion cubic meters of natural gas and 60-70 million tons of oil. It would satisfy the region's domestic demand for oil and gas, and produce export in 30-40 million tons of oil, 50-60 billion cubic meters of natural gas for exports [12].

The merging of the export oil-gas pipelines of Western Siberia with the Eastern Russian pipeline would create complex pipeline system for the Russian Far East.

It is necessary to add, that Russia's Asian regions, located near the Northeast Asian market, are also within reach of other energy resources as well.

The Far East and East Siberia represent great bases for production of energy resources. Those regions generate 20% of Russia's entire electrical output. The East Siberia‐Far East power transmission line will allow parallel operation of the East Siberia‐Far East energy complex. That will provide a secure supply of energy to consumers of those regions and initiate the formation of a global electrical power complex in the Far East.

Above all, Russia possesses 30% of world's entire coal reserves. Russia's coal reserves are concentrated in 22 coal fields and 1700 mines.

It is necessary to distinguish, that one project with the most favorable future prospect is the exploration of the Elginsky minefield. Elginsky minefield is located in the Southeastern Saha Republic (Yakutiya), the largest resource base of coal for metals and energy production in the Far East with reserves of about 2 billion tons. It is one of the brightest spots in the coal industry sectors [17; 19]. The Elginsky minefield is located in a remote and backward region. Minefield is located in 415 km to the east from Neryungry city and

320 km to the north from BAM, in the central part of the Tokyisky coal region. There is a critical need to construct railroads in the Ulak-Elga area for more effective exploration of the minefield.

The next significant project is the "Far East-Korean Peninsula" energy line. Members of the negotiations decided to expand the scale of the project till the "Far East-North Korea-South Korea" electrical energy co-project is completed [17, 19].

This project includes the Vladivostok-Chongjin (38km, capital investment about $180 mln.US dollars) 500 kW Power Transmission Line sending alternate current with a maximum transit capacity of 500 mW and Power Transmission Line of +-500-600kW, direct current line connecting Vladivostok and Seoul (900km, capital investment about US$1 billlion) with transmission to Seoul of 2000-3000 mW of power.

For maintenance of required efficiency and cost-effectiveness, massive supply and energy exchange is needed. In this case, research into previous hydro electrical stations projects like Nizhnebureyskaya hydroelectric station (capacity 321mW), Nizhnezeyskaya hydroelectric station (349mW), Uralskaya hydroelectric station (600mW), Dalnerechensky hydroelectric complex (370mW), Tuguruiskaya tide-water station (6800mW), Uchursky&Timptosky hydroelectric stations cascade (5000mW) is perforce and somewhat inevitable.

Realization of the resource and infrastructure energy projects could transform the Far East from a closed region into an active industrial region with hydrocarbon, electricity and coal production for export to Northeast Asia's energy consumption centers.

Russian-Korean transport partnership is best represented by the linkage of Trans-Korean railroad and Russian railroad, planned to facilitate overland transportation of Korean products to Europe countries. Construction of the Trans-Korean railroad, and linking it with the Trans-Siberian railroad, is one of the plans for the future which would create direct line between Asia and Europe.

The project for the resurrection of the Trans-Korean railroad is the example of a great infrastructure project having a powerful gear up effect. Creating a single railroad will be accompanied by significant political (stabilization with Inter-Korean relations) and economic dividends (creating a new Asia-Europe transport route, accelerated development of North Korea's transport system and economy, economic

integration of the two Koreas, external land route for South Korea etc.) The project's realization would have an impact that goes beyond the Korean Peninsula. However, the project is dependent largely on political circumstances.

The Republic of Korea is one of the 10 biggest importers of wood in the world. Korean wood market consist almost entirely of imports (95%), which makes it a prospective market for Russian wood, and would lead to increased exports of Russian timber to South Korea.

Another important and socially significant sector of the South Korean economy is the fisheries sector. During the last decade, South Korea saw its imports of fishery and sea product increase dramatically. Nowadays, Russia is one of the major sea-product suppliers to South Korea and this tendency is likely to continue. This means South Korea will remain a major importer of marine products from the Russdian Far East in the nearest future.

However, change of major partners is not beyond the relam of possibility, as the high tempo of Chinese economic growth, including that of its northeastern provinces, will influence the economy and trade relations of the Far East.

Completion of the oil-gas projects on the Sakhalin ledge, realization of the "East-Siberia‐Pacific Ocean" Trans-continental oil-gas project will secure export volumes of materials from the Russian Far East to Northeast Asian countries, specifically South Korea. Considering that South Korea is the one of the major importers of liquid natural gas, growth in the volume of growth would cause a switch from present sources to the natural gas supply from the Sakhalin ledge.

At the same time, it is necessary to stress that South Korea's (along with China and Japan) approach concerning the Eastern Siberia and Far East regions is of a traditional "resource" type, not different from commercial politics of the global companies (Exxon Mobile, Shell, BP). There is still no competitive initiative on energy partnership between Russia and Northeast Asia (inc. South Korea). North Korean problem is one of the hardest elements in the energy cooperation between Russia and South Korea. Export of the hydrocarbon from Far East of Russia to South Korea will be also under pressure of the political and economical factors arising from the "Russia-China-Japan" triangle. In spite of huge oil and gas resources of Far East, it would be impossible to satisfy cumulative

demand of all 3 countries (China, Japan and South Korea) in the future.

The possible approaches for the better partnership between Russia and South Korea might be as follows: asset exchange, strategic alliance for co-exploration of Siberian and Far Eastern natural resources; and creation of integrated infrastructure. The realization of economic integration between Far East and South Korea would be possible through engagement of significant volume of South Korean investment, primarily, presence of export-oriented large-scale projects in the resource sector of the region's economy.

6. Conclusion

The results from Russian Far East development plans have steadily decreased as the national priorities became divided and regional tasks became complicated. The most crucial lesson from the experience of special federal plans for the Russian Far East was that the targets were effectively achieved when two conditions are met: first, the plans must be aimed at a single target and its strategy should remain simple; and second, the plans should be motivated by external factors, which means the government should have an official policy accompanied by an appropriate budget for supporting the regional development plans. When the plan does not have a unified, single goal (and also a unified evaluation standard) and opts for a complex strategy instead, the outcome is much lower even if it is motivated by external factors. A plan that does not have a unified, single goal and is complex in terms of strategy and motivated only internally (within the region), it is highly unlikely that positive results would be obtained from the plans. What is shown in this hypothesis‑which turned out to be quite precise‑is that there is a certain limit in applying Management by Objectives (MBO) to regional development plans. It is obvious in qualitative terms that the Russian Far East in the 1980s through the 2000s was too large to be managed by MBO both in territorial size and economic scale. In theory and practice alike, it is true that a national plan for regional development should be performed in a way to revise policies sector by sector, if it intends to increase synergy among sectors in the region. The plan can have meaning only when a national budget and other resources reserved

for specific purposes are invested into projects, facilities or activities where the maximum synergy can be created.

The setting of strategy cannot, by itself, secure or guarantee investment for implementation. Therefore, it is essential that the development plan for the Russian Far East be implemented in cooperation with Asia-Pacific nations including South Korea, as announced by the Russian President and his government. South Korea and Russia can build a close relationship for cooperation in the region by exchanging assets, establishing a strategic alliance for the joint development of natural resources in Siberia and the Russian Far East, and also engage in joint efforts to build infrastructure. The potential for economic cooperation between the Russian Far East and South Korea will be effectively realized when Korea makes direct investment in resource development projects in the far eastern part of Russia, which are export-oriented and large in scale.

References

Дальний Восток и Забай калье - 2010. Программа экономическ ого и социального развития Дальнего Востока и Забай каль я до 2010 года/Под ред. П.А. Минакира. Рос. акад. наук. Д альневост. отд-ние. Ин-т экон. исследований. М.: ЗАО Эко номика, 2002.

Зоны опережающего экономического роста - как основа развит ия Дальневосточного региона. - http://www.minregion.ru/Work Items/NewsItem.aspx?PageID=448&NewsID=1376

Информация о ходе выполнения федеральных целевых прогр амм в регионах Дальнего Востока и Забай калья в январ е-декабре 2008 года. - http://www.assoc.fareast.ru/fe.nsf/pages/ program.htm

Ишаев В.И., *Минакир П.А.* Дальний Восток России: реальности и возможности экономического развития. Хабаровск: ДВО РАН, 1998.

Минакир П.А. Экономика регионов. Дальний Восток/П.А. Мина кир; отв. ред. А.Г. Гранберг; Рос. акад. наук. Дальневост. о тд-ние. Ин-т экон. исследований. М.: ЗАО «Экономика», 2006.

Минакир П.А., Михеева Н.Н. Перспективы развития Дальнего

Востока и Забайкалья: региональные программы//Пробл
емы прогнозирования. 2002. No. 3.

Минакир П.А., Прокапало О.М. Программа □Дальний Восток и З
абайкалье□: Первые итоги и опыт мониторинга//Вестни
к ДВО РАН. 2004. No. 5.

От идеи Ломоносова к реальному освоению территорий Урала,
Сибири и Дальнего Востока/Под общ. ред. А.И. Татаркин
а, В.В. Кулешова, П.А. Минакира; РАН, УрО, Ин-т экономи
ки. Екатеринбург, 2009.

Природопользование Дальнего Востока России и Северо-Восточ
ной Азии: потенциал интеграции и устойчивого развит
ия/под ред. А.С. Шейнгауза. Владивосток; Хабаровск: ДВ
О РАН, 2005.

Проект Стратегии социально-экономического развития Дальн
его Востока и Байкальского региона на период до 2025 г
ода (от 15 сентября 2009 г.) - http://www.minprom.gov.ru/activity/
wood/strateg/0

Раевский С.В. Управление стабилизацией и развитием эконом
ики региона. Владивосток: Дальнаука, 2000.

Санеев Б. Энергетическая кооперация России и стран северово
сточной Азии: предпосылки, направления и проблемы и
х реализации//3 Международный форум по регионально
му сотрудничеству и развитию между Россией и Китаем,
2005 г.

Стратегия регионального развития: Дальний Восток и Забайк
алье. Материалы семинара □Стратегия развития□ от 27
октября 2003 г. М.: ТЕИС, 2003.

Сыркин В.И. К проблеме государственной региональной поли
тики на Дальнем Востоке//Вестник ДВО РАН. 1999. No. 6.

Федеральная целевая программа □Экономическое и социально
е развитие Дальнего Востока и Забайкалья на 1996-2005
и до 2010 года□//Утверждена постановлением Правитель
ства Российской Федерации от 15 апреля 1996 г. No. 480
(в редакции постановления Правительства Российской
Федерации от 19 марта 2002 г. No. 169).

Федеральная целевая программа □Экономическое и социально
е развитие Дальнего Востока и Забайкалья на период д
о 2013 года□ (утверждена постановлением Правительств

а Российской Федерации от 15 апреля 1996 г. No. 480 в ре
дакции постановления Правительства Российской Федер
ации от 21 ноября 2007 г. No. 801). ‐ http://www.assoc.fareast.ru/fe.
nsf/pages/program.htm

Экономическая интеграция: пространственный аспект/Общ. ре
д. П.А. Минакира. Рос. акад. наук. Дальневост. отд-ние.
Ин-т экон. исследований. М.: ЗАО Экономика, 2004.

Экономическая политика: региональное измерение/Под ред. П.
А. Минакира. Владивосток: Дальнаука, 2001.

Экономическое сотрудничество Дальнего Востока России и стр
ан Азиатско-Тихоокеанского региона/отв. ред. П.А. Мина
кир; Рос. акад. наук, Дальневост. отд-ние, Ин-т экон. исс
ледований; Фонд мира Сасакава. Хабаровск: РИОТИП, 2007.

North R. The Soviet Far East: New Center of Attention in USSR//Pacific
Affairs. 1978. No. 2.

General directions of Integration Processes Extension of the Republic of Uzbekistan into International Economical System

A. Alimov

1. Introduction

Amidst the extension of economical reforms and increase in economic openness in Uzbekistan, the effectiveness of exporting, import rationalization issues, creation of the conditions providing increase in competitiveness of producers in Uzbekistan for the domestic and international markets gain special relevance. This is a natural consequence, of being in an open market where there is no other way for a country to promote social-economic growth precipitation and the well-being of its citizenry, but flexible and predictable policy implementation. Continuous adjustment are to be made to the constantly changing conditions of domestic and world markets.

The problem of activation, increasing of efficiency of foreign economic relations of Uzbekistan is actual itself and it has special importance with reference to integration cooperation with Republic Korea as volumes are considerable and forms of economic interaction with this country invariably entering into in the lead group of partners of our country in export, import of the goods and to joint business are diverse. It staticizes a theme of our research in greater measure. Its results and conclusions in our opinion make such recommendations to domestic economy which will feedback as large economic benefit if it's realized.

2. Common Trends of Macro Economical Development of the Republic of Uzbekistan

Last year appeared to be an eventful year with much happening in the macro economic arena. Among them are: the world crisis which started in the last months of 2008, the declaration of the city of Navoi as a free trade zone, the completion of the construction of Tashguzar-Kumkurgan railway road, the enactment of the "New Law on the Stock Market," and other events that directly or indirectly influencing macro economic development in the country. The GDP growth last year was 9%, reaching a total of US$27.88 bln. Growth in the industrial sector was 12.7% and sales turnover was US$19.07 bln (+21, 1%).

One of the main indicators of this economic policy is the inflation in Uzbekistan which increased to 7.8% according to official statistical data. However, CIS Interstate statistical committee has stated that Uzbekistan has the lowest inflation rate among CIS countries. This fact confirms that the world crisis influence was either insignificant or delayed. Last year CIS countries inflation rates significantly surpassed the ones from the year before. In 2006, in Uzbekistan, the rate of inflation was 6.8%.

In 2008 nominal personal income grew by 34.1% compared to rates in 2007. Entrepreneurial incomes comprise the main part of the personal income structure, including income from agricultural goods, sales, and other resources (49.9%). Personal income growth was mainly ensured by remuneration for labor and other incomes of enterprises, which increased by 39.1%, and increase of income in social transfers (retirement benefits, allowances, scholarships and other social payments) by 42.4%.

79.4% of the GDP nongovernmental sector of economics. It should be noted that the nongovernmental sector is represented by economic unions, joint ventures, citizens property, etc. During 2008 the services production sector increased in the GDP from 42.5% in 2007 by 45.3% in 2008. Net taxes for products and export-import operations did not change significantly (from 9.5% by 9.3% in 2008 ãîäó).

The ratio of public corporations in GDP production is largest in the public transport sector, at 51.7%. This is due to the presence of

big public enterprises in the transportation sector, such as State Incorporated Railroad Company (*Uzbekistan temir yo'llari*) and the National Joint Stock Company (*Uzbekistan havo yo'llari*-air transportation).

The lowest ratio of public corporations in GDP production can be observed in Uzbekistan's agriculture and retail industries (0.1% and 032% respectively). The role of small businesses increased as well. By the end of 2008, the ratio of small business in the Uzbek GDP was 48.2%, a difference of 2.5% compared to 2007.

In 2006 Kazakhstan's economy grew at a rate faster than Russia, Ukraine, and Uzbekistan, but recorded a decrease in 2008. 2007 was a stable year and GDP growth rate remained stable, between 7.3% and 9.5%.

The worst effects of the crisis were felt in Kazakhstan (GDP growth in 2008 was +3.2%) and Ukraine (+2.1%). The GDP growth shifted into low gear in Kazakhstan, Russia and Ukraine, the latter recording slowest rate of economical growth at Ukraine (2.1%). GDP growth in Uzbekistan remained unchanged; in 2008 the growth rate was 9%, or 0.5% less than that of the previous year. However the majority of the experts anticipated a more notable decrease in GDP growth in Uzbekistan for 2009 (to about 7%) due to the persistence of the effects of the world crisis.

Alongside formation of a modern and competitive economy formation in Uzbekistan through maintenance of intense structural reforms, modernization, technical and technological renovation in significant sectors of the economy; promotion of growth of industrial and social infrastructure, especially in suburban areas, and also helping every home producer, small business entities and private enterprises contribute to the maintenance of stable economical growth.

During the past 9 months of 2009, the rate of increase of our country's GDP reached 8 percent, industrial output – 9.1%, agriculture – 3.3%, services – 15.8%, and construction business – 33.5%. The state budget achieved a surplus of 0.2% GDP, and the rate of inflation did not exceed anticipated levels. All these are positive results of large-scale for economical development of Uzbekistan, which also accomodated the well-being of its people.

Active investment policy and participation in the implementation of the most significant projects contributed to the growth of investments by 28.3%, including a two-fold increase in direct foreign investments.

During the first 9 months of 2009, 156 projects for technical modernization have been completed, with 371 industrial projects have been placed in operation.

Implementation of the decree approved by the President of the Republic of Uzbekistan concerning encouragement of domestic production activities through additional tax breaks and provision of customs privileges, extension of concessional lending caused the output of consumable goods to grow by 13.7%. As a result of the production localization program in 2009, the production of more than 100 new products had been mastered, quantity of local production increased twofold, and an increase of US$2.6 billion in sales of import-substituting products sales by 2.6 bln.USD had been accomplished.

Goods produced in Uzbekistan are now in demand in the international market, most of which were seen at the International Industrial Fair and Cooperation exchange market, which took place in October in Tashkent.

More than 360 enterprises and companies operating in our country took part in that forum with their products and services. This event would gain much international recognition in the course of its proceedings. More than 650 people representing international firms and companies from about 50 countries worldwide, including Russia, Germany, Italy, Great Britain, South Korea, China, Poland, and Turkey took part in this fair. The forum represented an implementation of the decree issued by Uzbek President Islam Karimov about on intensification of intrafield and interfield industrial cooperation, from November 12, 2007. During the forum, more than 2,300 agreements for purchase of equipment produced in Uzbekistan and for import-substitution of products exported by other countries-about 400 agreements that total an amount of US$2.3bln were signed for the latter.

3. Foreign Economic Activities of the Republic of Uzbekistan: Liberalization as an Integration Factor into the World Economy

The main goal here is the implementation of such policy that allows utilization of Uzbekistan's advantages to the fullest extent and

minimizing negative consequences of globalization, to encourage producers to use existing resources rationally and stimulate growth of Uzbekistan's economic capacities.

A significant part of this process involves foreign trade policy on the one hand, to help Uzbekistan increase its economic capacity, overcome the raw-materials orientation of production and export through assistance to domestic producers and export stimulation. But on the other hand, the process should provide for growth of domestic demand, to fill the domestic market and create a competitive environment vis-a-vis imports.

Process of establishment and reformation of Uzbek foreign trade policy could be nominally divided into several stages. At every stage depending on different macro economical situations, certain tools of foreign trade regime had been used, often along with according instruments of currency, money-and-credit and budget-tax policies.

At the **first stage** (1991-1994), during the first years following independence, several solutions which would create a foundation for a tax-and-tariff system had been approved. The main feature of policies towards import tariffs was their low rates (5-10% of the customs value). Export taxes were set at a high level (up to 40%) which was due to the significant difference between domestic and international prices of export goods during the period and the necessity of preventing a rapid rise in prices to the international level to control the inflation.

At the **second stage** (1994-1996), the policy of import liberalization continued to develop by adoption of the amendment from the President of Uzbekistan on January 21, 1994 on "means of extension of economical reforms, private property protection and ensuring entrepreneurship development" according to which all import taxes were abolished.

Import liberalization policy was also aimed at curbing inflation (which composed more than a thousand percent per year) and market saturation with consumable goods. National currency - sum - introduction (since July 1, 1994), due to necessity of strengthening of its purchasing power and increasing trust in the national currency also predetermined the import policy liberalization.

Gradual change occurred in export policy at that period, from non-tariff to tariff export regulation of the country with simultaneous

price deregulation, including prices for export goods.

At the same time, fiscal measures aimed at stimulating the production of manufactured goods export growth had been adopted.

These measures have dovetailed with the upswing in the world economy and lead to high rates of growth of foreign trade.

Third stage of foreign trade policy reformation comprises the period from 1996-1997, when both export and import customs for wide range of the products and services were actively implemented.

The establishment of import tariff limitations (import taxes rates varied from 5% to 50 % of contract value) was conducted during the process of macroeconomic stabilization: marked by relative stability in the exchange rate of the national currency and significant decrease in growth rates for production. All these factors allowed changes for the greater use of indirect methods of foreign trade regulation, to increase the possibility of an independent realization of macroeconomic policies.

Further development at this stage got financial instruments of export stimulation. Namely, in order to assist the promotion of manufactured goods in foreign markets, previously accepted fiscal privileges for exporters were eliminated since April 1, 1996 and differential rates of profit taxes for products depending on the recycling rate were established.

Fourth stage (1998-2003) is characterized primarily by significant reduction and further elimination of export customs taxes, and also the escalation of protectionism within the framework of the policy of import substitution.

During this period, there have been significant extensions in the implementation of financial instruments for export stimulation, independence of business units in exports and decision making in reduction of export regulations in the form of non-tariff barriers.

Despite the approval of such measures up until 2003, not only was there no growth in export volumes, but they actually fell and decreased. Along with external factors, a significant factor in reduction of export volumes was currency policy and strengthening of import protectionism within the framework of the policy of import substitution. However, it was during this period that some measures for reduction of administrative controls and promotion of the independence of business units were implemented.

New stage (since the second half of 2003 till today) is characterized by progress in advancement of in market openness, which were exhibited in various measures for export and import liberalization, rapid exchange rate devaluation, and significant relaxation in the field of currency regulation. There was much improvement toward loosening constraints from governmental regulation on foreign trade: gradual reduction in direct governmental regulatory activity concerning export-import operations, establishment of commodity nomenclature for foreign economical activity based on a harmonized description and coding system (GS); bringing together domestic and foreign prices, and import tariff unification. Also effective mechanisms of export stimulation and product marketing development were elaborated.

The role of indirect governmental regulatory actions increased in areas of taxes, customs, and currency control. In order to protect the economic sovereignty and security of the Republic of Uzbekistan, certain measures for protection of domestic producers and consumers in accordance with accepted means of trade protection, compensatory and anti-dumping tools; technical, phyto-sanitary, ecological and other standards; and demands towards import goods have been created.

Significant positive changes in development of foreign trade have been observed since the second half of 2003. The dominant role in this process was played by qualitative changes in the system of organization, especially means for realizing the liberalization of foreign trade, namely: simplification of procedures for business units dealing with export-import registration, import goods certification process; preliminary registration of import contracts in the Ministry of Foreign Economic Relations, investments and trade (former Association of foreign economic relations); accommodation of additional instruments for production, promotion of competitiveness of manufactured consumable goods from enterprises with foreign investments, with exemption from all taxes and commissions save for value-added tax, and implementation of national currency (sum) conversion for current international operations.

Realization of the manufactured goods production and complementary items utilizing local raw materials during 2004-2005 localization programs were significant in import rationalization, currency resources economy, and development of new areas of production. But it was not until 2007 that the localization program was brought to real fruition: 270

projects were implemented, production of more than 60 new products was mastered, expenses were reduced significantly and production volumes increased. In addition, about one thousand new workplaces were created. Total economic effects of localization program amounted to about US$2 billion.

In order to further improve the customs-tariff of export-import operations, In order to further improve the customs-tariff of export-import operations, the new updated version (2007) of commodity classification of the foreign economic activity of the Republic of Uzbekistan, with more precise commodity classification, harmonized description and goods coding system was applied in international practice since April 1 of 2009.

Measures for gradual improvement of the import policy have been implemented. Since April 1, 2008 the new customs tariff approved by decree of the President of the Republic of Uzbekistan [1]ПП-823 from March 27, 2008 is effective inside the territory of Uzbekistan. At the basis of the level of rates of commodity groups and subposition calculations lies the principle of escalation – the higher the added value of the commodity, the higher the rates of duty. In order to prevent artificially-low customs value of the products and to provide for the complete reversion of customs payments into the state budget in the amendment, the combined rates of duty commodity classification was expanded.

Customs duty rates are mainly grouped at four levels: 0%, 5%, 10% and 30%. In order to assist domestic producers, import tariff rates were increased (from 5% to 30%) for certain types of consumable goods (fish, fats, vegetable and animal oil, meat, sugar, flour, cereals), towards which previously zero rate had been applied.

Zero rates for import tariffs and common customs payment were established for importing forest products and wood, cars, machines and technological equipment, including the equipment for construction materials, items and constructions for competitive domestic products.

Foreign trade tariff analysis shows that despite apparently high rates, nowadays the mean rate gradually approaches to internationally-required levels. High tariff rates intended to assist domestic producers are set for consumable goods – the mean value at 20%. General import rate in Uzbekistan does not exceed 14-15%.

According to tariff classifications, depending on the rate of mean

tariff rates which is used by WMF for evaluating the degree of trading regime, the tariff regime of Uzbekistan could be considered as "relatively open" (arithmetic mean rate should vary from 10% to 15%). Approved import customs tariffs are applied towards goods produced in countries with which the agreement about trade economic cooperation had been signed, providing the most favorable regime possible. Nowadays the most favorable regime, not unlike most-favored-nation status elsewhere, in trade is provided by Uzbekistan for 44 countries of the world.

3.1. Foreign Trade of Republic of Uzbekistan

Problems related to efficient enhancement of exports and rationalization of imports, along with strengthening competitiveness of Uzbek manufacturers in domestic and foreign markets demand are issues that must be resolved by the Republic of Uzbekistan, especially against the backdrop of the world economic crisis.

From 2000 to 2008 external turnover increased by 3.1 times, exports by 3.5 times and imports by 2.5 times (see table 1). There was an increase 28.7% in exports from 2007 to 2008 (see table 3). The tempo of increase in exports dropped significantly in 2007, compared to the increase index of 40.7% in 2006 due mainly to reduction of external demand under pressure of global financial crisis.

Figure 1. Goods Structure of Uzbekistan Export

(Unit: %)
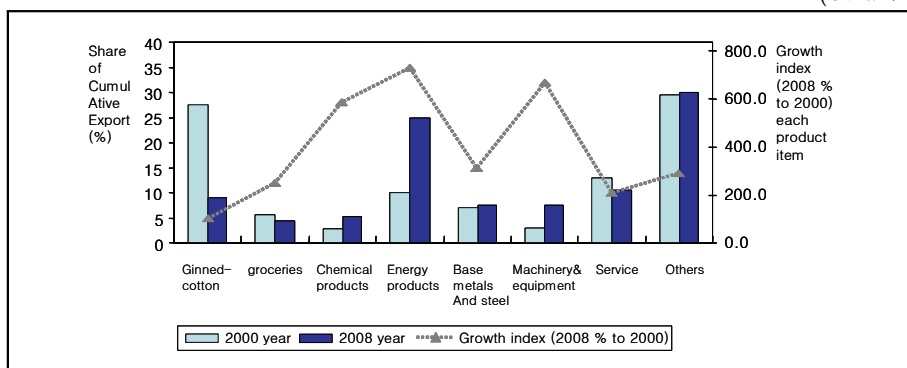
Source: State Committee on Statistics of Uzbekistan.

The share of pure exports in the GDP of Republic increased from 2.0% in 2000 to 16.4% in 2008 (table 2). Export per capita increased from US$132.4 in 2000 to US$423.7 in 2008.

During 2000-2008 there were qualitative changes in the structure of goods imported and exported by Uzbekistan (table 1).

The growth trends for "readily consumable" products and goods in the "machinery and equipment" category were stable (by 7.8 times from the volume of the year 2000) due the export of automobiles and electronic goods (table 3).

Accelerated tempo of growth was observed in export of intra-branch consumption products in the chemical sector (by 6.9 times). There were also increases in industrial construction materials (products made from stones, gypsum, cement, asbestos etc.), light industry (fabric, clothes), food sector (processed vegetables, fruits) and etc.

There was a significant growth of exports in the "energy carrier" products group (by 8.7 times), where a major share is taken up by natural gas. The share of exports of products in this group in 2008 represented 42.6% of cumulative gain of exports (42.6%)

During 2000-2008 the composition of industrial products for export also changed. Thus, if the leading exports of industrial products were previously from the light industry sector (42.5%) and other sectors (26.7%), by 2008, the trend changed in terms of increases in fuel and energy sector export by 29.4% or 39.2 p.p. (table 4). Chemical exports increased ‑ on 51.1 p.p., and so did products from the iron-

Figure 2. Production and Export of Lint Cotton (mln. ton)
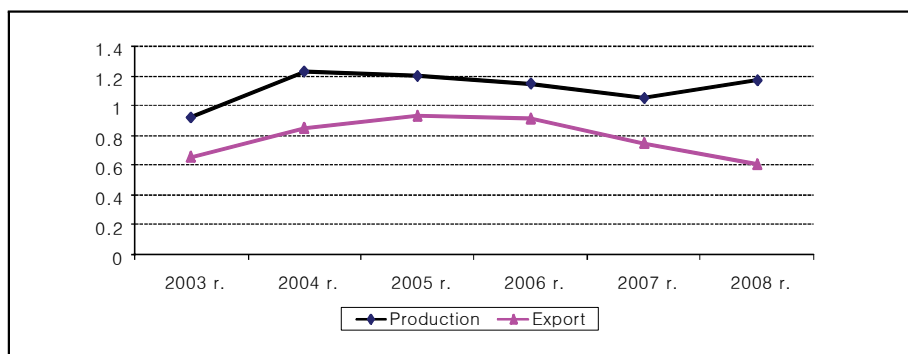
Source: Ministry of Economics of the Republic of Uzbekistan.

and-steel industry – by 27.0 p.p. The export share increases for other industries are as follows: light industry – by 9.4 p.p., base metal industry – by 3.6p.p and food industry sector – by 0.7 p.p.

Recently, there were steady declines in foreign exports of industrial ginned cotton and also decreases in Uzbekistan's cumulative exports. In 2008, export volume decreased significantly (on 8.7%) while production increased (on 11.4%) compared to 2007 (see table 2). The share of ginned cotton in the total volume of export decreased from 27.5% in 2000 to 9.2% in 2008.

Table:
Blue line – Production
Pink line – Export

The share of participation of small enterprises in foreign trade also proceeded in a positive direction. Thus the foreign trade turnover of ME for the 2000-2008 period increased by 2.7 times and reached US$4.3 billion (table 12). Exports of goods and services increased 4 times compared to 2004 to reach US$1.42 billion. Exports to Dzhizakskiy, Namangansky, Navoiskoy, Kashkadarinskoy and Fergansky regions and Tashkent had a noticeable growth (table 13).

Figure 3. Uzbekistan Import Commodity Pattern

(in % of total import)
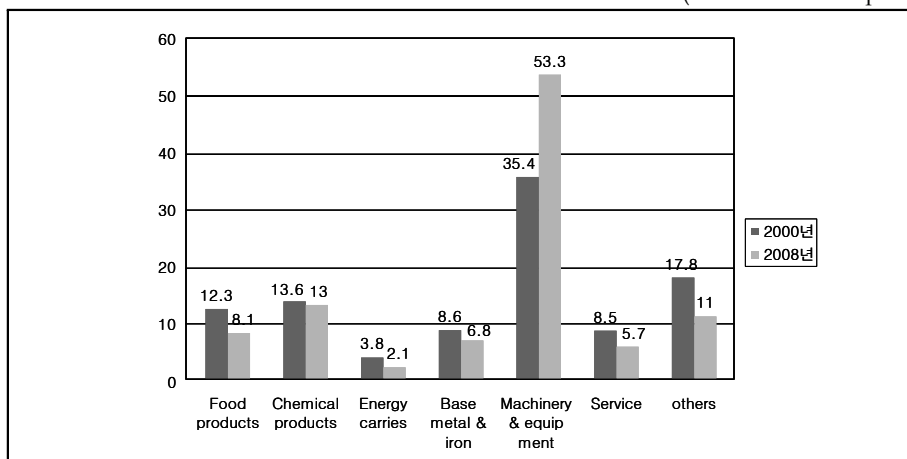
Source: State Committee on Statistics of Uzbekistan.

Share of the machinery and equipment in imports has shown continuous growth from 35.4% in 2000 to 53.3% in 2008 due to implementation of modernization, technological and technical production renewal (table 3).

The share of products, not manufactured in the Republic of Uzbekistan and required for reproduction cycle of industries in 2008, composed 73.1% of cumulative import production, that is 20.3 p.p. higher than in 2000. This group includes sectors such as machine building, chemical and metallurgic industries.

Reduction of energy carriers and food ratios in general volume of import was positive ‑ respectively by 1.7 and 4.2 p.p. (table 5)

At once, trends toward reduction in export rates in 2007 versus export rates in 2008 of products such as black and base metals (on 11.2%), machinery and equipment (on 6.3%) (see table 3) actually had positive impact on export activity. Such a situation was caused by recession of demands from the import leading group of countries because of the world financial crisis strengthening in the second half of 2008.

In 2008 there was a reduction in share of trade with CIS countries in foreign trade volume of Uzbekistan and concomitant growth with Asian countries such as Iran, Singapore, Afghanistan, etc.

Uzbekistan's export to CIS countries shows significant growth in 2008 (compared to 2000) to Kazakhstan, Russia and Ukraine (see table 8). In 2008, the commodity pattern of Uzbek exports to CIS countries showed machinery and equipment; food and services to be dominant, while ginned cotton, metals and chemical compounds had dominant status among exports to other countries (see figure. 4).

At the same time, the dynamic of exports from Uzbekistan to CIS countries exhibited patterns of inequality, in spite of the overall growth in 2008 compared to year 2000. Export volume to most major partner countries ‑ Kazakhstan and Russia ‑ significantly decreased in relation to levels reached in 2007. Thereafter its share in gross volume of export to CIS significantly decreased (on 3.39 and 10.33 p.p.). The main reasons for the decrease is recession in the economy of those countries, leading to subsequent decreases in their demand and purchasing power, and the impact of deterioration of world market prices on individual Uzbek export commodities.

Figure 4. Uzbekistan Export Commodity Pattern to CIS and other Foreign Countries in 2008
(in % to the export volumes of commodity groups in sections)
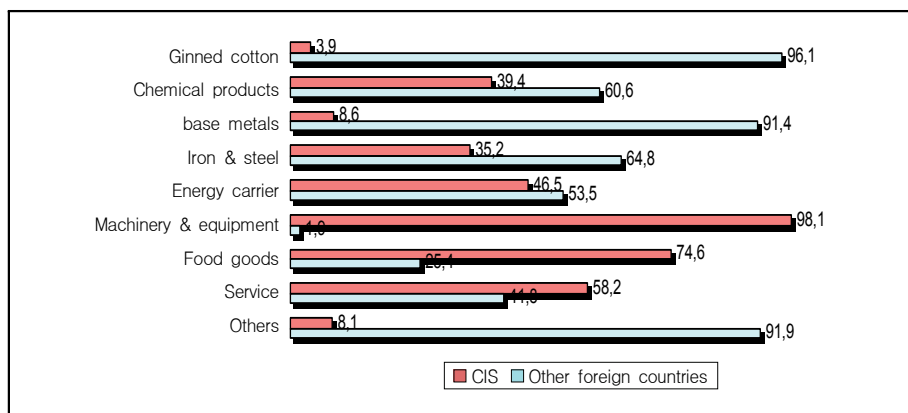
Source: State Committee on Statistics of Uzbekistan.

In 2008, major consumers of goods and services exported by Uzbekistan among CIS countries were Russia, Ukraine, and Kazakhstan. The share of those countries represented 29.7% of Uzbekistan's total exports (see table 9). On the basis of the results of 2008, Uzbekistan's turnover its biggest trading partner Russia reached US$3.9 billion, or 42%, of total external turnover with all countries in the world. The share of Russia's cumulative exports to Uzbekistan reached a peak of 17.2% (see table 8, table 9). The Russian Federation's import shares from Uzbekistan included 73.6% of the latter's engineered goods, 63.2% of food products, 43.6% of its services, and 12.9 % of chemical products exports of Uzbekistan.

Foreign trade relations with UAE, Singapore, Afghanistan, as well as with EU and the European Free Trade Association have also been made firm.

Figure 5. Foreign Trade Turnover of the Republic of Uzbekistan with CIS by the end of 2008.
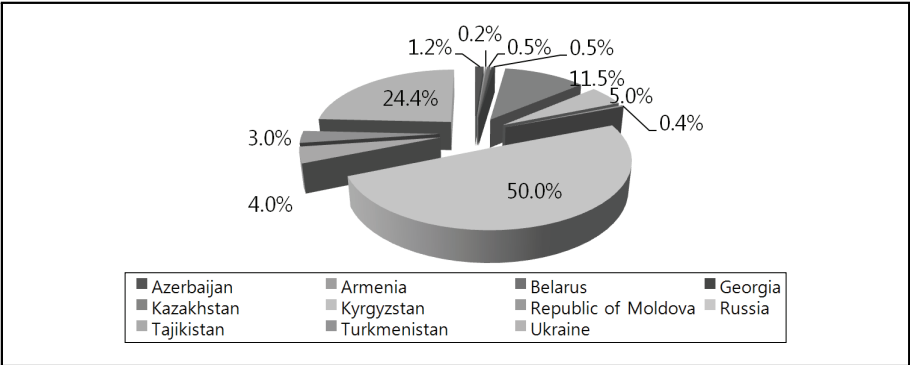
Source: Estimates based on State Committee on Statistics of Uzbekistan data
    Foreign trade of Uzbekistan with other foreign countries (not included in CIS), such as Iran, Turkey, China, is becoming active. The share of Iran and China was 58.2% of Uzbekistan's total export of ginned cotton, while to Turkey went 70.6% of base metal exports. In general, 6 countries represented 41.1% of Uzbekistan's cumulative exports.

Figure 6. Foreign Trade Turnover of the Republic of Uzbekistan With non-CIS by the end of 2008.
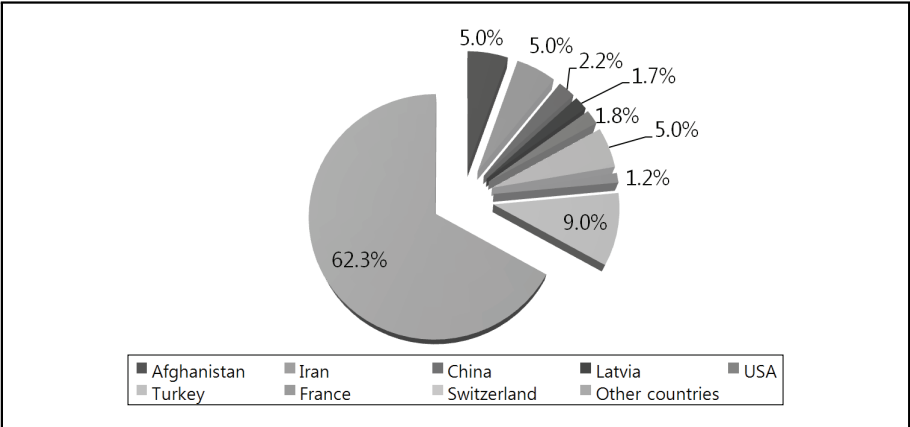
Source: IAMR's estimations are based on data from State Committee on Statistics of Uzbekistan.

4. Conclusion

Main principle of foreign trade policy of the Republic of Uzbekistan is to provide a stable and predictable regime of export and import, effective protection for domestic markets and manufacturers with economic measures of state regulations concerning foreign trade activities.

Availability of variety of comparative advantages in foreign trade, services and manufacture factors, particularly already considered possibilities of further development of trade-investment cooperation with South Korea doesn't mean their automatic realisation. There should be created «the corresponding organizational-economic mechanism that is ready to start action» and the necessary infrastructure for this purpose. Otherwise huge potential of cooperation of both countries (even perspective from scientific-theoretical positions) remains non-realised.

References

I.Karimov. 2009. "World Financial and Economic Crisis, Ways and Measures of its Overcoming in the Conditions of Uzbekistan." Tashkent, Uzbekistan.

Review of Conditions of the World Market of Foreign Investments. 2006. Business Partner, September, 14th.

Economic Review. 2004. "The Antimonopoly Policy in Uzbekistan: Institutes and Realisation Mechanisms." N 5.

_____. 2006. "Korea: the Turnaround Country of Serenity." From Economic Outsiders to Leaders. [1]5.

Gidaspov À.Í. South Korea: Jump to Leaders of IKT-SECTOR, Part I., II//Information courier-communication. – 2005. – [1]4, 6.

Mechanism of Investments. 2007. "The International Experience in Context of Uzbekistan." *Economic Review*, [1]7.

www.review.uz
www.uzreport.com
www.cer.uz

Vietnam-Korea Trade: Complementarity, Competitiveness and Implications for Further Trade Expansion

Le Quoc Phuong

1. Introduction

Vietnam and the Republic of Korea began bilateral trade in 1989 with a moderate two-way trade value of $US41 million. In 2008, despite impacts from the global economic crisis, bilateral trade amounted to almost $US10 billion, making Korea one of Vietnam's top trade partners.

Why has the Vietnam-Korea trade increased so rapidly? Will their bilateral trade expand further, and how? These questions, to our knowledge, have not been investigated thoroughly. The aim of this research is to provide a comprehensive analysis of the Vietnam-Korea trade. In particular, it is intended to examine whether trade complementarity between the two countries has been one of the main factors for rapid growth in the past and further expansion of bilateral trade. The relevant analytical framework is the concept of revealed comparative advantage (RCA). Previously, the author has applied this method to examining Vietnam's comparative advantage in the context of APEC (Le *at al* (1997) and Le (2002; 2008; 2009b)). This research is focused on trade between Vietnam and Korea. Based on the findings of analysis, recommendations are made for further trade expansion.

1.1. Analytical framework

Traditional trade theories such as the Ricardian theory of comparative advantage and the Heckscher-Ohlin model of factor endowments postulate that the main basis for international trade is comparative advantage. A country's comparative advantage is reflected by its factor

endowments (labor, capital, natural resources) and technology. Since it is hard to take account of all these factors to measure comparative advantage, Balassa (1965) offers a simple approach. On the ground that exports of a country are usually dominated by its products with comparative advantage, and that the country's pattern of comparative advantage is revealed by its export structure, he introduces the index of revealed comparative advantage of exports RCAik of country i in good k as:

$$RCAik = \frac{(Xik / Xi)}{(Xwk / Xw)}$$

where Xik=i's exports of k, Xi= i's total exports; Xwk=world exports of k, Xw=world total exports.

1.1.1. Major uses

Evaluating comparative advantage. RCA index offers a convenient way to evaluate comparative advantage of a country vis-à-vis the rest of the world. RCA>1 reflects comparative advantage of the country in good k, which exports this good more intensively relative to the world (as the share of this good in the country's exports is larger than the share of the same good in world trade). By contrast, RCA<1 indicates the country does not possess comparative advantage in this good.

Assessing complementarity/competitiveness between trading partners
- Complementarity/competitiveness in a particular good. The two countries both possessing comparative advantage in one good seem to compete with each other in exporting this good to the world market. The two countries are regarded as complementary if one country has comparative advantage while another country has no comparative advantage for this good.
- Overall complementarity/competitiveness. Countries with competing commodities covering a large share of their exports are regarded as competitors. Countries with complementary commodities constituting a significant share of trade are considered largely complementary.

Limitations. Balassa limits applying RCA only to manufactured

goods because primary products have been subject to distortions (government subsidy schemes). In addition, manufactures represent the lion's share in trade among industrial countries, implying primary products have little importance. He also limits the use of RCA to exports because imports have been subject to distortions (tariffs and NTBs), such that trade pattern hardly reflects comparative advantage.

This study, though, includes agriculture and other primary products because Vietnam's agriculture is not heavily subsidized and primary products constitute a large share of Vietnam's exports. Imports are also included despite concerns over distortions because analysis of imports can provide some insights. For this purpose, index of revealed comparative disadvantage of imports RCDMjk of country j in good k is used:

$$RCDjk = \frac{(Mjk / Mj)}{(Mwk / Mw)}$$

(Mjk=j's imports of k; Mj=j's total imports; Mwk=world imports of k; Mw = world total imports). RCD>1 indicates the country's comparative disadvantage, which imports a good more intensively compared to the rest of the world.

1.2. Data sources

Aggregate trade data for analyzing trade trends are taken from *Direction of Trade Statistics* (IMF) and *Statistical Yearbook* (Vietnam's General Statistical Office - GSO) of various years. At the time of writing, the most recent data available is for 2008.

Commodity trade data for examining complementarity/competitiveness are provided by COMTRADE (Commodity Trade Database) which have been developed by the United Nations Statistical Office (UNSO). This database contains data on exports and imports by commodity and partner country for over 130 countries. At the time of writing, the most recent data available for Vietnam and Korea is for 2007. The data is based on the Standard International Trade Classification version 3 (SITC3). The SITC3 offers 5 levels of commodity aggregation: 1-digit sections, 2-digit divisions, 3-digit groups, 4-digit

subgroups and 5-digit items. This study uses 1-digit and 3-digit levels for analysis. The 1-digit level, with only 10 commodity sections, provides an overall picture of trade, but it fails to give a detailed analysis. The 3-digit level, with 269 commodity groups, can facilitate a reasonably detailed analysis, while avoiding complexity of 4-digit and 5-digit levels, which contain thousands of categories.

2. Overview of Vietnam-Korea Trade

2.1. Rapidly growing bilateral trade

A rapid rise in the Vietnam-Korea trade in terms of value and growth rate was witnessed for the period 1989-2008.

In terms of trade value, Vietnam's exports to Korea in 2008 ($US2 billion) are 40 times the amount in 1989 ($US25 million) while imports from Korea increased nearly 500 times (from $US16 million in 1989 to $US8 billion in 2008). Although the Vietnam-Korea trade was hampered by the Asian economic crisis of 1997-1999, in which Korea was severely affected as the epicenter, bilateral trade has

Figure 1. Vietnam-Korea Trade, 1989-2008
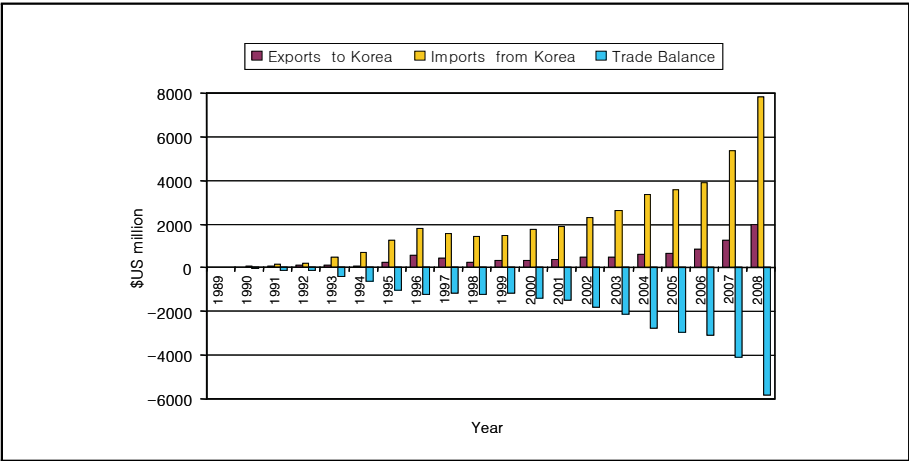
Source: IMF DOTS, various years.

renewed its expansion rapidly since 2000 (see figure 1).

In terms of growth rates, despite the impacts of the Asian financial crisis which caused negative growth rate of Vietnam-Korea trade in 1997-98, the average growth rate of Vietnam's exports to Korea for the entire 1990-2008 period is 35.1%, and that of Vietnam's imports from Korea is 48.5% (Table 1). These figures are significantly higher than growth rate of Vietnam's exports and imports for the same period (25.3% and 29.2%, respectively); indicating that Vietnam's trade with Korea has expanded at a pace faster than Vietnam's overall trade.

2.2. Korea has been one of Vietnam's top trade partners

The significantly higher growth rate of the Vietnam-Korea trade compared to that of Vietnam's overall trade shows the rising role of Korea in Vietnam's foreign trade. Korea indeed has been among Vietnam's top trading partners (Table 2). In 1991, just two years after the two countries started trading, Korea quickly rose to #5 on the list of Vietnam's import sources (with 11.6% of Vietnam's imports) and #8 in Vietnam's export markets (with 2.6% of Vietnam's exports). In 2008, with 8.8% and 2.9% in Vietnam's imports and exports, respectively, Korea ranked #4 among Vietnam's import sources and #7 among Vietnam's export markets.

Vietnam, on the other hand, plays a relatively moderate role in Korea's trade. Before 1996, Vietnam accounted for less than 1% of Korea's exports and only about 0.1% of Korea's imports (Table 3). Since 1996, Vietnam's share in Korea's exports has surpassed 1.0% while Vietnam's share in Korea's imports varies between 0.22% and 0.47%. Still, these shares are relatively small compared to those of Korea in Vietnam's trade.

Table 1. Growth rate of Vietnam-Korea Trade and Vietnam's Overall Trade, 1990-2008

Year	Growth rate (%)			
	Vietnam's exports to Korea	Vietnam's imports from Korea	Vietnam's exports	Vietnam's imports
1990	8.0	231.3	75.3	111.9
1991	88.9	186.8	17.6	18.0
1992	84.3	38.8	25.0	19.0
1993	5.3	128.4	19.6	56.8
1994	-13.1	49.4	35.5	48.7
1995	173.3	74.2	34.6	40.0
1996	137.4	42.0	33.2	36.5
1997	-25.3	-12.2	26.6	4.0
1998	-45.1	-9.1	1.8	-0.8
1999	39.7	4.6	23.3	1.0
2000	10.3	18.0	25.5	34.6
2001	15.0	7.6	3.8	3.7
2002	15.5	20.8	11.2	21.8
2003	4.9	15.1	20.6	27.9
2004	23.6	28.0	31.0	26.6
2005	9.2	7.0	22.9	15.0
2006	27.0	8.7	22.7	22.1
2007	48.6	36.5	21.9	39.8
2008	59.6	46.2	29.1	28.6
Average	35.1	48.5	25.3	29.2

Source: Author's calculation from IMF DOTS, various years.

2.3. Trade intensity of Vietnam-Korea trade

Although the simple trade share is useful in identifying the importance of trading partners, it does not take into account the size of trading countries. A better measure of importance of trading countries is the trade intensity index, introduced by Kojima (1964). To

assess how intensive trade is between partner countries in relation to their importance in world trade, this index is defined as share of one country's exports going to a partner divided by the share of world exports going to the partner.

$$IXij = \frac{(Xij / Xi)}{Xwj / Xw}$$

(where Xij=i's exports to j; Xi=i's total exports; Xwj=world exports to j;; Xw=world total exports).

Table 4 shows that trade intensity index of Korea's exports to Vietnam has always been greater than 1, indicating that Korea's exports to Vietnam have been intensive, even in terms of relatively big size of Korea's exports ($US433.5 billion in 2008).

Table 2. Vietnam's Top Trade Partners

Rank	1991				2008			
	Top export markets	%	Top import sources	%	Top export markets	%	Top import sources	%
1	Japan	36.31	Singapore	33.24	US	18.63	China	19.39
2	Singapore	21.45	Russia	16.48	Japan	13.62	Singapore	11.64
3	HK	11.27	HK	8.97	China	7.23	Taiwan	10.36
4	Russia	10.83	Japan	7.26	Singapore	4.24	ROK	8.80
5	France	4.19	ROK	7.00	Germany	3.31	Thailand	6.08
6	Taiwan	2.94	France	6.81	Malaysia	3.12	US	3.26
7	Thailand	2.91	Germany	4.66	ROK	2.85	HK	3.26
8	ROK	2.59	Taiwan	2.73	UK	2.52	Malaysia	3.22
9	China	0.98	Indonesia	2.27	Holland	2.45	India	2.59
10	Indonesia	0.83	India	1.10	Cambodia	2.28	Switzerland	2.34
	Top 10	94.3		90.52	Top 10	60.25		70.89

Source: Author's calculation from GSO.

Table 3. Share of Vietnam-Korea Trade in Their Total Trade

Year	Korea as % in Vietnam's exports	Korea as % in Vietnam's imports	Vietnam as % in Korea's exports	Vietnam as % in Korea's imports
1989	2.6	1.9	0.03	0.04
1990	1.6	3.0	0.08	0.04
1991	2.6	7.2	0.21	0.06
1992	3.8	8.4	0.28	0.11
1993	3.3	12.3	0.59	0.12
1994	2.1	12.3	0.75	0.08
1995	4.3	15.4	1.00	0.17
1996	7.7	16.0	1.37	0.37
1997	4.5	13.5	1.15	0.29
1998	2.4	12.4	1.07	0.25
1999	2.8	12.8	1.03	0.27
2000	2.4	11.2	1.02	0.22
2001	2.7	11.6	1.25	0.29
2002	2.8	11.5	1.40	0.31
2003	2.4	10.4	1.35	0.28
2004	2.3	10.5	1.32	0.27
2005	2.0	9.8	1.26	0.25
2006	2.1	8.7	1.20	0.27
2007	2.6	8.5	1.44	0.35
2008	2.9	8.8	1.80	0.47

Source: Author's calculation from IMF DOTS.

Table 4. Trade Intensity of Vietnam-Korea Trade

Year	Intensity of Vietnam's exports to Korea	Intensity of Korea 's exports to Vietnam
1991	1.0	3.5
1996	1.7	6.4
2005	0.7	3.5
2008	0.8	3.2

Source: Author's calculation from UN COMTRADE.

At the same time, index of Vietnam's exports to Korea has generally been below 1 (except in 1996 when bilateral trade was at its first peak), indicating that Vietnam's exports to Korea are still below par, even in the context of relatively small size of Vietnam's exports ($US63 billion in 2008). Importantly, this suggests that there is still significant room for further expansion of Vietnam-Korea trade, particularly for Vietnam's exports to Korea.

2.4. Main favorable conditions for growing Vietnam-Korea trade

Rapid growth of the Vietnam-Korea trade can be attributed to a number of factors. These include improved Vietnam-Korea relations, Vietnam's rapidly growing foreign trade, trade complementarity between the two countries, Korea's FDI in Vietnam and geographical proximity between the two countries. These factors are briefly described below[6].

Improved Vietnam-Korea relationship. Vietnam and Korea established diplomatic relations in 1992. In 2001 the two countries agreed to set up a comprehensive partnership for the 21st century. In 2009 the two governments decided to upgrade their bilateral relations to a strategic cooperative partnership. The two countries began preparation for talks on the bilateral trade agreement, which is expected to boost their trade relations further. Regionally, the two countries are members of APEC, which promotes free trade and investment among the Asia-Pacific economies. Korea is also one of ASEAN's main partners in ASEAN+3, a scheme that aims to boost cooperation between North East Asian countries (Korea, China and Japan) and ASEAN members including Vietnam.

Vietnam's rapidly growing foreign trade. Since 1989 Vietnam has

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6) The role of these factors can be assessed by econometric techniques. In Le, Nguyen and Bandara (1996) and Le (2002), the author uses the gravity trade model to examine some determinants of international trade flows (such as economic size of trading partners, distance between them and level of trade protection) among APEC economies including Vietnam and Korea. The results show that these factors are significant in determining trade flows among APEC economies.

implemented major trade liberalization measures and important international integration efforts, joining AFTA in 1995, APEC in 1998 and WTO in 2007. As a result, the country's foreign trade has expanded dramatically. Total trade value increased from $US3.5 billion in 1990 to $US143.4 billion in 2008 (more than 40-time increase). The country has emerged as one of the world's top exporters of a range of commodities: #1 in cashew, #2 in rice (after Thailand) and coffee (after Brazil), #4 in rubber and seafood, #5 in tea, #7 in footwear and #10 in garment. See Le (2009a) for more details

Trade complementarity between Vietnam and Korea. Vietnam, a developing country with relatively abundant resources and a large labor force (47.4 million), exhibits its comparative advantage mainly in primary and labor-intensive products (see Le, 2008). Korea, a newly industrialized economy with almost no natural resources, derives its comparative advantage principally from capital-intensive products such as chemicals, electronics and transport equipment (see Le, 2009b). The two countries are thus highly complementary in terms of trade. This is one of the important conditions for bilateral trade expansion, which will be analyzed in detail below.

Korea's FDI in Vietnam. Since Vietnam's first law on FDI became effective on 1 January 1988, foreign investment began to flow into the country. Cumulatively, as at October 2009, some 90 countries and territories have invested in nearly 11, 000 projects in Vietnam with total registered capital of US$174 billion (Table 6). FDI firms now play an important role in Vietnam's foreign trade, accounting for some 40% of both exports and imports of Vietnam.

Korea is #1 among investing economies in Vietnam in terms of investment projects (with 2, 283 projects), and second only to Taiwan in terms of investment capital, with $US20.5 billion in registered capital (or 12% of the total) and US$6.9 billion in implemented capital (14%). Vietnam ranks #4 in Korea's outward FDI (after China, US and HK). Korea's newly established firms in Vietnam often import machinery and equipment from home during the construction period, and import materials and parts during the operation period. Many Korean FDI firms are export-oriented, which ship part of their products back to Korea or other countries.

Table 5. Top Investing Economies in Vietnam as at October 2009

Rank	Country/ Territory	No. of projects	Registered capital ($US billion)	Implemented capital ($US billion)
1	Taiwan	2,010	21.29	8.58
2	ROK	2,283	20.46	6.88
3	Malaysia	337	18.06	3.87
4	Japan	1,154	17.69	5.13
5	Singapore	758	16.92	5.41
6	British Virgin Islands	452	13.20	4.35
7	US	479	12.80	2.25
8	HK	564	7.77	2.66
9	Cayman Islands	44	6.63	1.23
10	Thailand	215	5.74	2.45
	Others	2,509	34.14	13.72
	Total	10,805	174.72	56.53

Source: Vietnam's Ministry of Planning and Investment (2009).

Geographical proximity. Geographically, Vietnam and Korea are relatively close (physical distance between the capital cities, Hanoi and Seoul, is 2,744 km). This geographical proximity significantly reduces transportation costs and time, thus facilitating bilateral trade.

2.5. Major setback – Vietnam's large trade deficit with Korea

Notwithstanding the above-mentioned achievements, in 20 years of bilateral trade with Korea, Vietnam almost always recorded trade deficits. When the two countries started trading in 1989, Vietnam recorded a small surplus of US$9 million. But since 1990, Vietnam's trade deficit with Korea has risen rapidly (see figure 1). By 2008, the deficit amounted to US$5.8 billion, or more than 32% of Vietnam's total trade deficit ($US18 billion), making Korea Vietnam's 2nd largest trade deficit partner, after only China. This huge and persistent trade imbalance is a cause of unsustainable bilateral trade, which should be

addressed by governments and business sector of the two countries, in order to improve bilateral trade.

3. Commodity Composition of the Vietnam-Korea Trade

3.1. Structure of Vietnam's exports to Korea

Overall picture. At 1-digit SITC3 (Table 6), primary products constitute a large part of Vietnam's exports to Korea. Section 0 (mainly food) covers between 28% and 36% of Vietnam's exports to Korea during 2000-2007. Section 3 (crude oil and other minerals) accounts for almost 15% of Vietnam's exports to Korea in 2007 while section 2 (mainly raw materials) makes up some 8%.[7]

Table 6. Composition of Vietnam's Exports to Korea, 2000-2007

(% in total)

Sections (1-digit SITC3)	2000	2001	2002	2003	2004	2005	2006	2007
0-Food & live animals	28.0	35.9	32.6	35.2	31.1	31.5	32.9	28.1
1-Beverages and tobacco	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
2-Crude materials ex food/fuel	4.0	4.0	5.0	6.5	6.0	7.1	8.3	7.9
3-Mineral fuel/lubricants	0.2	0.0	0.0	3.7	9.7	8.4	4.6	14.8
4-Animal/veg oil/fat/wax	0.0	3.3	4.9	0.0	0.0	0.0	0.0	0.0
5-Chemicals/products n.e.s	1.6	0.8	0.7	0.8	1.3	1.6	2.1	1.7
6-Manufactured goods	14.2	13.4	14.9	15.8	18.3	18.2	18.7	18.7
7-Machiner/transp equipment	8.9	8.9	10.4	8.6	11.7	9.0	9.6	11.0
8-Miscellaneous manufac arts	37.6	32.2	27.0	25.9	21.8	24.0	23.7	17.7
9-Commodities n.e.s	5.4	1.4	4.6	3.6	0.1	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculation from UN COMTRADE.

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7) The broad commodity categories in SITC3 (UNSO) are:
   • Food products: 0+22+4-07.
   • Primary products: 0+1+2+3+4+68+667+971.
   • Manufactured products: 5+6+7+8-667-68.

With regard to manufactured products, labor-intensive section 8 was the largest export section to Korea in 2000 with 37.8% of the total. Although the share of section 8 gradually declined since, it still accounts for 17.7% of Vietnam's exports to Korea in 2007. By contrast, the role of technology-intensive section 6 (basic manufactures) and section 7 (machinery/transport equipment) has increased, though slowly. Section 6 is now 2nd largest export section to Korea (with 18.7% in 2007). Section 7 accounts for a relatively significant share of 11 % in the same year.

Detailed picture. At 3-digit SITC3, Vietnam exported 192 commodities to Korea in 2007 valued US$1.24 billion. But there were only 20 relatively large commodities (with 1% share or above), which together made up 78.4% of Vietnam's exports to Korea (Table 7).

Top eight primary items (including seafood, coffee, rubber, coal, crude oil) jointly account for 45.7% of Vietnam's exports to Korea. The largest export product to Korea is 036 (crustaceans molluscs etc) with 14.53%, followed by 333 (crude oil) with 11.26%. Nevertheless, there are a number of large exported manufactures including basic manufactures (651, 658), labor-intensive (821, 831, 841, 842, 851) and capital-intensive products (716, 752, 764, 773). Together, 12 largest manufactured items make up 32.7% of Vietnam's exports to Korea.

Table 7. Vietnam's Largest Exports to Korea

No.		Product groups (3-digit SITC3)	% of Vietnam's exports to Korea in 2007
1	034	Fish, live/frsh/chld/froz	2.93
2	035	Fish dried/salted/smoked	1.24
3	036	Crustaceans molluscs etc	14.53
4	037	Fish/shellfish prep/pres	3.45
5	071	Coffee/coffee substitute	3.70
6	231	Natural rubber/latex/etc	5.36
7	321	Coal non-agglomerated	3.20
8	333	Petrol./bitum. oil, crude	11.26
		Subtotal (8 largest primary products)	45.7

Table 7. Coutinued

No.		Product groups (3-digit SITC3)	% of Vietnam's exports to Korea in 2007
9	651	Textile yarn	9.54
10	658	Made-up textile articles	1.33
11	716	Rotating electr plant	1.82
12	752	Computer equipment	1.30
13	764	Telecomms equipment n.e.s	1.32
14	773	Electrical distrib equip	3.48
15	821	Furniture/stuff furnishing	5.01
16	831	Trunks and cases	1.00
17	841	Mens/boys wear, woven	1.23
18	842	Women/girl clothing woven	1.51
19	851	Footwear	4.10
20	893	Articles n.e.s of plastics	1.08
		Subtotal (12 largest manufactured products)	32.7
		20 largest products	78.4
		Others	21.6
		Total	100.0

Source: Author's calculation from UN COMTRADE.

3.2. Structure of Vietnam's imports from Korea

Overall picture. At 1-digit SITC3 (Table 8), section 3, 6 and 7 are largest in Vietnam's imports from Korea. In the period 2000-2007, section 6 (mainly processed materials) accounts for about 40% of Vietnam's imports from Korea, while the share of section 7 (machinery/transport equipment) varies between 23.2% and 31.9%. The share of section 3 (mainly petrol) increases from 2.2% in 2000 to 14.6% in 2007.

Table 8. Composition of Vietnam's Imports from Korea, 2000-2007

(Unit: %)

Sections (1-digit SITC3)	2000	2001	2002	2003	2004	2005	2006	2007
0-Food & live animals	0.8	1.2	0.5	0.3	0.2	0.4	0.4	0.5
1-Beverages and tobacco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-Crude material ex food/fuel	2.8	3.0	2.1	2.2	1.9	1.7	1.9	2.0
3-Mineral fuel/lubricants	2.2	5.4	5.2	3.3	9.9	12.4	13.4	14.6
4-Animal/veg oil/fat/wax	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1
5-Chemicals/products n.e.s	16.4	14.4	12.1	11.8	14.2	13.7	14.9	14.0
6-Manufactured goods	37.6	34.0	39.5	41.5	37.7	38.4	39.9	37.0
7-Machinery/transp equipmt	24.5	28.1	31.5	31.9	27.3	26.8	23.2	26.7
8-Miscellaneous manuf arts	13.7	13.3	8.6	8.5	8.4	6.3	6.0	5.0
9-Commodities n.e.s	2.0	0.5	0.4	0.4	0.3	0.3	0.3	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculation from UN COMTRADE.

Detailed picture. At 3-digit SITC3 (Table 9), Vietnam imported 239 products from Korea in 2007 worth US$5.34 billion. Out of these, 36 commodities represent a relatively significant share of Vietnam's exports to Korea (0.7% or above), which together make up 77.3% of Vietnam's imports from Korea. The majority of Vietnam's largest import items from Korea are processed materials (23 items in sections 2, 3, 5 and 6) and machinery/equipment (12 items in section 7). The single largest item is 334 (heavy petrol) which accounts for 14.41% of Vietnam's imports from Korea, followed by 653 (woven fabrics) with 8.09%, and 764 (telecoms equipment) with 4.53%.

Table 9. Vietnam's largest imports from Korea, 2007

No.		Product group (3-digit SITC) SITC3	% of Vietnam imports from Korea in 2007
1	232	Rubber synth/waste/etc	0.81
2	334	Heavy petrol/bitum oils	14.41
3	542	Medicaments include vet	1.46
4	571	Primary ethylene polymer	2.57
5	572	Styrene primary polymers	1.20
6	575	Plastic n.e.s-primary form	2.25
7	598	Misc chemical prods n.e.s	0.93
8	611	Leather	1.99
9	641	Paper/paperboard	0.75
10	651	Textile yarn	1.37
11	652	Cotton fabrics, woven	1.98
12	653	Man-made woven fabrics	8.09
13	655	Knit/crochet fabrics	2.79
14	656	Tulle/lace/embr/trim etc	1.48
15	657	Special yarns/fabrics	2.84
16	673	Flat rolled iron/st prod	1.65
17	675	Flat rolled alloy steel	1.76
18	676	Iron/steel bars/rods/etc	0.89
29	679	Iron/steel pipe/tube/etc	0.72
20	682	Copper	2.13
21	684	Aluminium	1.85
22	686	Zinc	1.99
23	699	Base metal manufac n.e.s	0.94
24	713	Internal combust engines	0.70
25	714	Engines non-electric n.e.s	1.43
26	724	Textile/leather machinery	1.88
27	728	Special indust machn n.e.s	2.29
28	741	Indust heat/cool equipment	2.22
29	764	Telecomms equipment n.e.s	4.35
30	773	Electrical distrib equip	0.86
31	776	Valves/transistors/etc	1.06
32	781	Passenger cars etc	0.77
33	782	Goods/service vehicles	0.82
34	784	Motor veh parts/access	1.72
35	793	Ships/boats/etc	0.89
36	899	Misc manuf articles n.e.s	1.47
		Total 36 largest products	77.31

Source: Author's calculation from UN COMTRADE.

4. Trade Complementarity and Competitiveness between Vietnam and Korea

Trade complementarity and competitiveness between Vietnam and Korea is examined as follow.

Identifying the comparative advantage structure of each country

Comparing the comparative advantage structure of the two countries. If there is significant difference between comparative advantage structure of the two countries, the two countries are regarded as trade complementing.

Further, if supply capacity of one country, exhibited by its comparative advantage export sectors, well matches with another country's import demand, indicated by its comparative disadvantage in imports, the two countries are regarded as highly complementing.

4.1. Comparative advantage patterns of Vietnam and Korea

4.1.1. Vietnam's comparative advantage

Patterns of Vietnam's comparative advantage are examined in Le (2008) based on selected years. These are 1991 (representing the early stage of economic reforms 1986-91), 1996 (representing period of Vietnam's high economic growth in 1992-96 before it was impacted by the Asian financial crisis in 1997) and 2005 (representing the recent period). The main findings are as follows:

- In the early stage of the economic reform, Vietnam's comparative advantage was based mainly on primary sectors (agriculture, fishery, forestry and mining), which in turn are based on factors Vietnam is relatively well-endowed with (land, labor and natural resources).
- Period 1992-1996 witnesses a rapid shift from food and primary sectors to labor-intensive manufactures. Since 1997, there is a slow shift to technology-intensive sector.
- Despite its increasingly diverse structure, Vietnam's comparative advantage still concentrates in a limited range of primary and labor- intensive products.
- Exported manufactures including labor-intensive (garments, footwear, furniture) and capital-intensive (motorbikes, electrical and electronic goods) are largely based on outwork processing, which

requires imports of most materials and parts to produce final products for exports using mainly cheap labour.

Data on Vietnam's trade for 2007 (Table 10) confirm these findings. On the export side, Vietnam exhibits comparative advantage principally in food (section 0) and primary (sections 2 and 3), and labor-intensive section 8. On the import side, Vietnam currently shows high import demand for products in section 3 (mainly fuel), 5, 6 (processed materials) and 7 (machinery and equipment).

Table 10. Vietnam's Export Comparative Advantage and Import Comparative Disadvantage

Section	Vietnam's exports 2007		Vietnam's imports 2007	
	Share (%)	RCA	Share (%)	RCD
0-Food & live animals	18.9	3.61	5.2	1.00
1-Beverages and tobacco	0.3	0.40	0.3	0.38
2-Crude mat.ex food/fuel	4.5	1.23	4.2	1.05
3-Mineral fuel/lubricants	20.7	1.59	13.9	0.98
4-Animal/veg oil/fat/wax	0.1	0.22	0.8	1.80
5-Chemicals/prducts n.e.s	2.1	0.19	13.3	1.22
6-Manufactured goods	8.1	0.56	27.1	1.93
7-Mchnery/transp equipmt	11.5	0.32	28.4	0.80
8-Miscellaneous manf arts	32.9	3.11	4.3	0.39
9-Commodities n.e.s	0.7	0.18	2.5	0.65

Source: Author's calculation from UN COMTRADE.

4.1.2. Korea's comparative advantage

On the export side, Korea's comparative advantage is concentrated in capital-intensive manufacturing section 7, which accounts for 58.3% of its total exports (Table 11). Section 5 and 6 also can be classified as Korea's comparative advantage, as their RCA index (0.92 and 0.96, respectively) is quite close to 1 and their share in Korea's exports is relatively large (10.1% and 14%, respectively).

On the import side, Korea shows high import demand for products in sections 2 and 3 (RCD>1), although the largest import sections are sections 7, 3 and 6. This inconsistency may be due to the limitation of RCD index being distorted by import protection measures, as mentioned above.

Table 11. Korea's Export Comparative Advantage and Import Comparative Disadvantage

Product sections	Korea's exports 2007		Korea's imports 2007	
	Share (%)	RCA	Share (%)	RCD
0-Food & live animals	0.7	0.14	3.8	0.74
1-Beverages and tobacco	0.2	0.23	0.2	0.28
2-Crude mat.ex food/fuel	1.1	0.31	6.7	1.67
3-Mineral fuel/lubricants	6.6	0.51	27.0	1.91
4-Animal/veg oil/fat/wax	0.0	0.02	0.2	0.56
5-Chemicals/prducts n.e.s	10.1	0.92	9.1	0.83
6-Manufactured goods	14.0	0.96	14.6	1.03
7-Mchnery/transp equipmt	58.3	1.60	30.1	0.85
8-Miscellaneous manf arts	8.7	0.82	7.7	0.70
9-Commodities n.e.s	0.2	0.05	0.5	0.13

Source: Author's calculation from UN COMTRADE.

4.2. Degree of complementarity and competitiveness between Vietnam and Korea

Overall picture. With regard to exports, as the above analysis indicates, comparative advantage of Vietnam and Korea lies in radically different domains. At 1-digit SITC3, Vietnam possesses comparative advantage mainly in primary products (section 0, 2 and 3) and labor-intensive manufactures (section 8). Korea exhibits its strengths in capital-intensive manufactures (section 7 and to some extent, section 5 and 6). These different patterns of comparative advantage suggest that the two countries are not competing on world export markets.

In regard to imports, Korea shows its high demand for imports in sections 2 and 3 (RCD=1.67 and 1.91, respectively). These are Vietnam's comparative advantage export sectors, jointly accounting for more than 25% of Vietnam's total exports (Table 9). Vietnam currently exhibits its high import demand for products in section 5 and 6 (RCD=1.22 and 1.93, respectively). These can be regarded as Korea's comparative advantage export sections, which jointly account for 24% of Korea's total exports (Table 9). This suggests that the two countries are highly complementary, as each country's export capacity is well-matched with the other country's import demand for a number of sectors.

It is worth noting that Vietnam does not show high import demand for Korea's most important export section 7, perhaps because at this stage of its economic development, Vietnam does not import much expensive machinery and equipment. At the same time, Korea does not have high import demand for Vietnam's largest export section 8, perhaps because Korea still maintains considerable capacity in labor-intensive industries.

Detailed picture. Table 12 presents Vietnam's 34 largest export products at 3-digit SITC3 in 2007 (those accounting for 0.5% or more of Vietnam's total exports). Out of these, 12 products are primary (food products in section 0, rubber in section 2 and minerals in section 3), 10 products are miscellaneous manufactures (mainly labor-intensive goods in section 8) and 12 products are manufactures in section 6 and 7. These data exhibit the following patterns.

- Most of Vietnam's large exports to Korea are also Vietnam's top export products, indicating the important role of Korea in Vietnam's exports.
- Korea displays no comparative advantage for most of Vietnam's largest export products (26 out 34), showing different comparative advantage patterns of Korea and Vietnam. This, in turn, implies that the two countries are not competing on the world export markets.
- Although some items on the list of Vietnam's major export products (namely 334, 651, 752, 764, 771, 773, 776 and 784) may be identified as competing with Korea's exports, as they are also products for which Korea possesses comparative advantage,

Table 12: Korea's RCA and RCD for Vietnam's Top Exports

No.		Vietnam's top exports 2007			Korea's index	
		Product group (at 3-digit SITC)	Share (%)	RCA	RCA	RCD
1	034	Fish, live/frsh/chld/froz	2.8	9.1	0.6	1.35
2	036	Crustaceans molluscs etc	3.8	22.3	0.4	1.33
3	037	Fish/shellfish, prep/pres	0.9	6.2	0.2	0.71
4	042	Rice	3.1	29.5	0.0	0.44
5	054	Vegetables, frsh/chld/frz	0.5	1.5	0.1	0.27
6	057	Fruit/nuts, fresh/dried	1.6	3.6	0.1	0.36
7	071	Coffee/coffee substitute	4.0	23.0	0.2	0.39
8	075	Spices	0.6	18.7	0.2	0.41
9	231	Natural rubber/latex/etc	2.7	21.3	0.0	1.86
10	321	Coal non-agglomerated	2.1	4.9	0.0	3.3
11	333	Petrol./bitum. oil, crude	17.5	2.6	0.0	2.08
12	334	Heavy petrol/bitum oils	1.2	0.3	1.6	0.89
13	592	Starches/glues/etc.	0.5	3.5	0.5	0.92
14	651	Textile yarn	0.9	2.4	1.2	1.54
15	658	Made-up textile articles	0.9	3.1	0.4	0.32
16	716	Rotating electr plant	0.7	1.3	0.5	0.92
17	752	Computer equipment	1.9	0.9	1.2	0.58
18	763	Sound/tv recorders etc	0.5	1.2	0.8	0.52
19	764	Telecoms equipment n.e.s	0.6	0.2	3.6	0.6
20	771	Elect power transm equip	0.5	1.1	1.1	1.24
21	772	Electric circuit equip	1.4	1.0	0.9	1.16
22	773	Electrical distrib equip	1.8	2.6	1.1	0.76
23	776	Valves/transistors/etc	0.5	0.2	2.9	2.07
24	784	Motor veh parts/access	0.8	0.3	1.4	10.39
25	821	Furniture/stuff furnishg	4.9	4.9	0.2	0.44
26	831	Trunks and cases	0.9	4.1	0.1	0.72
27	841	Mens/boys wear, woven	4.0	8.8	0.1	0.64
28	842	Women/girl clothing woven	3.8	7.0	0.1	0.64
29	843	Men/boy wear knit/croch	1.0	5.6	0.1	0.26
30	844	Women/girl wear knit/croch	1.8	6.2	0.1	0.2
31	845	Articles of apparel n.e.s	4.0	4.7	0.1	0.41
32	851	Footwear	8.4	14.1	0.2	0.41
33	897	Jewellery	0.5	1.2	0.3	0.18
34	899	Misc manuf articles n.e.s	0.8	1.8	0.3	0.52

Source: Author's calculation from UN COMTRADE.

most of them (especially those in capital-intensive section 7) currently are not Vietnam's comparative advantage products. Hence the degree of competition between the two countries is not significant. However, as Vietnam's comparative advantage continues to shift to capital-intensive sectors, Vietnam and Korea will trade more of these products with each other. This means intra-trade between the two countries is expected to grow significantly.

- Korea displays import demand (RCD>1) for a limited range of Vietnam's major export products (034, 036, 231, 321, 333, 771, 772, 776 and 784). RCD index of imports may be distorted, as mentioned above, by protection measures. For example, Korea's RCD for rice (0.44) may not reflect its real demand. Korea's limited import demand for most of Vietnam's major exports may be the main reason why Vietnam's exports to Korea have been limited.

Table 13 shows how Korea's supply capacity matches Vietnam's demand for imports. Among 259 items Vietnam exported to the world in 2007, 59 items with significant share (0.5% or higher) are presented in this Table. The following patterns can be identified.

- Most large import products exhibit high demand for imports (RCD>1), except a few products in section 7.
- For a wide range of Vietnam's large import products (29 out of 59), Korea exhibits its comparative advantage for exports. This shows that Korea's supply capacity for exports matches up well with Vietnam's demand for imports.

Table 13. Korea's RCA for Vietnam's Top Imports

No.		Vietnam's top imports 2007			Korea's
		Product group (at 3-digit SITC)	Share (%)	RCD	RCA
1	022	Milk prods exc butter/cheese	0.5	2.2	0.03
2	041	Wheat/meslin	0.5	2.3	0
3	081	Animal feed exl unml cer.	1.8	5.5	0.05
4	247	Wood in rough/squared	0.5	3.5	0
5	248	Wood simply worked	0.7	2.2	0.01
6	282	Ferrous waste/scrap	0.6	1.7	0.38
7	334	Heavy petrol/bitum oils	12.8	3.5	1.5
8	344	Petrol./hydrocarbon gas	0.5	6.2	0
9	422	Fixed veg oils not soft	0.5	3.1	0
10	513	Carboxylic acid compound	0.6	1.7	3.27
11	533	Pigments/paints/varnish	0.6	1.8	0.61
12	542	Medicaments include vet	1.1	0.5	0.05
13	562	Manufactured fertilizers	1.6	4.6	0.31
14	571	Primary ethylene polymer	1.4	3.5	1.76
15	574	Polyacetals/polyesters	0.5	1.4	2.36
16	575	Plastic n.e.s-primary form	1.5	2.3	1.42
17	582	Plastic sheets/film/etc	0.6	1.1	1.13
18	591	Household/garden chemical	0.6	4.3	0.17
19	598	Misc chemical prods n.e.s	0.7	1.0	0.66
20	611	Leather	1.4	8.2	1.3
21	641	Paper/paperboard	1.0	1.2	0.58
22	651	Textile yarn	0.9	2.9	1.16
23	652	Cotton fabrics, woven	1.3	7.3	0.74
24	653	Man-made woven fabrics	3.0	13.9	2.08
25	655	Knit/crochet fabrics	1.0	7.4	5.07
26	656	Tulle/lace/embr/trim etc	0.6	10.9	2.06
27	657	Special yarns/fabrics	1.1	4.5	1.8
28	672	Primary/prods iron/steel	1.8	5.9	0.12
29	673	Flat rolled iron/steel prod	4.0	5.9	1.85
30	675	Flat rolled alloy steel	1.0	1.9	1.61
31	676	Iron/steel bars/rods/etc	0.9	1.4	0.92
32	679	Iron/steel pipe/tube/etc	0.8	1.3	1.09
33	682	Copper	1.4	1.6	1.05
34	684	Aluminum	1.0	1.2	0.56
35	699	Base metal manufac n.e.s	0.8	0.9	0.59

Table 13. Coutinued

No.		Vietnam's top imports 2007			Korea's
		Product group (at 3-digit SITC)	Share (%)	RCD	RCA
36	713	Internal combust engines	0.7	0.6	0.47
37	714	Engines non-electric n.e.s	0.6	1.1	0.14
38	716	Rotating electr plant	1.1	2.0	0.47
39	723	Civil engineering plant	0.5	0.7	1.5
40	724	Textile/leather machinery	1.1	5.1	2.15
41	728	Special indust machn n.e.s	1.6	1.6	1.23
42	741	Indust heat/cool equipmt	1.7	2.4	1.18
43	743	Fans/filters/gas pumps	0.6	0.8	0.57
44	744	Mechanical handling equip	0.7	1.2	0.7
45	752	Computer equipment	1.1	0.5	1.12
46	759	Office equip parts/accs.	0.9	0.6	1.7
47	764	Telecomms equipment n.e.s	3.2	1.0	3.46
48	772	Electric circuit equipment	1.2	0.9	6.84
49	773	Electrical distrib equip	0.8	1.1	1.04
50	776	Valves/transistors/etc	1.6	0.4	2.82
51	778	Electrical equipment n.e.s	0.7	0.6	1.11
52	784	Motor vehicle parts/access	1.2	0.5	1.35
53	785	Motorcycles/cycles/etc	0.6	2.0	0.13
54	792	Aircraft/spacecraft/etc	0.8	0.7	0.12
55	793	Ships/boats/etc	0.9	2.6	8.75
56	874	Measure/control app n.e.s	0.6	0.6	0.39
57	893	Articles n.e.s of plastics	0.8	1.0	0.48
58	899	Misc manuf articles n.e.s	0.6	1.3	0.31
59	971	Gold non-monetary ex ore	2.1	3.9	0.25

Source: Author's calculation from UN COMTRADE.

5. Implications for Further Trade Expansion

As the above analysis shows, due to largely different patterns of comparative advantage, Vietnam and Korea have traded mainly inter-industry products. As Vietnam's comparative advantage gradually moves to manufacturing, particularly capital-intensive sectors (product section 7), trade between the two countries steadily shifts to intra-

industry products. Future bilateral trade expansion, therefore, depends on further expansion of both inter-industry trade and intra-industry trade.

5.1. Expanding inter-industry trade by overcoming mismatch between Vietnam's exports and Korea's imports

Inter-industry trade currently accounts for large portion of the Vietnam-Korea trade. However, inter-industry trade is limited by the mismatch between Vietnam's exports and Korea's imports as follows:
- Those products for which Korea exhibits high import demand but Vietnam's supply capacity is limited.
- Vietnam's major exports that are not exported in significant quantities to Korea.

Therefore, the best way to expand inter-industry trade is to overcome this mismatch, as suggested below.

5.1.1. Increasing Vietnam's supply capacity for products with high demand in Korea

There is a wide range of export products, for which Korea exhibits high demand in importing. However, the current supply capacity of

Table 14. Products with High Demand in Korea/limited Supply from Vietnam

Product group		Vietnam's exports ($US million)	% of Korea in Vietnam's exports of this good
011	Beef, fresh/chilld/frozn	0.02	71.28
017	Meat/offal presvd n.e.s	1.51	14.84
047	Cereal meal/flour n.e.s	0.42	8.68
264	Jute/bast fibre raw/retd	1.83	21.82
272	Fertilizers crude	1.22	16.82
532	Dyeing/tanning extracts	0.51	75.24

Source: Author's calculation from UN COMTRADE.

Vietnam for these products is rather inadequate to meet Korea's demand (Table 14). These are mainly food products and raw materials, in which Vietnam possesses advantage. The relevant way to increase the Vietnam-Korea trade is to boost Vietnam's supply for these commodities.

5.1.2. Increasing the share of Korea in a number of Vietnam's large exports

There are several major exports of Vietnam, which for a number of reasons have not been shipped in significant quantities to Korea. For example, Vietnam is the world's second largest rice exporter after Thailand. In 2007, Vietnam's rice exports amounted to some $US1.5 billion, but almost none went to Korea. Similarly, Korea also accounts for a tiny share of 0.04% Vietnam's tea exports.

One explanation for limited exports of these products from Vietnam to Korea is that Korea has been importing these products mainly from other countries (for example, coffee from Brazil) long before Vietnam entered the market. Vietnamese firms as late-comers to the market so far have not developed relevant brands that Korean consumers could accept. The other reason is Korea's self-sufficient policy that may be preventing Vietnam's agricultural products from entering the Korean market.

Table 15. Korea's Small Share for Some of Vietnam's Major Export Products

Product group	Vietnam's exports of this good ($US million)	Share of Korea in Vietnam's exports of this good
042 Rice	1, 490	0.00
074 Tea and mate	135	0.04
841 Mens/boys wear, woven	1, 920	0.79
844 Women/girl wear knit/croch	896	0.26
845 Articles of apparel nes	1, 948	0.39

Source: Author's calculation from UN COMTRADE.

Therefore, if Vietnamese firms manage to improve the quality of exported commodities, and Korea opens its market to a range of Vietnamese agricultural products, it will increase Vietnam's exports to Korea and reduce Vietnam's trade deficit

5.2. Expanding intra-industry trade

The above analysis shows that Vietnam and Korea have high trade complementarity, thanks to their different comparative advantage patterns. Vietnam, a developing country with large and relatively cheap labor force and well-endowed with natural resources, possesses comparative advantage principally in food, primary and labor-intensive products. Korea, as an NIC with very little resources, exhibits comparative advantage mainly in capital-intensive products. As a result, trade between the two countries has so far been based mainly on inter-industry products. That is, Vietnam mainly exports food, primary and labor-intensive products to Korea and largely imports processed materials and machinery from Korea.

In recent years, Vietnam's comparative advantage began shifting to capital-intensive products, though quite slowly. Consequently, Vietnam and Korea have conducted increasing intra-industry trade, especially in some capital-intensive products of section 7 such as electrical, computer and other electronic equipment (Table 12). Thus, while the Vietnam-Korea trade continues on an inter-industry basis, further bilateral trade expansion will depend on the growing intra-industry trade between the two countries.

6. Concluding Remarks

Vietnam-Korea trade has expanded rapidly in the last two decades, despite being adversely affected by the Asian economic crisis of 1997-1998 and the global crisis of 2008-2009. A number of factors can be attributed for this expansion. They include vastly-improved Vietnam-Korea relations, Vietnam's rapidly-growing foreign trade, trade complementarity between the two countries, Korea's FDI in Vietnam and geographical proximity.

Low trade intensity index of Vietnam's exports to Korea shows that there is still room for further expansion of the Vietnam-Korea

trade, particularly for Vietnam's exports to Korea.

Notwithstanding the important achievements, there is a major setback ‑ the huge and persistent trade imbalance tipped against Vietnam.

Thanks to their largely different patterns of comparative advantage, Vietnam and Korea exhibit high level of trade complementarity. As a result, trade between the two countries has been based mainly on inter-industry products. As Vietnam's comparative advantage gradually moves to capital-intensive manufacturing, trade between the two countries steadily shifts to intra-industry products. Therefore, future expansion of Vietnam-Korea trade depends on the expansion of both inter-industry and intra-industry trade.

The best way to further increase the Vietnam-Korea trade is.

To boast Vietnam's supply of a range of products (mainly food products and raw materials), for which Korea exhibits high demand for imports.

Improve the quality of Vietnam's export commodities to Korea and to open Korea's market for a range of Vietnamese agricultural products (mainly food) and labor-intensive products (garment, footwear).

Expand intra-industry trade, especially in capital-intensive products such as electrical, computer and other electronic equipment

The above measures are essential not only to facilitate further expansion of the Vietnam-Korea trade, but also reduce currently large trade deficit incurred by Vietnam.

References

Balassa, B. 1965. "Trade Liberalization and Revealed Comparative Advantage." *Manchester School of Economics and Social Studies*, 33(2), pp. 99-123.

Kojima, K. 1964. "The Pattern of International Trade Among Advanced Countries." *Hiotsubashi Journal of Economics*, 5(1), pp. 16-36.

_____. 2002. "Vietnam's Trade Liberalization in Regional and Global Context." PhD Thesis, Australia: Griffith University.

_____. 2008. "Assessing Vietnam's Shifting Comparative Advantage." *Economic Management Review*, No. 23, pp. 12-21. (November/December)

_____. 2009a. "Vietnam's Foreign Trade 1989-2008: Achievements, Short-

comings and Recommendations for Further Improvement." *Information for Emerging Economies.* KIEP. (November)

_____. 2009b. "Complementarity and Competitiveness between Vietnam and its Main Trading Partners." *Economic Management Review*, No. 24, pp. 3-12. (January/February)

Le, Quoc-Phuong, Nguyen, Duc-Tho, J.S. Bandara. 1996. "Vietnam's Trade in the Context of ASEAN and the Asia-Pacific Region: A Gravity Approach." *ASEAN Economic Bulletin*, 13(2), pp. 185-199.

Le, Quoc-Phuong, Nguyen, Duc-Tho, J.S. Bandara. 1997. "Vietnam-ASEAN Trade: Trade Intensity and Revealed Comparative Advantage." Working Paper. Australia: Griffith University.

IEDB (International Economics Databank). *Statistics on International Trade by Commodities*.

IMF (International Monetary Fund). *Direction of Trade Statistics Yearbook.* Various issues. Washington D.C.

GSO (General Statistical Office of Vietnam). *Statistical Yearbook*. Various years.

MPI (Vietnam's Ministry of Planning and Investment). 2009. *Data on FDI.* (November)

UNSO (United Nations Statistical Office). *Commodity Trade Database* (COMTRADE): http://unstats.un.org/unsd/comtrade.

Asian Regional Economic Integration after the Global Crisis: Challenges and China's Response

Qu Fengjie

1. Introduction

Compared with North America and EU, Asian regional integration shows different characteristics. May be it is not very accurate, but we can say Asian regional integration is being driven by globalization, and is the result of industrial division and distribution of the East Asian production network. Some indicators show that the inclination towards globalization is stronger than regionalization in Asia. Although the share of intraregional trade surpassed external trade since 2003, the main final demand of Asia's export is from non-Asian countries. As estimated, about 70% Asia's final demand is from US and Europe markets.

After crisis, the world economy entered a rebalancing phase exhibiting a trend of "de-globalization". The shift in patterns of export-led growth in the East Asia and the US growth from overconsumption will decrease international trade; the scale of capital flow will decline. The recent crisis disclosed the inherent weakness and failing of the international financial and monetary system. It also gives us a chance to construct a new international economic order based on multipolarity. To exert their influence in international community, strengthening cooperation becomes imperative task confronted by Asian countries.

The global imbalance we are confronted with now is determined by the international payment structure and relevant currency systems. The US is the world's largest debtor nation and uses almost 80% of the world's total surplus savings. Asian economies including China and Japan are important creditor nations. They constructed an international

payment structure which balance current surplus through official capital outflow. Such would make them accumulate too much foreign exchange reserve assets. To change the situation, it is necessary to construct a regional finance market to channel regional savings into investment.

After the crisis, the trend of de-globalization is making Asian governments place more emphasis on promoting regional trade, investment and financial cooperation. But there are many challenges to confront: no real leader, different degrees of development, politics and culture obstacles and US interference.

The organization of this paper is as follows. Section 2 reviews the status and history of regional integration in Asia, EU and NAFTA. It analyses the different characteristics of regional integration from the perspective of globalization and regionalization; Section 3 analyzes important functions and obstacles in Asian regional cooperation; Section4 turns to the effect of regional cooperation on China, focusing on the impacts of FTA and regional finance cooperation; Section 5 presents China's main strategy for Asian regional cooperation.

2. Historical Perspective of Regional Economic Integration in World Major Regions

2.1 The meaning of regional economic integration

Regional integration has been a worldwide phenomenon. The number of regional integration initiatives is increasing by leaps and bounds. There is no unique definition of regional integration. Tinbergen (1954) divided it as "positive" and "negative" integration; Balassa (1961) conceived integration as a process and a state. According to the aim of this paper, we defined regional economic integration as the extent of economic interdependence within a geographic region. Economic integration could be market- driven and privately-led or policy-induced; could be pushed by unilateral action and economic cooperation, whether bilateral, regional or multilateral.

According the measures adopted in a region, economic integration can be categorized into six stages: Preferential trading area, Free trade area, Customs union, Common market, Economic and monetary union, and Complete economic integration .

Table 1. Six Stages of Economic Integration

Measure	Lower mutual trade restriction	Remove mutual trade restriction	Common system of trade barriers	Movement of factors	coordinate economic policies	Super-national authorities coordinate monetary and fiscal policies
Complete economic integration	√	√	√	√	√	√
Economic and monetary union	√	√	√	√	√	
Common market	√	√	√	√		
Customs union	√	√	√			
Free trade area	√	√				
Preferential trading area	√					

To examine the extent to which regional economies are integrated through trade and investment, we can observe the evolution of indicators such as intraregional trade shares, intraregional trade intensity, intraregional investment shares.

2.2 Regional Integration in Comparative Perspective

2.2.1 Trade integration
Intraregional trade shares for three regions tend to increase in the long term, but have declined in recent years. From 2004 to 2007, the intraregional trade shares of Europe, Asia and NAFTA declined 4, 3, and 4 percent respectively. Europe entered a relatively steady period; the share of intraregional trade at about 50 percent. The share of intraregional trade for Asia has increased quite rapidly. Only half of EU's in terms of percentage in 1980; in 2007 it reached 52%, close to EU's 58% share. The share for NAFTA is lower than Asia and EU, at about 40% in 2007.

Table 2. Intraregional Trade Shares of Major Regions

	1980	1990	2004	2007
IA 16[8]	35	43	55	52
Asean + 3	30	29	39	38
Asean 10	18	19	24	26
NAFTA	34	38	46	42
EU 15	61	66	62	58

Source: IMF.

Figure 1. Intraregional Trade Shares of Major Regions
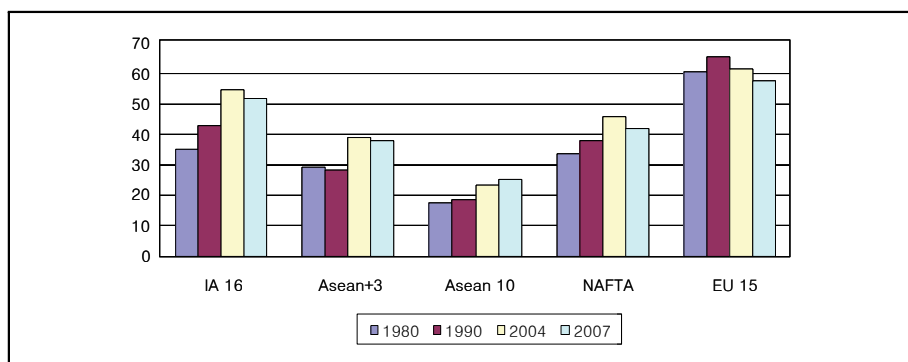
The Intraregional trade share shows the relative importance of intraregional trade versus external trade. In fact, if we compare the indicators of Intraregional trade Intensity, we can find that although Asia's regional trade share was high, because its weight in world trade increased faster, Asia's intraregional trade intensity declined. Since intraregional trade intensity shows the relative importance of intraregional trade to regional trade versus the regional trade importance to global trade, and intensities decline when the share of the region has a smaller weight in the world trade, the decline of Asia's intraregional trade intensity shows that Asia has stronger inclination of external trade than internal trade. In other words, Asia

8) Asian 16 include China, Japan, Korean, asean10, India, Hongkong, and Taiwan.

traded more intensively with non-Asian countries than among themselves. The regionalization in Asia is more open, and the extent of integration and interdependence with non-Asian markets is deeper than with intraregional economies. It is interesting if we compare Asia with EU and NAFTA, whose intraregional trade intensity are increasing. No bias or discrimination to external markets is Asia's characteristics different from other major regions.

This point can also be supported by the indicator of trade-GDP ratios. Although trade-GDP ratios in all regions have been increasing, Asia's have increased faster. In 2000, Asia's trade-GDP ratio was less than 40%, about 10 percent lower than the EU. In 2006, Asia's trade-GDP ratio already achieved a significant level of 60%, and has surpassed the EU for the first time. In 2007, the ratio reached 65%, a level much higher than EU. NAFTA was only about 30% in the same year.

Table 3. Intraregional Trade Intensity of Major Regions

	1980	1990	2004	2007
IA 16	2.5	2.1	2.1	1.9
Asean + 3	2.5	1.8	1.8	1.7
Asean 10	4.2	4.0	4.1	4.3
NAFTA	2.0	2.2	2.6	2.7
EU 15	1.5	1.4	1.6	1.6

Source: IMF.

Figure 2. Intraregional Trade Intensity of Major Regions
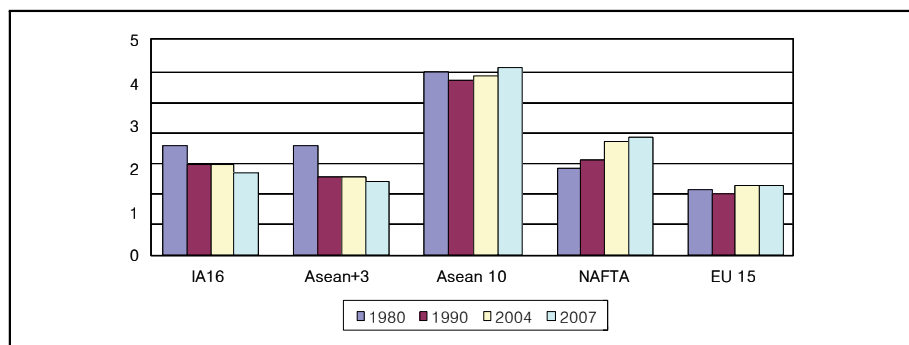
2.2.2 Investment integration

Intraregional mutual investment including foreign direct investment and securities investment is an important indicator for measuring the degree of integration. Because the FDI data divided by sources in different countries are difficult to compare with each other, adding the "round trip" factor in China and India, we can not calculate the intraregional share accurately.

According to the data of Asia's largest investors Hong Kong and Japan, which account for about two-thirds of region's outward FDI, the estimates show that less than half of that outward FDI flow goes to other Asian countries. And according to the data of the two largest FDI destinations, China and Hong Kong, which also account for about two-thirds regional inward FDI, it is estimated that half of their FDI inflow are from Asia. In China, the FDI inflow from other Asian countries account for 55.35% and 60.24% of the total in 2007 and 2008 respectively.

In general, despite limitations in the data, in terms of "outflow plus inflow", we are able to estimate that more than 60 percent of FDI flow were regional in 2007, lower than that of EU (75%), but much higher than NAFTA (40%).

The share of intraregional portfolio investment is very low, which indicate that the degree of financial integration in Asia is far lower than EU. Japan is the largest of the portfolio investors, but 98 percent of its portfolio investment flow to non-Asian countries. Japan is also the largest destination in Asia, accounting for about half, and 98

Table 4. Intraregional Portfolio Investment Share in Asia

(Unit: %)

Region	Asset (outflow)		liability (inflow)		Asset + liability	
	2001	2007	2001	2007	2001	2007
Asean + 3	3.1	3.7	5.9	4.3	-	-
Asean10	11	10.4	11.8	9.4	-	-
IA 16	5.6	9.7	10.1	11.2	7.1	10.4
IA 15 (excluding Japan)	15.0	25.3	13.7	16.9	20.5	23.7

Sources: IMF 2008. Coordinated Portfolio Investment Survey.

percent of total foreign portfolio investment in Japan is from non-Asian countries.

In 2007, the share of intraregional portfolio investment in Asia is 10%, and about 24% excluding Japan; far less than EU (60%), and similar with NAFTA.

Figure 3. Intraregional Portfolio Investment Share in Asia
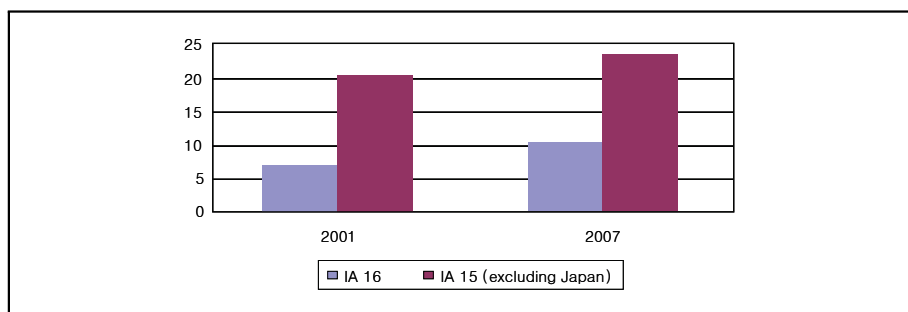
2.3. The characteristics of regional economic integration

2.3.1. The overall trend of regional integration across the globe
Since the early of 1990, the breadth and depth of regional economic integration has increased greatly, whether in EU, North America and Asia. Regional cooperation agreements have become prominent over these years, and most of that cooperation is in the form of FTAs.

Figure 4. RTA in Force till 1 Oct, 2009
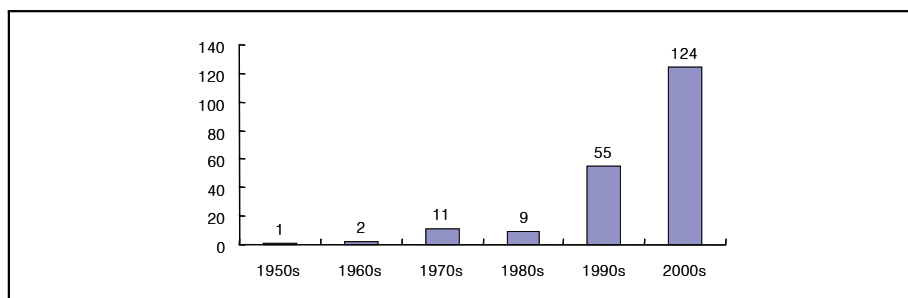
Source: WTO.

According to statistics of WTO, some 421 RTAs have been notified to the GATT/WTO up until December 2008. At that same date, 230 agreements were in force. If we take into account RTAs which are in force but have not been notified, those signed but not yet in force, those currently being negotiated, and those in the proposal stage, we arrive at a figure of close to 400 RTAs which are scheduled to be implemented by 2010. Of these RTAs, free trade agreements (FTAs) and partial scope agreements account for over 90%, while customs unions account for less than 10%.

An interesting trend at this moment is that an organization for trans-regional economic integration is becoming more popular and with overlapping members. One country signed many agreements with different countries. And a bigger regional integration organization may include several small ones or sub-regional cooperation forums. So it is easy to generate a "spaghetti bowl phenomenon" in the system. Proliferating rules of origin became a major concern.

Although the goals of regionalization and globalization are consistent, sometimes regional-level cooperation can push globalization forward. But the present situation is unfavorable to globalization. WTO multilateral negotiations have been met with obstacles and new trade protection measures are proliferating. Most regional cooperation organizations are trying to trade off the effect through discriminatory measures to non regional members. Especially because there is much inherent weakness and failing in the global trade and finance system, more and more countries are hoping to intensify regional cooperation to resist globalization.

2.3.2. Different characteristics in Asia, EU, and North America

Different characteristics and stories have marked regionalization in Asia, EU, and North America.

The degree of integration in EU is the highest, in terms of either depth or breadth. EU is now an economic and political union of 27 member states. As we have seen, all the integration indicators of EU has reached a high level. In economic, trade and monetary terms, the EU has become a major world power which can affect or resist US-led globalization. The euro area's share of world GDP has increased and US's has fallen somewhat since 2000, and the euro area's shares of global trade, global FDI inflow and outflow have since surpassed the

US. The euro became a coherent monetary unit which can balance the international monetary system. Since 2003, the euro's share in international reserves was about 25%, and reached 26.5% in 2007. In the same year, the euro surpassed US dollar as the leading currency in nominated bonds and circulation. The EU has considerable influence within international organizations such as IMF, WTO, World Bank and specialist branches of UN.

In North America, the main form of regional cooperation is the FTA. Implementation of the North American Free Trade Agreement (NAFTA) removing most barriers to trade and investment among the United States, Canada, and Mexico began on January 1, 1994. Although the draft of the Free Trade Area of the Americas (FTAA) has been forwarded for many years, it has numerous barriers and obstacles to overcome before becoming feasible. Due to great differences in economic development among American countries, it is difficult to carry out deeper forms of integration which requires a higher degree of economic convergence. In North America, regional integration is limited by globalization. I say that because America is a unique superpower, a dominant leader not only in its region but also globally. The regionalization in North America did not take the form of interdependence of countries in the region, but manifested as dependence of other countries on the US economy. In Mexico, for example, the United States is by far its largest trading partner, accounting for about 80.1% of its total exports in 2008. From 2003 to 2008, the share of the US in Mexico's FDI inflow was 80%, becoming Mexico's largest creditor.

As for Asia, in 1980s and 1990s, the regional integration process is mainly led by market forces, and not by policy. Especially in the 1980s, Asia's growth in trade and investment was driven by unilateral market liberalization and openness. Not until 1992 did the process of Asian regional cooperation start with AFTA. After the Asian financial crisis, the unbiased unilateral approaches were replaced by discriminatory FTA or EPA (Economic Partnership Agreement) policies. It is a fact that in Asia, regionalization is driven by globalization. The characteristic of Asian integration is as followed.

(1) The most important motive of regional economic cooperation is to resist various crises.

After the 1998 Asian financial crisis, Asian governments began to

recognize the importance of strengthening regional financial cooperation. Under the "ASEAN+3" framework, the Chiang Mai Initiative aimed at the creation of a network of Bilateral Swap Arrangements (BSAs) among ASEAN+3 countries. The Asian Bond Markets Initiative was also established to improve the efficiency of Asian capital markets, and currency swap arrangements were set up. Although the degree of financial integration in Asia is not high, the coordination of financial policy seems to be moving forward.

(2) The Asian regional integration is based on the East Asia production network

As a result of international transfer of industries, Asia became a center of global manufacturing. Asian production network was first established in new emerging economies including Japan, Korea, Hong Kong, and Taiwan, and was then transferred to China and ASEAN. With the integration of production networks and supply chains, regional trade and investment increased greatly.

(3) The inclination towards globalization is more pronounced than regionalization

Although the share of intraregional trade surpassed external trade since 2003, the most of final demand for Asia's export ultimately comes from non-Asian countries. As estimated, about 70% Asia's final demand is from US and Europe markets. The main, leading factor in intraregional trade and investment growth is vertical integration and distribution of multinational production system.

After the Asian financial crisis, Asia has begun to strengthen regional intergovernmental cooperation and construct cooperative institutions, and the number of FTAs including ones being enacted and negotiated at present, is more than 100. But the intraregional FTA/EPA accounted for less than 25% of those numbers.

There are two root causes that led to Asia's high external dependence. The first one is the competitiveness of industrial structure in Asia. Most Asian countries tried to participate in the international division of industries through raising manufacturing capability. But the development of their manufacturing not only depends on external technology but also depends on external markets. This determined the basic trade flow in Asia.

Figure 5. The Final Demand of Asia's Export
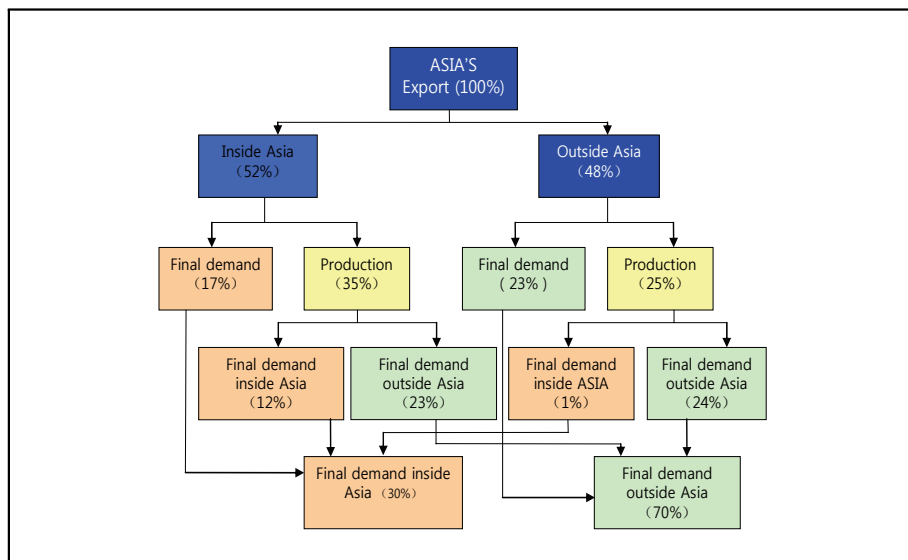
The second is that there is no reliable currency in Asia. Asian countries have to use the US dollar as settlement currency whether in intraregional or with extra regional trade and investment. To ensure international payment, Asian countries have to hold huge reserves of US Dollar assets. This has determined Asian basic investment flow.

3. The Regional Economic Integration after the Global Crisis in Asia

3.1 The effect of crisis to regionalization and globalization

From 2003 to 2007, the world economy experienced the best period in the past 30 years: sustained high growth and low inflation. The driving force of economic growth in that period was globalization. Globalization deepened the divisions in international industries. Every participant country's comparative advantage has been brought into full play. As a result, the global trade achieved sustainable growth. The ratio of goods trade to GDP increased from 42% in 2003 to 51%

in 2007. The foreign direct investment increased greatly from 561.1 billion in 2003 to 1.833 trillion US Dollars in 2007.

Accompanied by economic growth, the global imbalance was aggravated. The overconsumption in the US generated bubbles and finally ignited a global finance crisis.

Figure 6. The Growth Rate of Global Trade of Goods
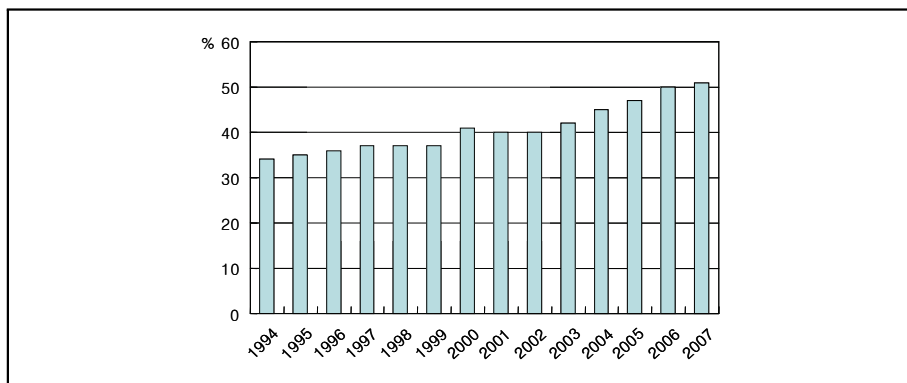
After the outbreak of crisis, the world economy entered a rebalancing phase, presenting the trend of "de-globalization".

Concerning international trade, with the demand of developed countries in decline, global trade has marked its first significant contraction since 1982. During the process of global rebalancing, the surplus of developing countries and oil-producing countries and the deficit of developed countries and US will decrease. Changes in East Asia's export-led growth and the overconsumption mode of US growth will slow down recovery of international trade. Increasing trade protectionism and the fluctuation of exchange rate will also have a detrimental effect to trade.

As for international investment after the crisis, the intensification of financial supervision, the shrinkage of financial industries in developed countries, the decrease of savings surplus in high reserve countries, and reservations toward financial openness will affect the size and direction of international capital flows. Accompanied by decreasing trade surplus of the high reserve countries, their official capital outflow will decline. To improve the weak asset and liability

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Table 5. The Deficit and Surplus of Main Economies
</div>

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(Unit: billion US dollar)
</div>

	1980	1985	1990	1995	2000	2005	2007
Main surplus sources	120.4	83.4	155.2	194.0	348.9	659.5	1012.4
oil-producing countries	119.9	20.3	47.3	42.4	115.9	224.9	300.8
ASEAN	8.3	5.9	-17.0	-31.9	54.5	58.5	93.6
China	-1.8	-14.9	8.7	16.7	24.1	102.0	262.2
Germany	4.9	25.4	64.0	59.6	54.6	194.1	266.1
Japan	-10.9	46.7	52.2	107.2	99.7	80.0	89.8
Main deficit sources	-36.8	-141.8	-162.5	-215.4	-535.8	-954.6	-1034.9
US	-31.4	-133.6	-123.4	-186.1	-477.4	-825.2	-854.4
United Kingdom	-5.4	-8.2	-39.1	-29.3	-58.4	-1294	-180.6

Source: UNCTAD database.

structure of the US's financial institution, enterprises and residents, the U needs to increase savings. During the process, the scale of capital flow will shrink.

Globalization can also thwarted by the instability of financial and monetary system and the multilateral trade system. This crisis disclosed the inherent weakness and failings of international financial and monetary systems. It also gives us a chance to construct a new international economic order with multipolarity. "Multipolarization" requires regionalization including the following features: strengthening regional trade, investment and finance cooperation; constructing regional capital markets to channel the savings into investment; incubating regional currency as a major settlement monetary.

3.2. The importance of regional economic integration after crisis in Asia

(1) To resist the risk of challenges of globalization
The trade structure in Asia is not expected to change for the foreseeable future because its export-led growth mode and status in global industries division system cannot be adjusted in a short time. The economic development of Asia will be restricted by all manner

Table 6. Trend of Global Economic and Trade

(Unit: %)

	2007	2008	2009	2010
Global economies	5.2	3.0	-1.1	3.1
Developed countries	2.7	0.6	-3.4	1.3
US	2.1	0.4	-2.7	1.5
EURO AREA	2.7	0.7	-4.2	0.3
Japan	2.3	-0.7	-5.4	1.7
Emerging and developing economies	8.3	6.0	1.7	5.1
World trade	7.3	3.0	-11.9	2.5
Import: Developed countries	4.7	0.5	-13.7	1.2
Emerging and developing economies	13.8	9.4	-9.5	4.6
Export: Developed countries	6.3	1.9	-13.6	2.0
Emerging and developing economies	9.8	4.6	-7.2	3.6

Source: IMF (2009), *World Economy Outlook*, 1 Oct.

of international trade rules, international multilateral trading systems and international financial systems, which would be oriented toward US and EU. Asia must try to acquire sufficient power through regional cooperation to balance the EU and US in international society.

(2) To reduce dependence on the external

High dependence on the external markets was the main reason why the crisis hurt Asian economy so badly. Asian countries share characteristics in common such as competitive industrial structure, similar export-led economic growth models, the dependence on US and EU markets, underdeveloped financial markets etc. To decrease the dependence on the external markets, it is necessary to cultivate regional demand and expand regional markets.

(3) To realize potential regional comparative advantages

Asian countries' RCA (Revealed Comparative Advantage) showed that the RCA index of some sectors such as electronics, machinery, clothing, and appliance in many Asian countries are all above 1. It indicates that Asia has become a global manufacturing center and has comparative advantage in many sectors. It can also be explained by intra-industrial trade and East Asian division mode. Although Asian countries have similar industrial structure, they play different roles in industrial linkages and have great technological differences in some industries. There is still ample room for deepening the intra-industrial vertical division.

(4) To decrease fragility of international payment structure

As we know, the global imbalance we are confronted with now is determined by international payment structure and concerned currency system. The US is the largest debtor that absorbs almost 80% of the world's savings surplus. Asian economies including China and Japan are important creditors which have formed an international payment structure that balance their current surplus through official capital outflow. Such a mechanism makes them accumulate too much foreign exchange reserves. To redress the global imbalance, the most important thing is to adjust the international payment structure. For Asia, it will be necessary to construct a regional finance market to channel regional savings and investment. In a regional financial market, some countries will become debtors; the other countries will be creditors. Then we can become less dependent on the US market and on the volatile dollar as settlement currency. Ultimately, we can establish a regional currency to resist the US dollar-based international currency system.

A deeper problem is who can become the debtor and play a role in balancing current surplus of other countries in Asia. In my opinion, China is the country best suited for the role. But it will take be at least another 20 years before its economic system is restructured, changing from a creditor to debtor, and at the same time change from a surplus country to deficit country.

3.3 The obstruction of regional cooperation in Asia

For the past many years, Asian countries have paid more attention to promoting trade and investment liberalization under the WTO framework. Compared with EU, the inclination towards globalization seems stronger than that for regionalization in Asia. After the crisis, a de-globalizing trend is making Asian governments place greater emphasis on promoting regional trade, investment and financial cooperation. But there are many challenges that must be surmounted.

(1) There is no leader in Asia
Regional cooperation needs a large country to act as a powerful coordinator. Who will act as leader in Asia is an unavoidable question. In North America, it is US who unquestioningly would assume leadership, while Germany and France play important roles in EU. But due to complex political reasons, ASEAN engaged in a balance-of-power strategy and was predominant in regional cooperation for a long time. But because ASEAN is a loose organization comprising of relatively small countries, it cannot take on a coordinating role. If one takes all of Asia into consideration, though China has the ability to become the leader of Asia, there are also strong competitors for that positions like Japan, Asia's leading economic power; and large developing countries such as India.

(2) The development level varies greatly among countries
Compared with the EU, the level of development in Asia is uneven. There are different policy trends concerning customs and industry protection. It is difficult to coordinate the benefit of different countries. This is an important factor which restricts deeper cooperation in Asia.

(3) Restriction by cultural/political factors on regional cooperation
There is no common language, psychology, standpoint; and no common centripetal force and cultural identity in Asia. There are different views on the direction of different economics institution by reason of ideology. Also, there are many potential political conflicts in Asia. Politics and culture are deeper factors which restrict Asian regional cooperation.

Table 7. Main Indicators of East Asia and EU (2007)

Indicators		EU		East Asia	
		EU15	EU27	ASEAN	ASEAN+3
population (million)		391	494	572	2068
GDP(billion)		15586	16754	1275	9901
Per capita GDP(us dollar)		39847	33889	2228	4787
GAP1-GDP	largest economy/ smallest economy	69	444	108	1092
GAP2-GDP	three largest economies/ three smallest economies	17	172	35	346
GAP3-GDP	largest economy/average	3	5	3	6
GAP1- per capita GDP	largest economy/ smallest economy	4	7	49	49
GAP2- per capita GDP	three largest economies/ three smallest economies	2	4	23	27
GAP3- per capita GDP	largest economy/average	2	2	23	11

(4) The regional cooperation is interfered by the US

Due to historical reasons, the US has huge political, military, and economic interests in Asia. The US has attempted to affect Asian regional cooperation through APEC and does not want Asia to establish a bloc without its participation. US interference is likely to hinder the process of Asian regional cooperation.

4. The Macroeconomic Impact of Asian Regional Cooperation in China

4.1. The effect of FTA

An important characteristic of China's regional cooperation is its emphasis on Asia. China's first FTA was concluded with ASEAN. Till now, half of all FTAs China has concluded was with Asia, including

China-ASEAN FTA, China-Singapore FTA, China-Pakistan FTA, Mainland and Hong Kong Closer Economic Partnership Arrangement, and Mainland and Macau Closer Economic Partnership Arrangement. Joint Feasibility Studies for the China-Korea FTA and China-India FTA are currently in progress.

We must admit that that to quantify the effects of any cooperation agreements using the standard tools is difficult. But from the comparative perspective, it is undoubtedly meaningful. This study tries to use CGE(Computable General Equilibrium) model to estimate the macroeconomics and trade impacts of China-ASEAN FTA, China-Japan-Korea FTA, and Asean10+3 FTA. The data set is SAM (Social Accounting Matrix). The assumption is that the average import rate of customs duties and the export rate of customs duties are reduced by 100%.

4.1.1. Macroeconomic effect

Due to the fact that the share of China's trade with the Japan and Korea is higher than ASEAN; the macroeconomic effect of a China-Japan-Korea FTA could be larger. The result indicates the effect of all FTAs on export will increase, but increases in imports would be greater. In short, the FTA will help China improve its international payment situation.

Table 8. Macroeconomics Effect of Main FTA

(Unit: %)

year		2006	2010	2013	2016
		China-ASEAN FTA			
GDP		0.140	0.146	0.146	0.142
consumption		0.603	0.614	0.617	0.614
investment		0.336	0.337	0.327	0.314
export		2.135	2.120	2.163	2.225
import		4.016	4.080	4.085	4.055
Fiscal income		0.412	0.419	0.414	0.405
Labor force demand		0.018	0.018	0.018	0.018
Price level		0.259	0.267	0.266	0.259
Disposable income	rural	0.757	0.773	0.775	0.768
	city	0.927	0.954	0.962	0.958

Table 8. Coutinued

year		2006	2010	2013	2016
		China-Japan-Korea FTA			
GDP		0.930	0.936	0.933	0.928
consumption		2.243	2.285	2.309	2.316
investment		2.397	2.501	2.568	2.591
export		7.420	7.253	7.192	7.210
import		14.330	14.762	14.850	14.736
Fiscal income		1.030	1.064	1.051	1.019
Labor force demand		0.116	0.117	0.117	0.116
Price level		0.489	0.529	0.527	0.504
Disposable income	rural	2.656	2.723	2.747	2.742
	city	2.848	2.944	2.983	2.979
		Asean10+3 FTA			
GDP		1.080	1.091	1.088	1.078
consumption		2.895	2.949	2.978	2.984
investment		2.856	2.971	3.034	3.045
export		9.649	9.456	9.428	9.501
import		18.731	19.249	19.354	19.212
Fiscal income		1.460	1.501	1.484	1.444
Labor force demand		0.135	0.136	0.136	0.135
Price level		0.755	0.803	0.800	0.773
Disposable income	rural	3.498	3.583	3.612	3.603
	city	3.847	3.971	4.021	4.017

Note: the data is real value change rate.
Source: Operating model; provided by Zhang Zeren, my colleague in AMR.

4.1.2. Trade effect

The result shows trade creation and trade diversion effects of the three FTAs. We can see that the enactment of the China-Japan-Korea FTA would increase China's export to Japan and Korea by 26.2 % and 27.4% respectively; increase China's imports from the two countries by 31.3% and 31.4% respectively. China's exports to the US and EU would increase 5% and 6% respectively, far less than Japan and Korea. Imports from the US and EU would increase more than exports, but far less than imports from Japan and Korea.

Table 9. Trade Effect of Main FTA

(Unit: %)

year		2006	2010	2013	2016
		China-ASEAN FTA			
export	Japan	2.28	2.25	2.29	2.35
	US	1.58	1.54	1.58	1.66
	EU	2.28	2.24	2.28	2.36
	ASEAN	14.72	14.67	14.75	14.87
	Korea	5.48	5.43	5.51	5.61
	Taiwan	3.20	3.15	3.21	3.30
import	Japan	2.26	2.32	2.33	2.30
	US	2.80	2.86	2.86	2.81
	EU	2.66	2.73	2.73	2.70
	ASEAN	17.84	17.96	17.95	17.87
	Korea	3.18	3.24	3.25	3.23
	Taiwan	2.46	2.51	2.52	2.49
		China-Japan-Korea FTA			
export	Japan	26.18	26.05	25.92	25.83
	US	4.99	4.77	4.75	4.83
	EU	6.00	5.74	5.67	5.73
	ASEAN	10.92	10.50	10.49	10.68
	Korea	27.44	27.08	27.15	27.40
	Taiwan	3.77	3.43	3.53	3.82
import	Japan	31.29	31.78	31.90	31.78
	US	11.88	12.30	12.37	12.24
	EU	13.62	14.12	14.25	14.15
	ASEAN	4.31	4.64	4.65	4.50
	Korea	31.39	31.82	31.85	31.68
	Taiwan	11.80	12.19	12.28	12.20
		Asean10+3 FTA			
export	Japan	28.96	28.78	28.66	28.63
	US	6.51	6.26	6.26	6.40
	EU	8.19	7.88	7.84	7.96
	ASEAN	27.44	26.90	26.94	27.27
	Korea	34.96	34.51	34.64	35.01
	Taiwan	6.88	6.49	6.64	7.02
import	Japan	34.30	34.88	35.02	34.87
	US	15.02	15.53	15.60	15.42
	EU	16.66	17.26	17.41	17.27
	ASEAN	23.06	23.56	23.58	23.34
	Korea	35.39	35.90	35.96	35.76
	Taiwan	14.56	15.03	15.13	

Source: operating model; provided by Zhang Zeren, my colleague in AMR.

4.1.3. Conclusion

(1) FTA will not only promote China's economic growth but also decrease trade surplus and increase domestic demand.

(2) The effect of China-Japan-Korea FTA will be far better than China-ASEAN FTA; the effect of Asean10+3 FTA is more significant than China-Japan-Korea FTA and China-ASEAN FTA combined.

(3) The export of Japan and Korea to China would increase greatly, which could be helpful in improving the division system of Asian industries.

4.2. The impacts of regional finance and monetary cooperation

After the outbreak of the international financial crisis, China has been actively engaged in regional financial cooperation and has made successful achievements in four major areas:

(1) Bilateral currency swap agreements
The crisis tightened global liquidity, especially those of the major settlement currency, and the serious absence of liquidity of US dollar has caused liquidity difficulties for many of China's trading partners. And the wild fluctuation of the exchange rate of the US dollar increased the risks in international trade.

To solve the above problems, since December 2008, China's central bank signed bilateral currency swap agreements with Malaysia, South Korea, China's Hong Kong Special Administrative Region, Argentina, Belarus, and Indonesia, for a total of about 650 billion dollars. Under the bilateral currency swap agreements, firms importing goods from China can then pay for them with RMB borrowed from domestic banks. This will reduce firms' transaction costs. But at present, most of the countries that have entered swap agreements with China have yet to utilize them, because the RMB is not fully convertible and it can't be traded outside China. A wider convertibility of the RMB currency is necessary for the RMB to become more widely usable in global trade.

(2) RMB trade settlement pilot scheme
China launched the RMB trade settlement pilot scheme, which

allows for 400 approved Chinese enterprises in five designated cities including Shanghai, Guangzhou, Shenzhen, Dongguan and Zhuhai to settle trades with their counterparts in Hong Kong, Macau and ASEAN member countries. Banks in these countries can open RMB accounts with mainland banks for trade-related clearing, so that trade between China and these countries could be settled directly in RMB, instead of US dollars as in the past. The trade settlement pilot scheme is proving more effective than currency swap agreements. Since its inception, of the 173 transactions amounting to RMB 230 million, have been conducted between mainland China and Hong Kong. We can now see that some enterprises in Hong Kong and ASEAN have begun accumulating RMB liquidity for trade purposes. We can now expect that the increase of trading volume will produce a great demand for financial instruments such as trade-related insurance and derivatives denominated in RMB which the Chinese government will allow to operate. The RMB offshore market will also gradually develop.

(3) Asian foreign-exchange reserve pool

Another important regional financial cooperation is the establishment of a foreign-exchange reserve pool. China as well as Japan, South Korea and ASEAN, agreed to create the foreign-exchange reserves pool to address liquidity shortages on October 2008. Then on February 2009, the ministers increased the original proposal of 80 billion dollars by 50 percent. The pool was built upon the Chiang Mai Initiative (CMI). When a currency crisis occurs, the reserves can be used collectively for short-term loans for countries in need.

East Asian countries have increased their foreign reserves to ward off speculative attacks on sovereign currencies since the 1990s, particularly after the 1997 Asian financial crisis. At present, East Asia's foreign exchange reserve occupied nearly 2/3 of the entire world reserves. To establish a foreign-exchange reserve pool will not only strengthen the capacity in handing a financial crisis but also make better use of the ample foreign exchange reserves of East Asia. The current financial crisis shows that the international financial system had seriously malfunctioned. The capacity of the World Bank and the IMF is not sufficient to meet the challenges posed by the current international economic situation. Although the G-20 Summit

boosted the IMF's lending resources to $750 billion, the IMF's lending resources is far less than official foreign exchange reserves, even lower than Sovereign Wealth Funds. International finance and currency system face considerable challenges, and reform became necessary. The right direction of future development direction would be to establish regional international organizations to resist global financial shock and coordinate regional macroeconomic policies. The creation of the Asian foreign reserve pool has pushed Asian financial cooperation into a new stage.

(4) Asian bond markets

At the 6th ASEAN+3 Finance Ministers' Meeting in August 2003 (Manila, the Philippines), finance ministers agreed to promote the Asian Bond Markets Initiative. China is the active advocate and participant of the Asian Bond Markets Initiative (ABMI) under the ASEAN+3 Framework. The Chinese government has allowed eligible international development institutions to issue RMB-denominated bonds in China since 2005. On August 2008, ABMI issued a new roadmap. The roadmap is concerned with four key areas including: (1) Promoting issuance of local currency-denominated bonds; (2) Facilitation of demand for local-currency denominated bonds; (3) Improving regulatory frameworks; and (4) Improving related infrastructure for the bond markets. After the outbreak of the current crisis, China adopted an important step that launched the RMB-denominated sovereign bond sales in Hong Kong to boost international use of the RMB. The next step would be to increase the amount of bonds and the number of issuers and investors to ensure its liquidity.

Relying on its efficient financial market with high liquidity for both buyers and sellers, the US absorbed most of the world's surplus savings, of which a significant portion came from Asia. The development of Asian bonds market can enable better utilization of Asian savings for Asian investments and decrease Asia's dependence to US financial markets. At present, the small size and the lack of liquidity of RMB-denominated bonds prevent it becoming an important financial product. And in a short time, because of its surplus savings, China will not have the inventive nor motivation to get finance from the international bonds market. But we believe that accompanying the changes in the trade situation, the issuance of RMB-denominated

bonds will become the most direct and simple way of attracting funds from overseas investors. RMB-denominated bonds will not only serve as a tool for value storage and appreciation but also as a real investment tool. It can help China realize a shift in its role from a creditor to a debtor.

5. China's Regional Cooperation Strategy after the Global Crisis

After the current crisis, the world will become increasingly multipolar. Although the US will still occupy a commanding position, its power will be impaired. EU will become a balance force, and developing countries will take on new importance. China has achieved economic success through the past 30 years, but as a single country it is unable to emerge as a new 'pole' on the international economic stage. China should actively push to establish a regional cooperation platform to defend the common interests of Asians in international society.

5.1. To play the roles of engine and balancer of the regional economy

In Asia, there is no country like the US that can create immense demand to absorb or balance the savings surplus of other countries. The best option for becoming the economic leader of Asia leader is not through negotiation, but by becoming a regional economic engine and taking on more responsibility. It should take the responsibility to change mode of Asian growth and promote economic growth in other countries through expanding imports from them. In China, enlarging domestic demand was cited as a fundamental solution for boosting the economy. Urbanization and industrialization will create huge potential market demand. China has the capacity to take on responsibility as an importer and balancer.

To play a role of regional economic engine and balancer, China should actively push for Asian regional cooperation. The five areas it should focus on toward that end include; (1) expanding imports from other Asian countries; (2) expanding investment to other Asian countries; (3) improving institutional framework for Asian regional cooperation on the basis of 10+3 and East Asia Forum; (4) deepening regional

financial cooperation; (5) promoting RMB regionalization and making RMB an alternative currency to the US dollar in Asia.

5.2. To construct multi-layer regional cooperation network

In accordance with rules of economic interdependence and complementarity, China's regional cooperation scheme should be divided into three layers – the first level is The Greater China economic circle comprising Taiwan, Hong Kong, and Macau which have strong complementarities and geographic and humanistic advantages; the second is the East Asia economic circle which have strong complementarity, and excellent geography and human resources; the third level are other parts of Asia comprising of Central Asia, West Asia and South Asia economic circle.

5.2.1. Constructing the Greater China economic circle

Over the course of their long period of economic cooperation, the interdependence between mainland China, Taiwan, Hong Kong and Macau has become very strong. At present, China has already signed a CEPA with Hong Kong and Macau, and negotiations for the ACFA is in progress. China should launch feasibility study of Greater China FTA as soon as possible as a foundation for regional cooperation, and try to construct a Greater China economic circle as the first step.

5.2.2. Promoting East Asia cooperation

East Asian economic cooperation is becoming the most active part for regional cooperation in Asia. East Asian nations have carried out the feasibility study for the East Asian Free Trade Agreement (EAFTA) which was envisaged to facilitate "integration of the East Asian economies, ultimately leading to an East Asia Economic Community." At present, the trade with East Asia occupied 60% of China's total trade and investment from East Asia accounts for over 60% of China's total FDI. The demand of China has become main incentive and attraction for many countries in East Asia.

To deepen the cooperation with China on the basis of the 10+3 mechanism, Japan and Korea are the future target of East Asian cooperation. If China, Japan, and Korea can establish an FTA covering a population of 1.5 billion, with nearly 7 trillion US dollars in trade

volume, it will greatly promote East Asia's regional competitiveness. As a strategic step for the East Asian community, China should actively push forward the development of the China-Japan-Korea FTA.

5.1.3. Strengthening cooperation with other Asian countries

Members of the Shanghai Cooperation Organization have obvious economic complementarities, and they are closely linked within the Asia region. China should strengthen the main function of the Shanghai Cooperation Organization, push to establish the China-Middle Asia FTA. In addition, the countries in North Asia and West Asia have different economics advantages. There exist great potential for cooperation in information, energy, and communication industries with them, with Indian software with India and the petroleum industry in West Asia being cases in point.

6. Conclusion

Generally, regional cooperation are also more likely to harm excluded regional and global partners. In Asia, the trade agreements with non Asian member has hurt the common regional interests. Asia is being hit hard by the crisis due to its pronounced trade and financial integration with the rest of the world, especially the US and Europe.

To responds to the crisis, the risk of economic instability, and the perspective of substantial economic slowdown, Asian economic authorities should make considerable effort to enhance regional cooperation. Existing institutions may need be consolidated or reinforced, while some new institution need be created. China is an important developping country in Asia. The paper suggests that China should play an important role in Asia. There is large room for China to increase import from other countries. There is also large room for China to expand investment to other Asian countries. To help stabilize financial markets, China should dedicate to develop Asian financial market, conduct effective macroeconomic policy dialogue and coordination, and ultimately support a sustainable process of economic growth in the region. China should construct multi-layer regional cooperation network.The first layer is the Greater China economic circle, the second layer is East Asia, the third is other Asian countries.

In a sence, Crises are unique opportunities to intensify the Asian

regional cooperation, as they disclose the existing problems and push for solutions. To solve Asia's economies current problems, the deep regional cooperation whether in trade, investment or financial areas, is necessary.

References

Shabir Mohsin Hashmi and Yak Teck Lee. "Towards East Asian Economic Integration." *European Journal of Economics, Finance and Administration Sciences.*

Masahiro Kawai. 2004. "Regional Economic Integration Peace and Security in East Asia."

Qu Fengjie. 2009a. "China's Strategy of Regional Cooperation in Asia." *International Trade*, No. 8.

_____. 2009b. "The International Economic Situation in the Future." *International Trade*, No. 6.

Qu Fengjie and Zhang Zeren. 2009. "Trend of Regional Integration after Crisis." *Research Report.*

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