



# WHY DID KOREAN DOMESTIC DEMAND SLOW DOWN AFTER THE ASIAN FINANCIAL CRISIS?

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## ■ Preface ■

Before the Asian financial crisis of 1997-1998, Korean economy has continued a rapid and stable growth in both domestic demand and GDP. The Asian financial crisis, however, has led to large contractions in economic activities, as a result of which Korean economy has experienced a significant decline in GDP growth accompanied by soaring numbers of the unemployed, most of who eventually became necessity-driven entrepreneurs. In fact, the average annual growth rate of the GDP after the credit card lending boom following the financial crisis was less than half of the rate in the period of 1981-1996 before the financial crisis. Besides, the Korean economic growth after the financial crisis was driven entirely by export sectors, whereas about two third of the GDP growth before the crisis was accounted for by domestic demand. These facts imply that the Korean economy will remain stuck in a quagmire of slow growth unless domestic demand is revitalized.

In light of the recent slowdown in Korea's exports, we need to be aware of the seriousness of low economic growth facing Korea, which is closely linked to weak domestic demand that has lasted more than ten years after the Asian financial crisis. In this regard, this research aims to investigate structural factors which may affect declines in domestic demand and thus economic growth, and to derive policy implications to deal with these issues. My hope is to see this study provide important and useful information that can help both economists and policy makers to understand clearly the structural problems that are related to a remarkable decline in domestic demand after the Asian financial crisis.

The publication of this report would not have been possible without dedication, tireless efforts, and passion of all the authors who have worked hard to bring it to fruition. My sincere thanks also goes to Dr. Sung Chun Jung, Dr. Chul Chung, Prof. Soyoung Kim, Prof. E Young Song, and other experts who have contributed to this study, which was greatly enhanced by their detailed knowledge and insightful comments.

It is my hope that this report will be useful to policy makers seeking

ideas to revitalize the Korean economy, and provides insights and motivate others to work on this issue.

December 2015  
*Il Hwang LEE*  
President, KIEP

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# I. Introduction



This report investigates why the Korean economic growth and domestic demand growth have slowed down significantly after the Asian financial crisis of 1997. The average growth rate of real GDP of Korea was about 9.3% in the period of 1981-1996 before the Asian financial crisis but was reduced to 3.7% in the period of 2003-2014, the period after the credit card lending boom following the crisis. Coincidentally, the average growth rate of the Korean real domestic demand on domestic goods was at the similar levels at 8.8% and about -0.3%, in the respective periods. This dramatic decline in both growth rates should not be attributed to the elements that are linked to short run economic fluctuations because this phenomenon has lasted more than 10 years. Instead, structural factors are likely to induce the significant decline in the growth of the two variables. Identifying those structural problems in the Korean economy is one of the main objectives of this paper.\*

In particular, we consider two structural problems that the Korean economy faced after the crisis: one is the dampened ripple effects from the export sectors and the other is the decrease in the growth of household real disposable income. Identification of these two problems is motivated by observing dramatic changes in the growth rates of decomposed components of output.

Our starting point is to pay a particular attention to a link between the GDP growth and the domestic demand (on domestic goods) growth: (i) both growth rates have significantly declined; (ii) there is a significant difference between the two decreasing rates. The average growth rate of the domestic demand is much lower than that of the GDP after the crisis, while their average growth rates are quite similar before the crisis. Understanding the reasons for this difference may lead us to identify the structural problems of the Korean economy.

Since the GDP is the sum of domestic demand on domestic goods and foreign demand on domestic goods (that is, export), a good

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\* All the numbers shown in the introduction are calculated by author using Annual Macroeconomic Database (European Commission 2015).

starting point is the inspection of the growth pattern of the Korean export. The average growth rate of the Korean export was 12.7% (1981-1996) and 9.5% (2003-2014), before and after the crisis respectively. These numbers suggest that the performance of the export sector has not been much worse, unlike the two declining growth rates. In general, the growth in the export sector can contribute to the economic growth via the following two channels: One is the direct contribution of export to GDP, that is, the more exports, the more GDP. The other is the indirect contribution. As firms export more, they use more production inputs and thus are more likely to increase investment and employment. In turn, they result in the increase of domestic demand. We call this channel the ripple effects of the export sector. The direct contribution of export to the GDP growth has increased from 2.1% in the former period to 4.3% in the latter period. This suggests that a large part of GDP growth rate (3.7%) in the latter period can be explained by the growth in the export sector. Moreover, the large proportion of direct contribution by export sector suggests that the ripple effects have significantly dampened after the Asian financial crisis. Understanding the causes of the dampened ripple effects and their effects on the Korean economy is one of our main objectives.

Our second focus is on the decline of the household disposable income growth. Before the crisis, real household disposable income growth rate was 10.3% which was slightly greater than the GDP growth rate but was reduced to 2.3% which is less than the GDP growth rate in the latter period. This decrease in the growth of households income causes both real consumption growth and household saving rate (defined by household saving/household disposable income) to decrease: the real consumption growth rate was 8.4% and 2.4%, and household saving rate is 22.4% and 11.3%, in the respective periods. In addition, the decrease in the disposable income often induces the household debts to increase leading to the increase in the amount of debt service (the sum of principal and interest). This would further restrict the consumption growth therefore decrease domestic demand growth. That is, the Korean

economy will be plunged in a vicious cycle unless this structural problem is fixed. Understanding what causes the decrease in the growth of household disposal income and how it affects the Korean economy is also one of our main objectives.

To analyze the structural problems of the Korean economy, we use an unconventional approach: We look into the expenditure side of the national income account. Previous studies examine the supply side of the economy to investigate the determinants of long run economic growth: they look into the determinants of production function such as technology, capital, and labor. As shown in the next chapter, however, our analysis on the demand side helps us identify the structural problems. Nevertheless, we will show that these structural problems indeed reflect the different side of the same coin and are closely linked to the determinants of the total factor productivity of the Korean economy.

The organization of this report is as follows. In Chapter II, we discuss each of the two structural problems of the Korean economy in detail: the dampened ripple effects and the decrease in household income growth. We consider two potential reasons for the dampened ripple effects from the export sector after the crisis. These reasons are closely related to changes in investment behaviors of large-sized Korean exporting firms after the crisis: (i) the large-sized exporting firms do not invest their export earnings any more to create new industries; (ii) they tend to use more foreign value added contents for their exports and to increase outward direct investment by participating in the global value chains actively.

We also consider three potential reasons for the decrease in the growth of household real disposal income.<sup>1)</sup> These reasons are related to the labor market reforms after the crisis: (i) the relatively low income of necessity-driven entrepreneurs; (ii) a large proportion of temporary workers whose wages are about 70 to 80% of the

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1) In a sense, this is related to the world wide phenomenon of decreasing in labor income share. See, e.g., Lavoie and Stockhammer(2014) and Karabarbounis, Loukas and Neiman (2014).

regular workers; (iii) a relatively low wage in small and medium-sized firms which employs a large portion of workforces.

In the two subsequent chapters, we will investigate in detail the two structural problems of the Korean economy: (i) a link between firms' productivity and the performance of temporary workers; (ii) the consumption behavior of necessity-driven entrepreneurs.

In Chapter III, we empirically investigate a link between temporary employment contract and firms' productivity using establishment panel data from Korea. Our study is motivated by a concern that an increase in the share of the temporary workers in total employment can potentially harm firm's productivity,<sup>2)</sup> which will ultimately have a negative influence on the Korean economic growth and domestic demand. The hypothesis that we are testing in this chapter is based on the following theoretical mechanism: as a firing cost gap between permanent and temporary workers increases, firms tend to less likely convert temporary workers to permanent workers and thus to reduce the investment for temporary workers such as the on-job-training investment. By knowing this, temporary workers tend to make efforts less on their job performance. This results in decrease in firm's total factor productivity which is the combination of temporary and permanent workers' productivities and efforts. In line with this reasoning, we examine if temporary to permanent conversion rate influences firm's productivity.

In Chapter IV, we investigate the consumption behavior of necessity-driven entrepreneurs. As of 2014, the proportion of households whose heads are necessity-driven entrepreneurs (i.e., the self-employed household) is about 25%, according to the survey of Household Finance and Living Conditions by Korean statistical information service. The massive generation of these self-employed households mainly started during the Asian financial crisis when many workers were laid off but most of them were never reemployed. They entered the service industry such as the food and beverage franchise industry and the agency industry for selling mobile phones.<sup>3)</sup> These franchise

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2) See, e.g., Boeri and Garibaldi (2007) and Sanchez and Toharia (2000).

industries have rapidly expanded since they only require those entrepreneurs to do simple and standardized tasks. As described in Chapter II, the lower labor productivities of these industries as well as severe competition in these industries result in lower income growth of those entrepreneurs and higher financial debt to the disposable income ratio of those entrepreneurs. This will ultimately have a negative influence on household consumption and thus domestic demand. Using micro level data, we examine in detail this aspect in Chapter IV.

Chapter V presents the summary of this report and provides some policy implications. Policies should be aimed at increasing households' income and mitigating dampened ripple effects from the export sector. In particular, those policies should contribute to improving labor productivities in small and medium-sized firms and service sector and provide alternative job opportunities for necessity-driven entrepreneurs. Policies should also be aimed at reducing the use of temporary workers, who have a negative effect on firms' productivity and hence the overall productivity, by raising the conversion rate from temporary to permanent employment.

---

3) See [Table 1] in Appendix for more details on the statistics about 30 major categories of necessity-driven entrepreneurs in Korea and the difference in the number of business in each category between 2009 and 2013.

## **II. Structural Problems of the Korean Economy: Dampened Ripple Effects from Export Sector and Decrease in the Growth of Households Income**

1. Motivation
2. Methodology
3. Stylized Facts
4. Reasons for the Decline  
in the Growth of Domestic Demand
5. Concluding Remarks



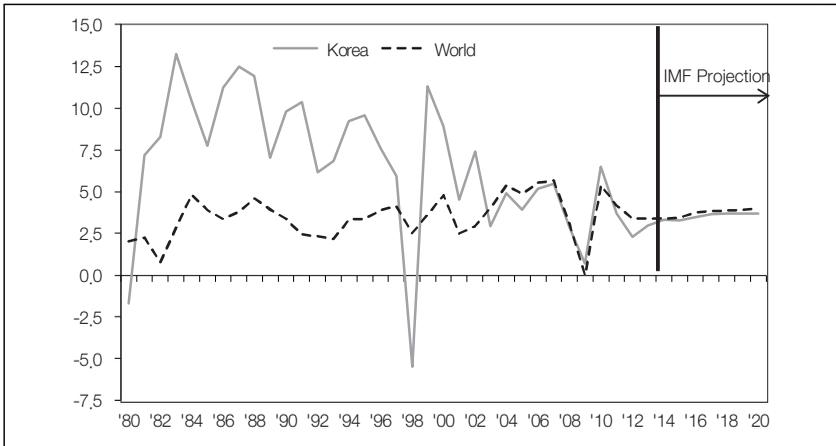
# 1. Motivation

This chapter investigates reasons for the slowdown in the growth of domestic demand, in particular, since the Asian financial crisis in 1997.<sup>4)</sup> To motivate our study, we first look into the path of the Korean economic growth.

The solid line in [Figure 2-1] shows Korea's yearly GDP growth rate since 1980. There are two noticeable valleys in the growth path. One occurred in 1998 due to the Asian financial crisis and the

Figure 2-1. GDP Growth of Korea and World

(Unit: percentage)



Source: International Monetary Fund (IMF) (2015), World Economic Outlook Database–April 2015 Edition, <https://www.imf.org/external/pubs/ft/weo/2015/01/weodata/index.aspx> (accessed July 31st, 2015).

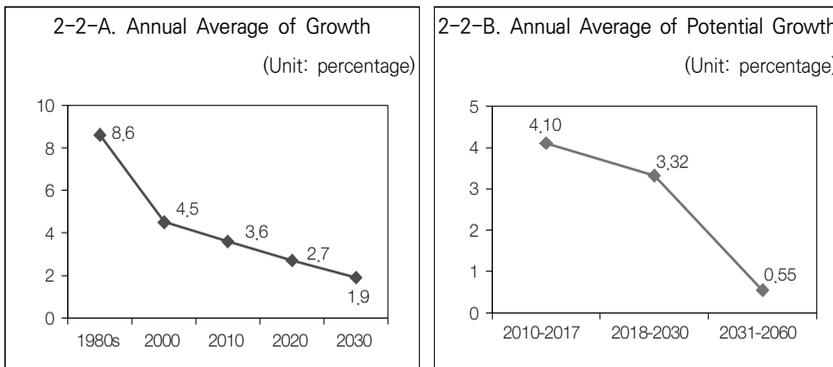
See also Lee and Moon (2015).

4) Some of the contents (including figures and tables) in this chapter are based on Lee and Moon (2015) where the authors look into the reasons for the slowdown in Korean economic growth since the mid-1980s. For more details, see pages 125-140 in the proceedings of the 2014 Korea Dialogue conference on Strengthening North Pacific Cooperation that was organized jointly by the East-West Center and the Korea Institute for International Economic Policy.

other occurred in 2009 due to the global financial crisis. There is a noticeable positive growth during the credit card lending boom period of 1999-2002. Ignoring them, one can see that the Korean economic growth has significantly slowed down since the Asian financial crisis. In particular, after the burst of the credit card lending boom, Korea's economic growth has slowed to that of the global average (the dotted line). In addition, IMF predicts that Korean economic growth will continue to be similar to the global average in the future. As shown in [Figure 2-2], both Bank of Korea and OECD also project that the Korean economic growth would continue to decline in the future if structural problems in the Korean economy are not resolved.

The downward trend in the Korean economic growth path since the early 2000s may indicate that the Korean economy is entering the low growth path similar to that of the developed countries as predicted by the standard economic growth theory. Alternatively, structural problems may have forced the Korean economic growth to slow down. Looking into the causes for the downward trend is one of the main objectives of the present study.

**Figure 2-2. Korean Economic Growth**



Source: Bank of Korea, "Korean Economic Outlook for 2013".  
See also Lee and Moon (2015).

Source: OECD, "OECD Economic Outlook Volume 2013".  
See also Lee and Moon (2015).

## 2. Methodology

It is a conventional wisdom that the supply side factors mainly determine long run economic growth. Naturally, both exogenous and endogenous growth theories have looked into determinants of a production function such as labor and total factor productivity to study issues on economic growth. However, this approach may miss identifying important structural problems that could affect long run growth. Moreover, those problems could be easily identified from the demand side of the economy. Nevertheless, at the end, the problems would be reflected on the other side of the same coin and provide a clue to understand the determinants of the total factor productivity of the economy. Considering this, we deviate from unconventional approaches of growth accounting. Namely, we look into the demand side of the economy.<sup>5)</sup>

Aggregate demand in the national income and product account is the sum of consumption ( $C$ ), investment ( $I$ ), government expenditure ( $G$ ), and net export ( $NX$ ), and can be decomposed in the following way:

$$Y = C^d + I^d + G^d + EX, \quad (2-1)$$

where  $Y$  is the market value of domestically produced all final goods and services (Gross domestic product or GDP),  $C^d + I^d + G^d$  is domestic demand on domestic production, and exports,  $EX$ , is foreign demand on domestic production. Conventionally, domestic demand includes demand for not only domestic goods but also foreign goods. But in this paper, we abuse the definition and call domestic demand on domestic production 'domestic demand', under the assumption that the proportion of domestic demand between domestic and foreign goods does not change much over time.

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5) Our approach has the same sprits of the wage-led growth theory recently developed by ILO. For instance, see Lavoie and Stockhammer (2014).

Using this decomposition, one can derive a relation that shows how much each of domestic demand and export contributes to the GDP growth, respectively,

$$\Delta \ln Y = (1 - \alpha) \Delta \ln(C^d + I^d + G^d) + \alpha \Delta \ln EX, \quad (2-2)$$

where  $\alpha$  is the share of export in the GDP. Although we do not observe the growth rate of domestic demand on domestic goods directly, we can indirectly obtain its growth rates using the above decomposition.

As you will see in detail later, this demand-side growth accounting helps us identify an economy's structural problems which hinder long run economic growth.

### 3. Stylized Facts

[Table 2-1] presents several stylized facts about Korean economic growth based on our demand side growth accounting. All the numbers in the table are five year averages. We focus on these five year averages to control for the effects of business cycles.

**Table 2-1. Growth Rates of GDP Components**

(Unit: percentage)

	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14
GDP	7.2	10.1	8.0	5.4	5.7	3.6	3.7
Domestic Demand ( $C^d + I^d + G^d$ )	6.5	9.9	7.5	2.5	2.6	0.6	-0.5
Consumption	5.8	8.7	8.0	4.2	4.7	3.1	2.6
Investment	4.7	13.5	12.1	1.3	5.7	2.0	3.0
Export	11.9	11.4	10.8	16.7	12.7	7.9	8.0

Source: European Commission (2015), Annual Macroeconomic Database, [http://ec.europa.eu/economy\\_finance/ameco/user/serie/SelectSerie.cfm](http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm) (accessed May 6th, 2015).

The followings are the summary of the stylized facts:

- 1) The real GDP growth in Korea has significantly slowed down since the mid 1990s.
- 2) The growth in domestic demand also has a similar downward trend since the mid 1990s.
- 3) Investment growth also has a similar downward trend since the mid 1990s.
- 4) Consumption growth also has a similar downward trend since the mid 1990s.
- 5) The export growth has been high but slightly decreased in the last ten years.

The first fact confirms our visual analysis in [Figure 2-1]. Interestingly, the first and second facts show that both GDP and domestic demand have a similar growth path. However, one key difference is that the growth rates of both measures are quite similar before the mid 1990s, while the growth rates of domestic demand are much lower than those of GDP since the mid 1990s. For example, the five-year average GDP growth rate is about 8.0% in the period of 1990-94, while the five-year average of domestic demand growth is about 7.5% in the same period. On the other hand, the five-year average GDP growth rate is about 3.7% in the period of 2010-14, while the five-year average of domestic demand growth is about -0.5% in the same period. To further examine the link between GDP and domestic demand growths, we draw the yearly growth path of the domestic demand in [Figure 2-3]. Again, the substantial negative growth rate in 1998 is due to the Asian financial crisis. Noticeably, the growth in domestic demand is strictly positive and sizable between 1999 and 2002: the yearly growth rates are above 5%. This sizable positive growth is mainly due to the credit card lending boom which was induced by policies on relaxing credit restrictions and by severe competition of credit card issuers. After the burst of the credit card lending boom, however, the growth rates on domestic demand have been close to zero or even negative. This suggests that the GDP growth has been

entirely driven by the export growth in the last 10 years.

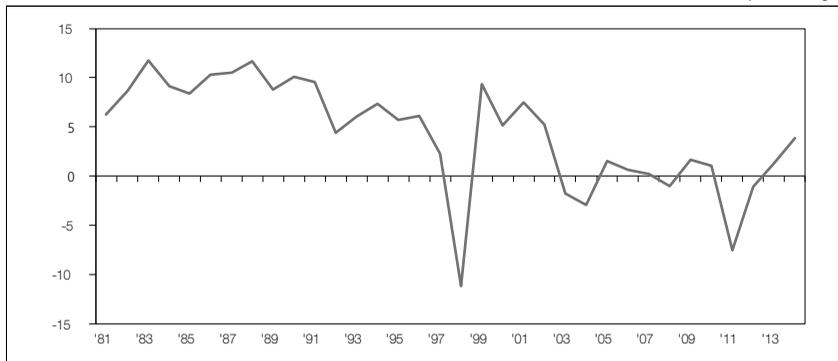
Third, both investment and GDP also have a similar growth path. The key difference between the two is that investment growth rate is much higher than that of GDP before the mid 1990s, while it is lower in the later period.

Fourth, the consumption growth path is also similar to the GDP growth path. One difference is that consumption growth rates are lower than GDP growth rates with variation in magnitude over all sample period. This implies that consumption to GDP ratio (or average propensity to consume at the aggregate level) has been declining.

Fifth, unlike the growths of GDP, domestic demand, investment, and consumption, export growth rates have been high in the last 30 years: It is on average higher than 10%, although they have decreased to 8.0% in the last ten years. In particular, the average export growth rates significantly declined to 4.0% in the last three years of 2012-2014. Overall, the large magnitude of export growth confirms a well-known characteristic of Korean economic growth: export- driven economic growth.

Figure 2-3. Growth Rate of Domestic Demand

(Unit: percentage)



Note: Domestic demand is calculated as  $C^d + I^d + G^d$ .

Source: European Commission (2015), Annual Macroeconomic Database, [http://ec.europa.eu/economy\\_finance/ameco/user/serie/SelectSerie.cfm](http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm) (accessed May 6th, 2015).

See also Lee and Moon (2015).

## 4. Reasons for the Decline in the Growth of Domestic Demand

So far, we have shown that the significant decline in the GDP growth is closely linked to that of the domestic demand growth. This may imply that if we understand the causes for the decline in the domestic demand, we may have a clue to the causes for the decline in the GDP growth.

In this section, we examine the reasons for the decline in the growth of domestic demand. In particular, we consider the two key channels for the sluggish domestic demand: One channel is related to the dampened ripple effects from export sector associated with the decline in investment growth and the other channel is related to the decline in household income growth accompanied with the increase in firms' saving rate. We investigate these two channels one by one in detail and then discuss the link between them.

### *4.1. Dampened Ripple Effects from Export Sector*

According to our definition above, domestic demand is a function of components which affect consumption and investment. Therefore, anything that affects either consumption or investment would affect domestic demand. For example, the proportion of foreign value added contents of exports (FVA) is the proxy for the extent of the foreign fragmentation of domestic production and may approximate one of the effects of global value chains. Naturally, FVA affects the domestic demand. In fact, it has two opposite effects on domestic demand. On the one hand, as domestic exporting firms use foreign value-added contents for their production more and more, domestic investment and employment are likely to decrease, which eventually results in the decrease in domestic demand. On the other hand, to the extent that exporting firms use more efficiently their production inputs in global value chains, those firms' productivity can increase and thus likely to contribute to the improvement the country's total factor productivity. This results in the increase of the country's export

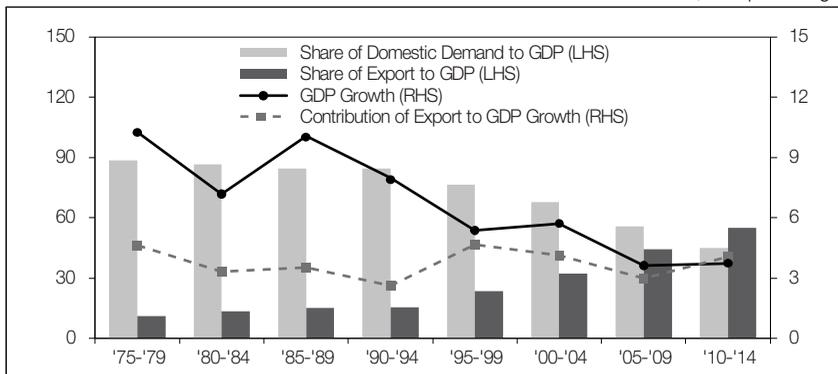
as well as contributes to boosting domestic demand. The total effect is ambiguous.

To the extent that the positive effect of FVA on domestic demand is less than the negative effect of FVA, GVCs may dampen ripple effects from export sector.<sup>6)</sup> In this section, we examine this possibility in more detail.

[Figure 2-4] clearly demonstrates the possibility of dampened ripple effects from export sector. The solid line is the path of five-year average growth rates of GDP and the dotted line shows the contribution of export to GDP growth rates. The difference between these two is the contribution of domestic demand to GDP growth rates. The difference was large before the Asian financial crisis (or the mid 1990s), while it becomes smaller after the crisis. For example, the contribution of export to GDP growth is stable at 4 percentage points over the entire sample period. This implies that the direct contribution of the export sector on the GDP growth has been stable.

Figure 2-4. Domestic Demand and GDP Growth in Korea

(Unit: percentage)



Source: European Commission (2015), Annual Macroeconomic Database, [http://ec.europa.eu/economy\\_finance/ameco/user/serie/SelectSerie.cfm](http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm) (accessed May 6th, 2015).

6) In our related work, we empirically identify some observable factors that may affect domestic demand using a country level panel data set. Our preliminary results show that FVA has overall negative effects on domestic demand.

However, the contribution of domestic demand to GDP growth is about 8 percentage points before the financial crisis but it is close to zero or even negative in the last ten years. These facts together with the decline in investment growth suggest that a channel which generates the ripple effects of export growth appears to be broken after the financial crisis.

We consider two reasons for the dampened ripple effects which are closely related to the changed investment behavior of large-sized exporting firms after the Asian financial crisis: (i) large-sized Korean exporting firms do not invest any more to create new industries after the crisis; (ii) large-sized Korean exporting firms tend to participate in global value chains more actively.

To look into the first reason, let us discuss the characteristics of the Korean economic growth. Before the Asian financial crisis, Korea experienced a high export growth which directly contributes to boosting economic growth: the average growth rate of export is about 12.7% in the 1981-1996 and that of GDP is about 9.3% during the same period. This phenomenon is called *export-driven* economic growth. Nevertheless, the calculation from equation (2-2) reveals that the direct contribution of export to GDP growth is about 3.5 percentage points during the same period, which take place about one third of the Korean GDP growth. In addition, the high growth in export sector seems to contribute to boosting domestic demand growth and thus indirectly to boosting economic growth. Let us give you an extreme example to explain this vividly. During this time period, large-sized exporting firms such as Hyundai, Samsung, and Daewoo used revenue from their exports to expand their business group. That is, they sold less sophisticated or advanced goods such as labor intensive goods in foreign countries. With the earnings from those sales and with the help of policies subsidizing or encouraging creation of new industries, they created new industries such as semi-conductor industry, car industry, steel industry, or petro-chemistry industry. This naturally results in creating plenty of new jobs and thus increases in consumption. Further, the so called lifetime employment system guarantees job securities. And firms

subsidized their workers by lending house mortgage loans as well as the education costs of workers' children at much lower interest rates than market rates. All these were possible at the time since the firms were growing. We call this phenomenon investment-driven economic growth. Therefore, the Korean economic growth can be characterized by both export-driven and investment-driven economic growth before the Asian financial crisis. In particular, we view that this investment-driven economic growth is closely linked with the significant growth in domestic sector.

However, these channels do not seem to be active after the Asian financial crisis. Korea still experiences a high export growth but this high growth does not contribute to boost the domestic demand growth any more. For example, Korean economic growth in the last ten years is entirely driven by export growth. Further, the calculation from equation (2-2) reveals that the direct contribution of export to GDP growth does not change even after the crisis. That is, the link which amplifies the ripple effects from export sector to domestic sectors appears to be broken. Both investment and consumption growth rates have been significantly decreased after the Asian financial crisis as reported in [Table 2-1]. One apparent reason can be found that large-sized exporting firms do not invest their export earnings to create new industries. For example, Samsung electronics made a huge amount of export revenue by selling semi-conductor products, mobile phones, and color TVs since 2000. For example, the ratio of its export sales to the Korea's export is about 25.2% in 2002 and 39.2% in 2009. Nevertheless, Samsung electronics did not seem to invest their retained earnings in creating new industries to expand its business group. This change in investment behavior may dampen ripple effects from export growth.

Of course, it may be inevitable for large-sized exporting firms to change their investment behavior after the financial crisis. Note that creating new industries is very risky. Most business groups which consist of many small and large-sized firms had experienced difficulties due to their expanded investment during the Asian

financial crisis. For example, Samsung car company which was created by Samsung business group in 1995 were sold to a foreign company during the financial crisis. Daewoo business group that was the second largest conglomerate in Korea was dismantled in 1999. So, this large scale failure during the Asian financial crisis may make them refrain from their aggressive investment. In addition Korean government cannot continue to implement its policies aimed at subsidizing those business groups that involved in creating new industries, prior to the Asian financial crisis.

Another reason for the changed investment behavior is related to the rapid development of global value chains (GVCs) over the world: countries tend to use more foreign value added contents in exports.<sup>7)</sup> There are two offsetting effects of GVCs on domestic demand: As exporting firms use foreign value-added contents for their production more and more, investment and thus employment in domestic demand sectors are likely to decrease, which eventually results in the decrease in household income and thus in domestic demand. Of course, exporting firms use more efficiently their production inputs in global value chains and thus increase in their exports, which results in the increase in domestic production inputs and contributes to increasing in household income and thus in domestic demand. We now show how the proportion of foreign value added in exports evolves over time in Korea and relate this to the dampened ripple effects from export growth and thus to the decrease in the growth of domestic demand.

[Table 2-2] shows how much the proportion of foreign value

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7) As noted by UNCTAD (2013), a country's export can be divided into domestically produced value added and imported foreign value added. Further, exports can be used as either final consumption in foreign country or as intermediate inputs in foreign country to be exported again to third countries (or back to the original country). Therefore, the analysis of GVCs takes into account both foreign value added in exports (the upstream perspective) and exports value added incorporated in third country exports (the downstream perspective). Of these two, we view that the upstream perspective of GVCs mainly affects domestic demand via changes in the behavior of domestic investment.

**Table 2-2. Foreign Value-added Share of Gross Exports of Korea by Industry**

(Unit: percentage)

	1995	2000	2005	2008	2009	2010	2011
TOTAL	22.3	29.8	33.0	41.8	37.5	39.2	41.7
1) Agriculture, Hunting, Forestry and Fishing	8.4	11.5	13.9	21.3	19.8	21.0	20.6
2) Mining and Quarrying	8.0	10.5	14.9	17.7	15.8	18.9	20.3
3) Total Manufactures	27.4	35.3	38.1	48.0	43.1	44.3	47.0
– Food Products, Beverages and Tobacco	16.5	18.9	22.1	31.6	30.3	31.3	35.6
– Textiles, Textile Products, Leather and Footwear	21.3	23.9	27.1	36.2	32.7	36.5	35.3
– Wood, Paper, Paper Products, Printing and Publishing	16.9	21.8	23.3	30.2	26.8	32.3	28.9
– Chemicals and Non-Metallic Mineral Products	32.0	48.3	51.9	65.9	57.8	60.5	64.5
– Basic Metals and Fabricated Metal Products	32.5	34.9	39.5	51.5	44.5	47.0	50.3
– Machinery and Equipment, nec	31.2	31.8	33.5	42.2	38.3	39.7	40.9
– Electrical and Optical Equipment	27.8	37.1	37.3	43.9	41.8	41.0	41.8
– Transport Equipment	26.6	29.0	32.2	39.6	35.9	36.7	38.0
4) Electricity, Gas and Water Supply	18.2	29.7	36.2	56.7	46.5	45.9	53.4
5) Construction	18.5	22.2	23.0	31.1	28.7	29.5	30.9
6) Total Business Sector Services	10.1	14.6	15.7	20.9	17.8	20.1	20.9
– Wholesale and Retail Trade; Hotels and Restaurants	7.0	9.2	11.4	14.7	14.3	16.1	16.7
– Transport and Storage, Post and Telecommunication	14.5	22.3	23.2	30.7	25.7	30.3	33.7
– Financial Intermediation	5.5	7.4	5.9	10.5	10.2	8.2	7.3
– Real Estate, Renting and Business Activities	6.2	7.5	10.2	13.3	12.8	14.4	14.3
7) Community, Social and Personal Services	6.4	9.4	13.5	16.9	15.6	16.7	16.7
– Public Administration and Defence; Compulsory Social Security					12.5	12.4	13.2
– Education	3.8	5.4	5.7	7.7	7.6	8.2	9.1
– Health And Social Work	11.1	15.5	15.7	19.4	17.9	18.8	19.4
– Other Community, Social and Personal Services	6.4	9.4	13.7	17.6	16.1	17.9	18.7

Source: OECD Statistics (2015), Trade in Value Added (TiVA) – June 2015, <https://stats.oecd.org/index.aspx?queryid=66237> (accessed July 28th, 2015).

added components of export has evolved since 1995: It clearly illustrates an upward trend. It was about 22% in 1995 and about 40% in 2010. This phenomenon is not restricted to certain industries but common across industries. This suggests that the ripple effects of exporting firms on the domestic production may have declined to the extent that the increase in the proportion of foreign value added contents of exports is related to the decrease in domestic investment.

Interestingly, this phenomenon is not limited to Korea and confirms the regression results in the previous section. For example, [Figure 2-5] shows that most OECD member countries used more foreign value added components in 2011 than in 1995. Although we do not provide the time series of these statistics for simplicity, this phenomenon is not limited to just these two years: most OECD members had a similar experience of using less amount of domestic value added components since the mid 1990s. However, the reduction was more pronounced in Korea compared to other OECD member countries. For example, in 1995 there are more than half of OECD member countries which use domestic value added contents less than Korea. But in 2011 there are only 3 OECD (4 non-OECD) countries which use domestic value added contents less than Korea. On the other hand, the ratio of export to GDP in Korea has significantly increased. To the extent that the previous regression captures well the effects of foreign value added, the decrease in the growth of domestic demand in Korea may have been more severely affected by the extensive use of foreign value added and the increase in the amount of exports.

Let us now discuss some reasons why exporting firms in Korea have been using more foreign value added components than those in other OECD member countries. One reason may be related to the fact that the relative labor productivity of small and medium-sized firms to large-sized firms is much lower in Korea than in other countries.

[Figure 2-6] shows the ratios of labor productivities between small and medium-sized firms and large-sized firms<sup>8)</sup> across selected

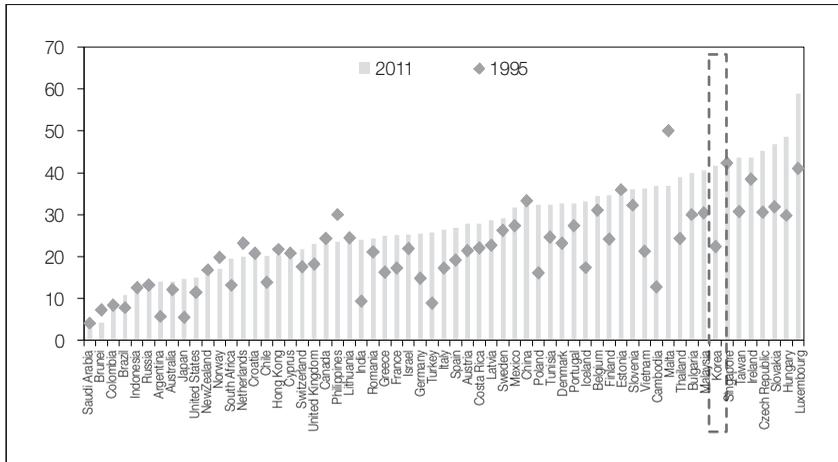
OECD member countries in 2011. Of these countries, Korea has the smallest ratio.

Further, in the case of Korea this ratio has been decreased over time: For example, the average ratio of value added per worker in small and medium-sized firms to that in large-sized firms between 2002 and 2006 is around 39.4% and the average ratio further decreased to around 34.5% between 2007 and 2010, according to the data from the Financial Statement Analysis Issued by Bank of Korea.

This productivity difference is reflected to relative performance of firms' exports to the extent that firms with higher productivity tend to export more. As shown in [Figure 2-7], the ratio of small and medium-sized firms' contribution relative to large-sized firms to export has decreased substantially in Korea.

**Figure 2-5. Foreign Value-added Share of Gross Exports across Selected Countries**

(Unit: percentage)

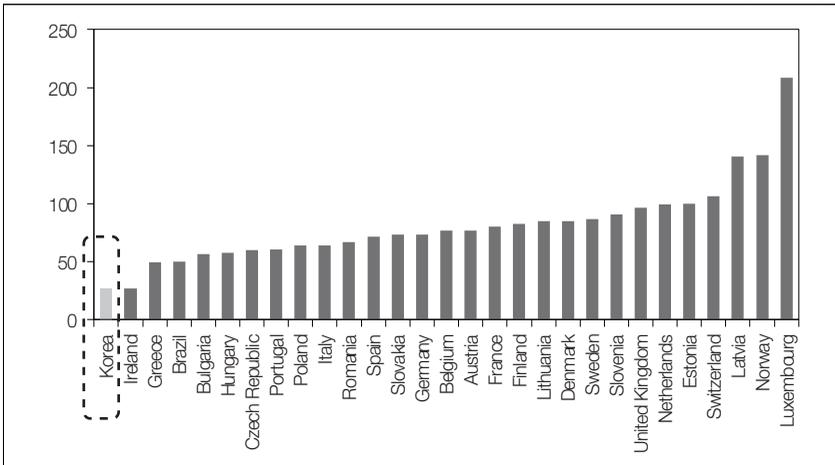


Source: OECD Statistics (2015), Trade in Value Added (TiVA) – June 2015, <https://stats.oecd.org/index.aspx?queryid=66237> (accessed July 29th, 2015).

- 8) “Small & Medium Sized Firms” means a company having employees less than 250. “Large Sized Firms” indicates a company having 250 employees and more.

**Figure 2-6. Labor Productivity Ratio in 2011**

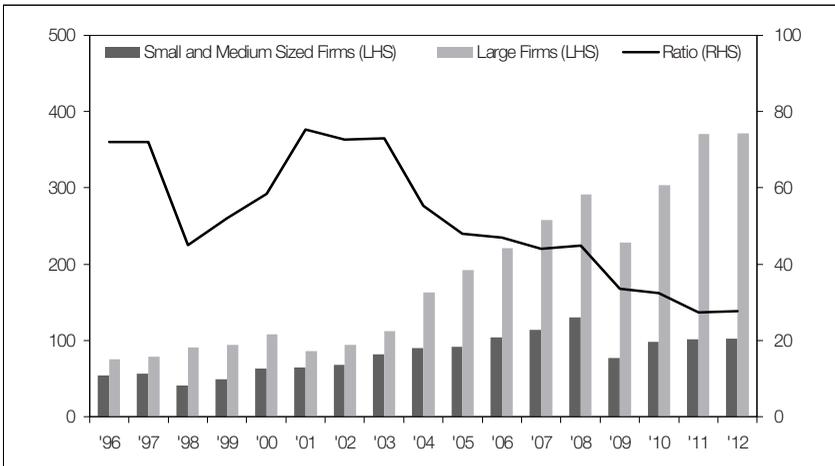
(Unit: percentage)



Note: Labor Productivity of Small & Medium Sized Firms/ Labor Productivity of Large Sized Firms  
 Source: OECD (2014), "Entrepreneurship at a Glance 2014," p. 39.

**Figure 2-7. Export of Small & Medium Sized and Large Firms in Korea**

(Unit: (LHS) USD Billion, (RHS) percentage)



Source: Korean Statistical Information Service (KOSIS) (2015), Korean Small and Medium Business Export Statistics, [http://kosis.kr/statHtml/statHtml.do?orgId=142&tblId=DT\\_B10065&conn\\_path=I3](http://kosis.kr/statHtml/statHtml.do?orgId=142&tblId=DT_B10065&conn_path=I3) (accessed July 31st, 2015).  
 See also Lee and Moon (2015).

Overall, we view that the changed investment behavior of large sized exporting firms is likely to dampen ripple effects from export growth after the Asian financial crisis. That is, first, exporting firms have not aggressively made their investment to create new industries any more. Second, those firms have been able to use foreign value added components more extensively in the global value chains after the crisis, e.g., by increasing their outward investment. Nevertheless, small and medium sized firms may not have been extensively involved in global value chains due to their relatively lower labor productivities, although we admit that more rigorous studies should be done to understand the link between the degree of participation of GVCs and the productivity.

#### *4.2. The Decrease in Growth of Households Income*

We now discuss the other factor that contributes to decline in the growth of domestic demand. [Figure 2-8] shows how the ratio of private consumption to GDP evolves since 1980. In the beginning of the 1980s, the ratio was about 70%. However, it had declined to around 60% until late 1980s. Since then, the ratio was stable until the Asian financial crisis which caused it to decline again. The credit card lending boom made the ratio stagnated for a while. After its burst, however, the ratio has continuously decreased and there has been no sign of reversal since the burst. For example, the ratio is even less than 50% in 2014.

The downward trend of the consumption to GDP ratio after the financial crisis implies that consumption growth rates have been lower than GDP growth rates. Considering the definition of national saving rates,  $(Y-C-G)/Y$ , this downward trend further implies the increase in national saving rates, holding government purchases constant. One may think that the increase in national saving rates may be related to the rapid transition to an ageing society in Korea and/or to the creation of national pension system.

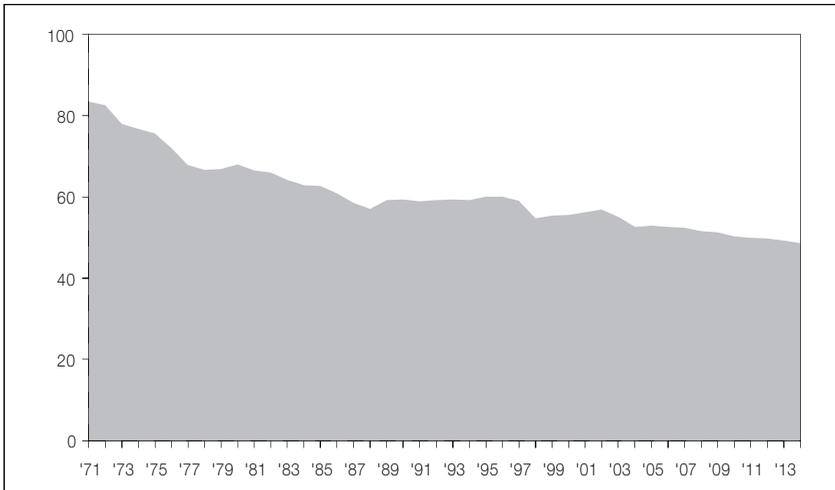
To examine why the national saving rate has increased after the financial crisis, we decompose it into three components: households

saving rate, firms saving rate, and government saving rate. [Figure 2-9] shows the ratios of individuals saving, non-financial corporations saving, and general government saving to the national disposable income, respectively. The ratio of individuals saving to the national disposable income which approximates households saving rates has significantly decreased after the financial crisis. Recently, the rates are even less than 10%. On the other hand, the ratio of non-financial corporations saving to the national disposable income which measures firms saving rates has significantly increased after the crisis, while the ratio of government saving did not change much over time. These decomposed saving rates suggest that increase in national saving rates may be mainly due to the significant increase in firms saving rates.

We already know that consumption growth rates have decreased after the crisis as shown in [Table 2-1]. When do both households consumption and saving decrease? These two things are likely to happen simultaneously when households' income decreases.

**Figure 2-8. Share of Private Consumption in GDP of Korea**

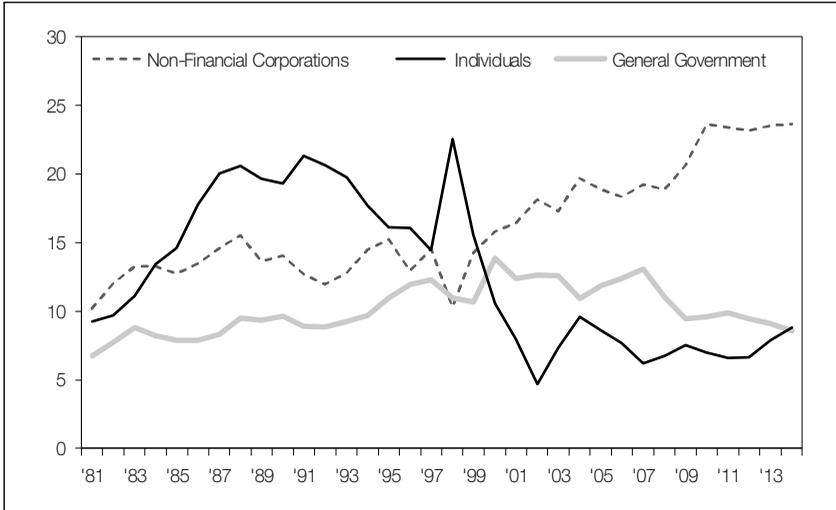
(Unit: percentage)



Source: European Commission (2015), Annual Macroeconomic Database, [http://ec.europa.eu/economy\\_finance/ameco/user/serie/SelectSerie.cfm](http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm) (accessed May 6th, 2015).

Figure 2-9. Saving Rates

(Unit: percentage)



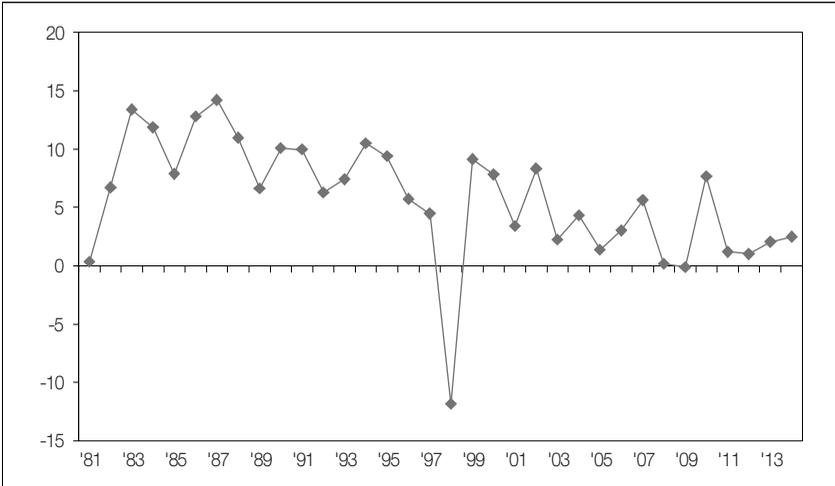
Note: Savings in the present of national disposable income.

Source: Bank of Korea (accessed May 6th, 2015).

Indeed, as shown in [Figure 2-10], the growth rates of household real disposable income (nominal disposable income is deflated by CPI inflation rates) have significantly decreased after the financial crisis. We also find very similar trends even when we are using detailed income data from the household expenditure and income survey data of the Statistics Korea: For all income groups including workers and non-workers, the downward trend of the income growth clearly appears after the Asian financial crisis, once we exclude the time period of the credit card lending boom, as displayed in [Figure 2-11]. This downward trend of household income growth can also be related to the significant increase in the ratio of household debt to the disposable income.

**Figure 2-10. Real Disposable Income Growth**

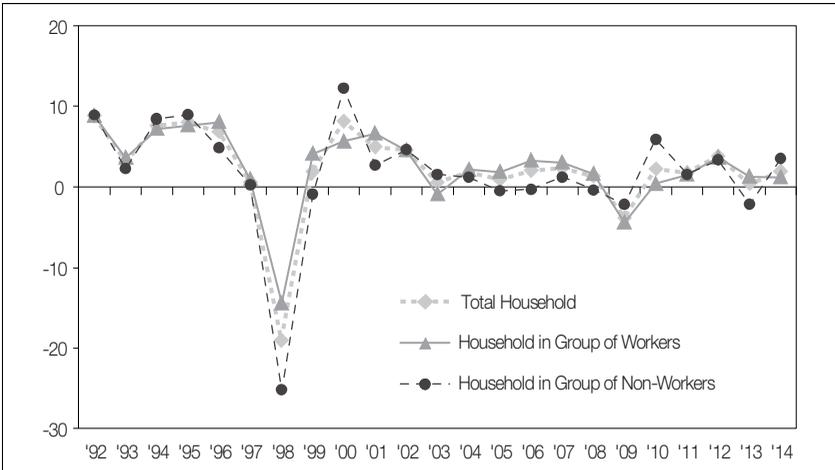
(Unit: percentage)



Source: Bank of Korea, Economic Statistics System, <http://ecos.bok.or.kr/> (accessed October 1st, 2015).

**Figure 2-11. The Household Disposable Income Growth**

(Unit: percentage)



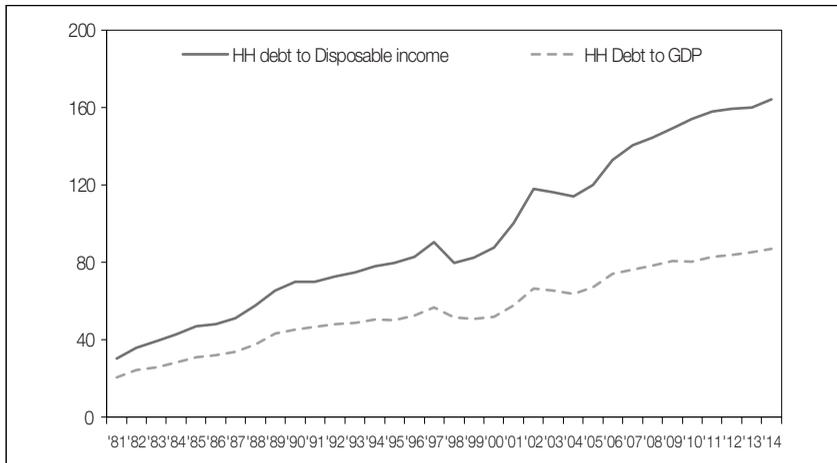
Source: Korean Statistical Information Service (KOSIS) (2015), Household Income and Expenditure Survey, [http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT\\_1L90002&conn\\_path=13](http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT_1L90002&conn_path=13) (accessed July 24th, 2015).

[Figure 2-12] shows that the ratio of household financial debt to household disposable income has been growing since 1980. In particular, after experiencing the Asian financial crisis, this ratio has increased substantially, implying that households have been accumulating their debts much faster than their disposable income. Further, the level of the ratio itself becomes very large.

Rising household debts beyond a certain threshold level can cause decrease in consumption growth due to both tighter liquidity constraint and increase in default risks. For example, there may be a nonlinear relation between the household debt to income ratio and consumption growth because those households with a high debt to income ratio which is beyond certain threshold are likely to face a borrowing limit or to have a higher probability of default risks. As discussed in detail in Section IV, we construct a panel data set using micro-level data to investigate this from the Korean Labor and Income Panel Study (KLIPS). We divide households into two groups: one includes only workers, and the other includes necessity-driven firm owners and temporary workers. Overall, we find that

**Figure 2-12. Household Debt of Korea**

(Unit: percentage)



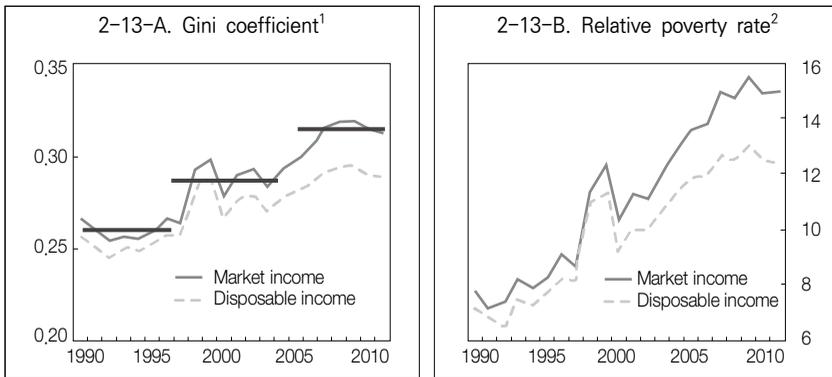
Source: Bank of Korea, Economic Statistics System, <http://ecos.bok.or.kr/> (accessed October 1st, 2015). See also Lee and Moon (2015).

the debt to the disposable income in the latter group has more negative effect on consumption than in the former group.

Another noticeable point regarding the path of household income growth is its magnitude: households real disposable income growth rates are lower than GDP growth rates in particular after the financial crisis. We can also verify this by comparing the ratio of household debt to the disposable income to that of household debt to GDP as shown in [Figure 2-12]. Considering that national income (GDP) is the sum of household income and firms income, this implies that firms' income has been growing much faster than household income after the financial crisis. This further may imply that income inequalities may have increased after the crisis to the extent that most of economic agents in the economy are households.

We also provide similar evidence using different measures of income distribution. [Figure 2-13] shows yearly Gini coefficients measured using both market income and disposable income. Both measures exhibit an upward trend. To avoid temporary effects of

Figure 2-13. Income Inequality



Notes : \* For urban households with at least two persons.

1. The Gini coefficient can range from 0 (perfect equality) to 1 (perfect inequality).

2. Relative poverty is defined as the share of the population that lives on less than half of the median income.

Source: OECD statistics Social Protection and Well-being, <http://stats.oecd.org/> (accessed October 3rd, 2015).

See also Lee and Moon (2015).

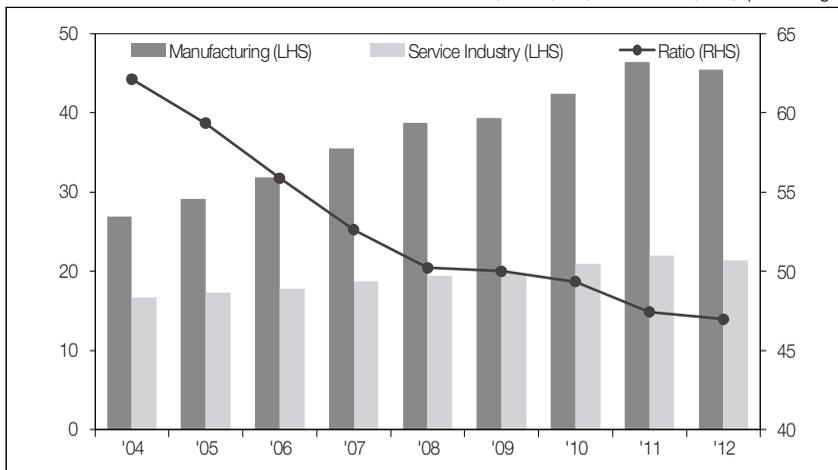
business cycles, we also calculate five year averages of those variables and confirm a similar upward trend. In addition, the relative poverty rate defined as the share of the population that lives on less than half of the median income has an upward trend. All these measures suggest that overall income inequalities have been growing.<sup>9)</sup>

In summary, the decrease in the growth of household income may contribute to the decrease in the growth of domestic demand because domestic demand includes consumption. In addition, the increase in firms saving rate to the extent that its saving rate is linked to the decrease in firms' investment may contribute to the decrease in the growth of domestic demand because domestic demand includes investment.

One reason for rising income inequality in Korea can be related to the labor productivity gap between small and medium-sized and

**Figure 2-14. Labor Productivity by Industry in Korea**

(Unit: (LHS) USD PPP (RHS) percentage)



Note: Productivity per hour.

Source: Korea Productivity Center (KPC) (2012), "International Analysis on Labor Productivity 2012."

9) Of course, this is not limited to Korea and a common phenomenon in the world, see e.g. Thomas Piketty (2014).

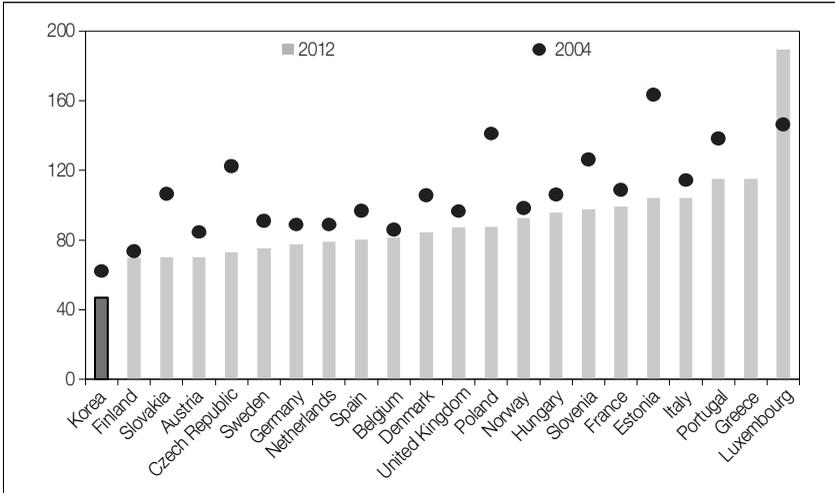
large-sized firms as well as between service industry and manufacturing industry. As shown in [Figure 2-14], the ratio of the labor productivity of service sector relative to manufacturing sector decreased from 62% in 2004 to 47% in 2012. Considering the fact that Korean export growth is mainly driven by large-sized firms and manufacturing sector, these labor productivity gaps result in wage inequality and thus contributes to increasing income inequality in the Korean economy.

Specifically, considering the large portion of total employment in service sector, the productivity gap between service sector and manufacturing sector can result in increasing in income inequality. Further, the share of service sector in total employment has been growing since 1993: it was 62.3% in 1993 and 74.1% in 2012. Finally, note that that small and medium-sized firms account for about 80% of output and 90% of employment in the service sector. This suggests that the productivity gap between the two sectors is closely linked to the productivity gap between small and medium-sized and large-sized firms.

Let us now discuss some reasons why productivity in the service sector has been low in Korea. One reason may be related to the effect of the Asian financial crisis on the labor markets. During the financial crisis, large-sized firms laid off a large number of workers that they hired before the crisis. Most of those unemployed were never reemployed. Instead, they entered franchise industries such as food, beverage, convenient stores, agency for selling mobile phones, etc. Since these franchise industries do not require particular types of human capitals to operate business, many unemployed relatively easily open their business in these industries for living. This business activity is called necessity-driven entrepreneurial activity and likely to contribute to lowering labor productivity in the service industry. In addition, as discussed in detail in Chapter IV, the labor market reform during/after the crisis generated a large proportion of non-regular workers in particular in the service industry which contributes to lowering its labor productivity.

Figure 2-15. Labor Productivity in Selected Countries

(Unit: percentage)



Note: Ratio of labor productivity of service industry to labor productivity of manufacturing.  
 Source: Korea Productivity Center (KPC) (2012), "International Analysis on Labor Productivity 2012".

## 5. Concluding Remarks

We showed that domestic demand growth has significantly declined since the Asian financial crisis. In particular, the growth rate has been close to zero in the last ten years. One possible reason can be found from the supply side. Following the financial crisis, large-sized firms have been restructured, shedding labor and investing abroad, and thus regained competitiveness. Those who could not follow suit, e.g., SMEs, fell behind compounding the pressure for the demand side. Moreover, regulatory environment disfavored growth of new industries and the service sector, rendering a good part of factors of production idle.

The other reason can be found from the demand side. After the Asian financial crisis, rapidly rising household debts sustained for a while. However, following the burst of the credit card lending boom, household consumption relative to income stagnated, depressing

domestic demand growth including investment.

These structural problems dampened the ripple effects from export growth mainly driven by large-sized firms after the financial crisis: Although large-sized firms have substantially increased their sales in foreign markets, they have substantially increased the use of foreign value added components. Small and medium-sized firms which account for about more than 80% of total employment in Korea have had relatively lower labor productivity than large-sized firms in Korea and their competitors in foreign countries. As a result, they have been losing their comparative advantage in global value chains, which in turn contribute to dampening the ripple effects from the export sector.

We propose two policy recommendations to tackle these structural problems. Policies should aim at increasing household income and mitigating dampened ripple effects from export sector. Those policies should contribute to improving labor productivities in small and medium-sized firms and service sector.

### **III. The Temporary Employment Contracts and the Productivity of Firms: Evidence from Korean Panel Data**

1. Introduction
2. Empirical Specification
3. Data
4. Estimation Results
5. Concluding Remarks



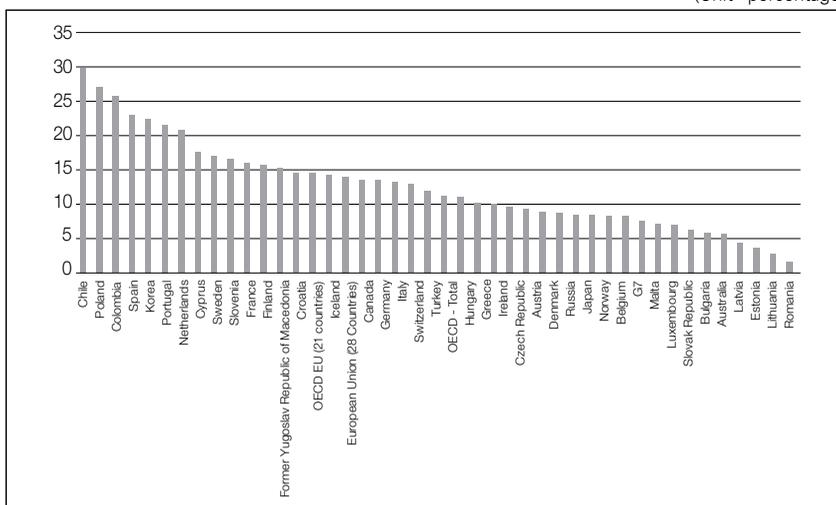
# 1. Introduction

In recent several decades, demands for labor market flexibility have led to substantial growth in temporary employment in many countries. Since Asian financial crisis of 1997-1998, Korea also experienced a rapid increase in the share of flexible form of labor. According to the OECD statistics, in Korea, temporary employment increased from 17 percent of total paid employment in 2001 to 29 percent in 2006, which is the fastest rate of growth among OECD countries (Grubb *et al.* 2007).

In addition, as shown in [Figure 3-1] which is based on the recent OECD's annual comparative data set on temporary employment, the Korean share of temporary employees in total dependent employment still remain among the highest of OECD countries. Whereas this share is below 10 percent in Australia, Belgium and the United Kingdom, it is well above 20 percent in Korea, Spain, and

**Figure 3-1. The Share of Temporary Employment to Total Dependent Employment**

(Unit: percentage)



Source: OECD's Annual Comparative Data Set (OECD.Stat), [https://stats.oecd.org/Index.aspx?DataSetCode=TEMP\\_I](https://stats.oecd.org/Index.aspx?DataSetCode=TEMP_I) (accessed October 19th, 2015).

Poland and Chile in 2013. The average incidence of temporary employment from OECD database is around 14 percent both in the OECD and in the European Union.

The increase in the share of temporary work has caught the attention of policy makers and researchers. It is because of the concern that a high share of the temporary work in the nation's total employment can potentially harm firms' productivity (Boeri and Garibaldi 2007; Sanchez and Toharia 2000), which will ultimately have a negative influence on economic growth of Korea.

In this paper, we investigate a link between temporary employment contract and firms' productivity using establishment panel data from Korea. Since it is possible that temporary workers' incentives to exert effort depends on the prospect of upgrading contracts from temporary to permanent (i.e., temp-to-perm), we also examine whether temp-to-perm conversion rate influences firm's productivity.

Temporary contracts are often considered as an important component of labor market flexibility. Because temporary employment under fixed-term contract requires much lower dismissal costs than regular open-ended contract, temporary employment has been used as a tool for enhancing labor market flexibility in economies where levels of employment protection are high. This seems to be a driving force behind the dramatic growth in temporary employment in countries such as Spain, Italy and France (Booth *et al.* 2002).

While temporary employment may potentially have beneficial effects on labor market by enhancing employment flexibility for firms, and on the decrease in the level of unemployment, it is claimed that ease of dismissal for temporary worker coupled with strict employment protection for regular permanent employment leads to a segmented dual labor market and widens the gap between permanent workers (insiders) and temporary workers with fixed-term contract (outsiders) who endure poor working conditions and lack of career advancement (Bentolila *et al.* 1994).

In addition to the influence on the workers' prospects, temporary employment contract and dual labor market structure can affect firms' productivity. Based on labor market data in Spain and Italy,

on the one hand, some researchers document a negative association between the share of temporary workers and firm's productivity (Boeri and Garibaldi 2007; Sanchez and Toharia 2000), which suggests that the flexibility of temporary employment contract leads to a short-term increase in labor demand that forces firms to increasingly hire less productive workers using flexible contracts (Boeri and Garibaldi 2007). On the other hand, some find that temporary employment contracts enhance firms' productivity. Temporary contracts provide employers with tools to screen employees and induce workers to exert high effort. Engelland and Riphahn (2005) support this argument by showing that temporary workers are more likely to undertake unpaid overtime work than permanent workers using the Labor Force Survey in Swiss.

While the influence of temporary contracts is somewhat mixed in the literature, the possibility of conversion to permanent contract (i.e., temp-to-perm conversion rate) can be an important factor that induces workers' efforts. Using data from Spanish manufacturing firms, Dolado *et al.* (2013) find that the larger gap in firing cost between permanent and temporary workers, which is reflected as low rate of conversion from temporary to permanent employment, negatively affects firm's productivity by reducing workers' efforts and training.

In light of these findings in the literature, this paper uses the Korea Workplace Panel Survey (KWPS) to examine whether temporary employment contracts influence firms' productivity and whether temp-to-perm conversion rate matters for firms' productivity using. To account for both time varying and time invariant firm heterogeneity which may cause spurious correlation between productivity and our key covariates (that is, variables on temporary employment and the temp-to-perm conversion rate), we apply fixed effects and system GMM estimation.

The estimation results show that having temporary worker is negatively associated with firms' productivity, and that the influence of temporary employment is nonlinear: the productivity is the lowest for firms whose ratio of temporary workers to the total workforce

is 5-10 percent. Furthermore, we find some evidence that higher temp-to perm conversion rate increase firms' productivity, which mitigate a negative influence of having temporary employment contracts. While the proportion of temporary employment decreases firms' productivity, these findings support the notion that the higher prospect of transitioning to permanent employment, which mitigates the extent of labor market segmentation, can increase workers' effort and potentially increase firms' productivity.

## 2. Empirical Specification

To examine the effect of using temporary employment on the firm's productivity, we specify a productivity regression which can be written as:

$$\ln y_{it} = \beta temp_{it} + \psi conv_{it} * temp_{it} + X_{it}\Gamma + \alpha_i + \gamma_t + \varepsilon_{it}, \quad (3-1)$$

where  $y_{it}$  represents the gross value added of firm  $i$  in year  $t$ .  $temp$  is a dummy variable that indicates the use of temporary employment so that it takes the value one if a firm uses temporary workers.<sup>10</sup>  $conv$  is the *temp-to-perm* conversion rate,  $X$  is a vector of control variables,  $\varepsilon_{it}$  is an idiosyncratic error term, and  $\alpha_i$  controls a firm specific effect and  $\gamma_t$  is a time fixed effect, respectively. The fixed-effect estimation can account for any time-invariant unobserved factors among firms, such as managerial ability and production technologies that determine both productivity and use of temporary workers.

It is possible, however, that certain time varying heterogeneity absorbed in the error term, such as unobserved productivity shocks,

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10) In order to look at whether the effect of temporary employment is nonlinear, we include a set of dummy variables that indicate the fractions of temps in total employment.

can simultaneously influence firm's productivity and the possibility of using of temporary employment. As a result, the coefficient estimates using fixed effects regression will still be biased. To control for both time invariant and time varying firm heterogeneity, we adopt the system GMM estimator proposed by Arellano and Bover (1995) and extended by Blundell and Bond (1998). The idea of system GMM estimator is to combine time differencing of the variables to eliminate the firm fixed effect with instrumenting endogenous variables with both lagged levels and lagged differences of these variables. For dynamic completeness of system GMM estimator, we include lagged value of independent variable in  $X$ .

### 3. Data

For the analysis, we use data from the Korea Workplace Panel Survey (KWPS). Funded by the Ministry of Employment and Labor, the KWPS began in 2005 with a stratified random sample of workplaces with 30 or more employees. The survey is conducted biannually and collected information on employment-related topics such as number of employees, the composition of its workforce, and the sales and financial status of establishments. In this paper, we use data from four survey years, 2005, 2007, 2009 and 2011 in order to investigate the effect of temporary contact use on the establishment's gross value added. While four waves of observation are just enough for estimating a dynamic panel model, we should note that some caution is needed in interpreting the coefficient estimates due to data limitation.

[Table 3-1] provides descriptive statistics for the sample used in the analysis. The data indicates that about 46 percent of sample workplaces (that is, 2,584 out of 5,646) use temporary employment contracts. On the one hand, the majority of the workplaces with temporary workers have 10 percent or smaller temporary employment ratio. On the other hand, more than 7 percent of workplaces with temporary workers have temps ratios that are larger than 50 percent.

The table shows that the probability of promoting to permanent worker for those who have temporary employment contracts is quite low: average temp-to-perm conversion rate is less than one

**Table 3-1. Descriptive Statistics of the Variables used in Productivity Regressions**

Variables	With temporary workers		Without temporary workers	
	Mean	Std. Dev.	Mean	Std. Dev.
Fraction of temporary contracts in total employment	0.1489	0.2035		
Fraction of temporary contracts (dummies)				
(0, 0.05]	0.4060	0.4912		
(0.05, 0.10]	0.1931	0.3948		
(0.10, 0.30]	0.2546	0.4357		
(0.30, 0.50]	0.0747	0.2629		
>0.50	0.0716	0.2579		
Conversion ratio	0.0822	0.2212		
Log gross value added	3.4943	9.0482	3.3998	8.5777
Employment total	643.283	1472.90	249.802	559.465
Log employment	5.6286	1.2197	4.7413	1.1248
Age of operation	24.4265	17.0167	19.6640	13.4212
Average weekly work hours	46.2763	5.1862	47.3439	5.5002
Log capital	10.7277	2.2170	10.0773	2.0672
Union (dummy)	0.5248	0.4995	0.2652	0.4415
Fraction of women in total employment	0.2744	0.2247	0.2664	0.2310
Fraction of young workers (under 30) in total employment	0.2190	0.1799	0.2132	0.2018
Fraction of old workers (over 50) in total employment	0.1384	0.1576	0.1521	0.1834
Fraction of part timers	0.0153	0.0671	0.0070	0.0555
Fraction of freelancers	0.0321	0.3090	0.0202	0.2342
Fraction of casual workers	0.1570	0.4915	0.1691	0.8626
Single establishment (dummy)	0.4598	0.4985	0.6349	0.4815
Foreign ownership (dummy)	0.0406	0.1975	0.0271	0.1624
Outsourcing (dummy)	0.3371	0.4728	0.3436	0.4750
Number of observations	2,584		3,062	

Source: Author's Calculation.

tenth (0.08). On average, the log value added for the establishments with temps is slightly higher than that of establishment with no temps.

As control variables, we include the log value of employment size as well as variables capturing the composition of workforce—the fraction of women and the fraction of young and old workers as well as the fraction of any flexible employment such as part timers, freelancers, and casual workers that could be substitutes for or complements to temporary employment contracts workers. [Table 3-1] indicates that the establishments with temps tend to be older, have a larger size of employment, and are more likely to have union than the workplaces with no temps. In addition, the table shows that establishments with temps are more likely to be owned by foreigners than those without temps.

## 4. Estimation Results

As a baseline estimation, we estimate the productivity regression using the pooled OLS. The estimated coefficients with standard errors clustered at the establishment level are presented in [Table 3-2]. In the first column, we include a dummy variable indicating the use of temporary contracts and the result reveals that the use of temporary contract is negatively associated with productivity of the firm. In a second specification, we include a set of dummy variables indicating factions of temps in total employment. Column 2 in [Table 3-2] indicates that the effect of temporary employment is nonlinear—the productivity is substantially low only when the faction of temps is between 0.05 and 0.30, suggesting that the low productivity found for the workplace with temps is mainly driven by those having intermediate levels of temporary workers. In Specification 3 and 4, we include the interaction of temp-to-perm conversion ratio with the dummy variable(s) on temporary employment. According to the results reported in column 4, the estimated coefficient for the interaction term is positive and significant at 10

percent level, which indicates that the low productivity associated with temporary employment contracts is largely mitigated as the conversation prospect into permanent contract increases.

To account for time-invariant unobserved heterogeneity, we estimate the productivity regression using fixed effects model (i.e., within estimation). The estimation results are presented in [Table 3-3]. Although the coefficients for dummy variables for temporary employment, which are shown in specification 1 to 3, are statistically insignificant, the estimates from specification 4 reveals that the productivity is substantially low when the fraction of temps is between 0.05 and 0.10 and that the low productivity associated with temporary employment contracts dramatically decreases as temp-to-perm conversation rate increases. The large standard errors reported in [Table 3-3] are potentially due to the attenuation bias, which is often amplified in within estimators (fixed effect models).

The estimation results from fixed effects model, however, may still suffer from bias driven by time varying unobserved heterogeneity. To deal with this issue, we adopt the system GMM estimator discussed in the previous section. [Table 3-4] presents the estimation results from the system GMM estimation. Consistent with the findings from previous models, the estimated coefficients indicate that the productivity of workplace with temps is substantially low only when the fraction of temps is between 0.005 and 0.30, suggesting that the low productivity of establishment with temps is mainly from those that have intermediate levels of temporary workers. Also, in column 4, the estimated coefficient for the interaction terms is positive and statistically significant, which indicates that the low productivity associated with temporary employment contracts largely reduces as the conversation prospect to permanent contract increases.

**Table 3-2. The Estimation Results from OLS Regression**

Variables	(1)	(2)	(3)	(4)
Temporary contracts (dummy)	-0.5324*		-0.6455*	
	(0.2630)		(0.3025)	
Temporary contracts*Conversion ratio			0.1520	
			(0.8550)	
Fraction of temporary contracts (dummies)				
(0, 0.05]		-0.2695		-0.4039
		(0.3403)		(0.4117)
(0.05, 0.10]		-1.0292*		-1.3901*
		(0.4459)		(0.5626)
(0.10, 0.30]		-0.8743*		-0.7941
		(0.4356)		(0.4982)
(0.30, 0.50]		-0.0879		-0.1066
		(0.6229)		(0.7868)
>0.50		0.0697		0.1616
		(0.6534)		(0.7784)
(0, 0.05]*Conversion ratio				0.5032
				(1.1333)
(0.05, 0.10]*Conversion ratio				2.9182+
				(1.6047)
(0.10, 0.30]*Conversion ratio				-1.7082
				(2.1542)
(0.30, 0.50]*Conversion ratio				-3.8877
				(4.0829)
>0.50*Conversion ratio				-0.6671
				(3.5201)
Log employment	0.4593**	0.4422**	0.5694**	0.5419**
	(0.1485)	(0.1487)	(0.1613)	(0.1621)
Age of operation	-0.0043	-0.0034	-0.0043	-0.0033
	(0.0111)	(0.0111)	(0.0121)	(0.0120)
Average weekly work hours	0.0023	0.0015	0.0236	0.0242
	(0.0231)	(0.0231)	(0.0263)	(0.0264)

**Table 3-2. Continued**

Variables	(1)	(2)	(3)	(4)
Log capital	1.2461** (0.0844)	1.2475** (0.0849)	1.2872** (0.0893)	1.2887** (0.0898)
Union (dummy)	-2.5671** (0.3593)	-2.5301** (0.3599)	-2.3804** (0.4022)	2.3363** (0.4044)
Fraction of women in total employment	0.9103 (0.6005)	0.9038 (0.6067)	1.3296* (0.6678)	1.3292* (0.6784)
Fraction of young workers in total employment	1.5343* (0.6751)	1.5345* (0.6755)	1.6680* (0.7656)	1.6791* (0.7682)
Fraction of old workers in total employment	-0.9822 (0.8794)	-1.0819 (0.8777)	-1.1744 (0.9561)	-1.3046 (0.9553)
Fraction of part timers	-0.3620 (1.7795)	-0.4290 (1.7841)	0.0920 (2.1084)	0.0280 (2.1119)
Fraction of freelancers	-1.0022* (0.5808)	-0.9787* (0.5774)	-0.7713 (0.5396)	-0.7517 (0.5341)
Fraction of casual workers	0.3089** (0.0868)	0.3008** (0.0867)	0.3849** (0.1466)	0.3640* (0.1477)
Single establishment (dummy)	-0.5051 (0.3385)	-0.4949 (0.3389)	-0.5201 (0.3759)	-0.4945 (0.3768)
Foreign ownership (dummy)	0.1420 (0.6906)	0.1469 (0.6905)	0.3111 (0.9595)	0.3220 (0.9543)
Outsourcing (dummy)	0.8638** (0.2539)	0.8479** (0.2537)	0.5603* (0.2952)	0.5440* (0.2960)
Observations	5,646	5,646	4,220	4,220
R-squared	0.1230	0.1239	0.1331	0.1348

Note: 1) Robust standard errors adjust for correlation within establishments is in parentheses.

2) A set of year dummy variables is included.

3) \*\* p<0.01, \* p<0.05, + p<0.1

Source: Author's Calculation.

**Table 3-3. The Estimation Results from Fixed Effects Regression**

Variables	(1)	(2)	(3)	(4)
Temporary contracts (dummy)	-0.3220 (0.3227)		-0.5320 (0.4088)	
Temporary contracts*Conversion ratio			1.0051 (0.9439)	
Fraction of fixed terms (dummies)				
(0, 0.05]		-0.1670 (0.3941)		-0.4596 (0.4937)
(0.05, 0.10]		-0.7475 (0.4887)		-1.5606* (0.6684)
(0.10, 0.30]		-0.4444 (0.5258)		-0.4541 (0.6695)
(0.30, 0.50]		0.4870 (0.7862)		0.7942 (1.0728)
>0.50		-0.5700 (0.8632)		0.2003 (1.1186)
(0, 0.05]*Conversion ratio				1.7863 (1.1146)
(0.05, 0.10]*Conversion ratio				3.3025+ (1.9867)
(0.10, 0.30]*Conversion ratio				-1.8160 (2.1932)
(0.30, 0.50]*Conversion ratio				-2.4251 (3.7997)
>0.50*Conversion ratio				-0.3154 (7.7256)
Log employment	0.3003 (0.3968)	0.2770 (0.3985)	0.1958 (0.4800)	0.1037 (0.4815)
Age of operation	0.1426 (0.1687)	0.1352 (0.1691)	0.1788 (0.1945)	0.1763 (0.1951)
Average weekly work hours	0.0125 (0.0284)	0.0119 (0.0284)	0.0462 (0.0335)	0.0462 (0.0335)
Log capital	0.5665* (0.2227)	0.5608* (0.2224)	0.5217* (0.2478)	0.5098* (0.2447)

**Table 3-3. Continued**

Variables	(1)	(2)	(3)	(4)
Union (dummy)	-0.5371 (0.8963)	-0.5497 (0.8972)	-0.0225 (0.8738)	-0.0790 (0.8832)
Fraction of women in total employment	1.1988 (1.9902)	1.2522 (1.9920)	-0.2851 (2.3376)	-0.3802 (2.3677)
Fraction of young workers in total employment	0.1828 (0.8410)	0.1990 (0.8406)	0.5858 (1.0214)	0.5896 (1.0196)
Fraction of old workers in total employment	-0.2906 (1.0818)	-0.2747 (1.0801)	-0.9337 (1.2146)	-0.9517 (1.2175)
Fraction of part timers	-0.4393 (2.0113)	-0.5103 (2.0191)	1.0595 (3.0179)	1.5684 (2.9821)
Fraction of freelancers	-0.4808 (0.4434)	-0.4880 (0.4446)	0.2462 (0.2553)	0.2349 (0.2567)
Fraction of casual workers	0.0578 (0.1490)	0.0585 (0.1504)	0.0221 (0.2069)	-0.0093 (0.2150)
Single establishment (dummy)	0.5047 (0.6288)	0.4644 (0.6289)	0.1897 (0.8879)	0.1183 (0.8887)
Foreign ownership (dummy)	-0.7275 (0.7793)	-0.6808 (0.7814)	0.0902 (1.1235)	0.0846 (1.1358)
Outsourcing (dummy)	0.4727 <sup>+</sup> (0.2870)	0.4587 (0.2876)	0.1918 (0.3658)	0.1723 (0.3675)
Observations	5,646	5,646	4,220	4,220
R-squared	0.0088	0.0096	0.0102	0.0135
Number of establishments	2,211	2,211	1,943	1,943

Note: 1) Robust standard errors adjust for correlation within establishments is in parentheses.

2) A set of year dummy variables is included.

3) \*\* p<0.01, \* p<0.05, + p<0.1

Source: Author's Calculation.

**Table 3-4. The Estimation Results from System GMM Regression**

Variables	(1)	(2)	(3)	(4)
Temporary contracts (dummy)	-0.7498 (0.4621)		-0.8472* (0.4662)	
Temporary contracts*Conversion ratio			1.6902 (1.1205)	
Fraction of fixed terms (dummies)				
(0, 0.05]		-0.3040 (0.5344)		-0.3897 (0.5410)
(0.05, 0.10]		-1.6044* (0.6998)		-2.1387** (0.7586)
(0.10, 0.30]		-1.3191* (0.7763)		-1.1119 (0.8049)
(0.30, 0.50]		0.3494 (1.0738)		1.1254 (1.2789)
>0.50		-0.2832 (1.4955)		0.2638 (1.6170)
(0, 0.05]*Conversion ratio				1.8606 (1.3704)
(0.05, 0.10]*Conversion ratio				5.6348* (2.6609)
(0.10, 0.30]*Conversion ratio				-1.6200 (2.5752)
(0.30, 0.50]*Conversion ratio				-3.3372 (4.2250)
>0.50*Conversion ratio				-2.3106 (7.3836)
Lagged log value added	0.0929* (0.0450)	0.1063* (0.0421)	0.0923* (0.0450)	0.1131** (0.0416)
Log employment	0.2443 (0.6278)	0.2347 (0.6273)	0.3083 (0.6104)	0.2131 (0.6170)
Age of operation	0.0977 (0.2824)	-0.0646 (0.1453)	0.1070 (0.2819)	-0.0994 (0.1294)
Average weekly work hours	0.0635 (0.0416)	0.0668 (0.0416)	0.0622 (0.0415)	0.0715* (0.0416)
Log capital	0.5879* (0.3328)	0.5519* (0.3266)	0.6028* (0.3232)	0.5887* (0.3064)

**Table 3-4. Continued**

Variables	(1)	(2)	(3)	(4)
Union (dummy)	-1.2735 (1.0254)	-1.9644* (1.0863)	-1.1444 (1.0417)	-1.8059* (1.0927)
Fraction of women in total employment	1.7324 (3.2058)	1.5262 (3.2414)	1.8443 (3.2061)	1.0196 (3.2325)
Fraction of young workers in total employment	0.9601 (1.3432)	1.1335 (1.3502)	0.9941 (1.3450)	1.0460 (1.3554)
Fraction of old workers in total employment	-1.2978 (1.8054)	-1.0712 (1.8257)	-1.3377 (1.8118)	-0.9725 (1.8276)
Fraction of part timers	-0.8640 (2.7913)	-0.9019 (2.8274)	-0.8227 (2.7868)	-0.1188 (2.9213)
Fraction of freelancers	0.4868 (0.4156)	0.4433 (0.4280)	0.5111 (0.4093)	0.5119 (0.4350)
Fraction of casual workers	-0.4217 (0.2639)	-0.3712 (0.2663)	-0.4077 (0.2631)	-0.3741 (0.2656)
Single establishment (dummy)	0.8966 (1.2171)	0.8522 (1.2211)	0.8168 (1.1856)	0.9172 (1.1829)
Foreign ownership (dummy)	0.7586 (1.7240)	0.6375 (1.7606)	0.8220 (1.7207)	0.3440 (1.7703)
Outsourcing (dummy)	0.3559 (0.4690)	0.3696 (0.4726)	0.3568 (0.4677)	0.3934 (0.4744)
Observations	3,242	3,242	3,242	3,242
Number of establishments	1,505	1,505	1,505	1,505

Note: 1) Robust standard errors adjust for correlation within establishments is in parentheses.

2) A set of year dummy variables is included.

3) \*\*  $p < 0.01$ , \*  $p < 0.05$ , +  $p < 0.1$

Source: Author's Calculation.

## 5. Concluding Remarks

In this paper, we examine the link between temporary employment contract and on firms' productivity in Korea. Because it is possible that temporary workers' incentives to exert effort depends on the prospect of upgrading contracts from temporary to permanent, we

also examine whether *temp-to-perm* conversion rate influences firm's productivity. To account for both time varying and time invariant firm heterogeneity which may cause spurious correlation between productivity and our endogenous nature of our key covariates (variables on temporary employment and the *temp-to-perm* conversion rate), we apply fixed effects and system GMM estimation a nationally representative establishment panel data sets, the KWPS 2005-2011.

The estimated results of our analysis reveal that having temporary worker decreases firms' productivity but that the influence of temporary employment is nonlinear: the productivity is the lowest for the firms that have 5 to 10 percent of total workforce is temporary employment. Also, we find some evidence that higher temp-to perm conversion rate increase the productivity, which mitigate negative influence of having temporary employment contracts. While temporary employment appears to decrease firms' productivity, these findings support the facts that the higher prospect of transitioning to permanent employment—which mitigates the extent of labor market segmentation by increasing upward mobility of workers, reduces negative influence of using temporary employment and can increase firm's productivity.

## **IV. Households Debts and Consumption: Necessity-driven Entrepreneurs**

1. Introduction
2. Necessity-driven Entrepreneurs
3. Empirical Framework
4. Empirical Results
5. Concluding Remarks



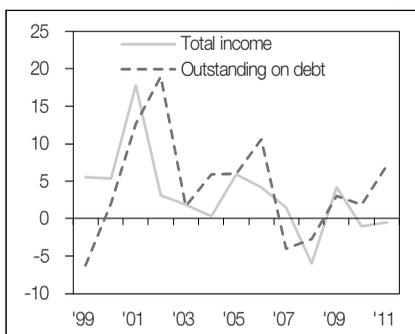
# 1. Introduction

As shown in Chapter II, the ratio of private consumption to GDP has decreased steadily in particular after the credit card lending boom period. There has been no sign that it turns its direction. In addition, individual savings rate (defined by the ratio of the individual saving to disposable income) significantly declined after the Asian financial crisis. We also showed that the decline in the growth of households' real disposable income, as shown in [Figure 2-11], mainly causes these two variables simultaneously to decrease. In turn, we showed that the decrease in the growth of the real disposable income is closely linked to the significant increase in the ratio of household debt to the disposable income as in [Figure 2-12].

We also confirm the increase in household debts using a household panel dataset, Korean Labor and Income Panel Study (KLIPS) launched by Korea Labor Institute in 1998. KLIPS is a longitudinal survey of the labor market and income activities of households and individuals residing in urban areas. The dataset has provided income, expenditures, assets and debts. As shown in [Figure 4-1], the growth of real household income has been significantly decreased

**Figure 4-1. Growths of Income & Debt**

(Unit: percentage)

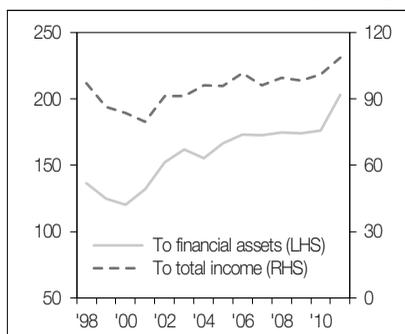


Note: Nominal data is deflated by CPI inflation rate.

Source: KLIPS, <http://www.kli.re.kr/klips/index.do> (accessed October 1st, 2015).

**Figure 4-2. Ratios of Financial Liabilities**

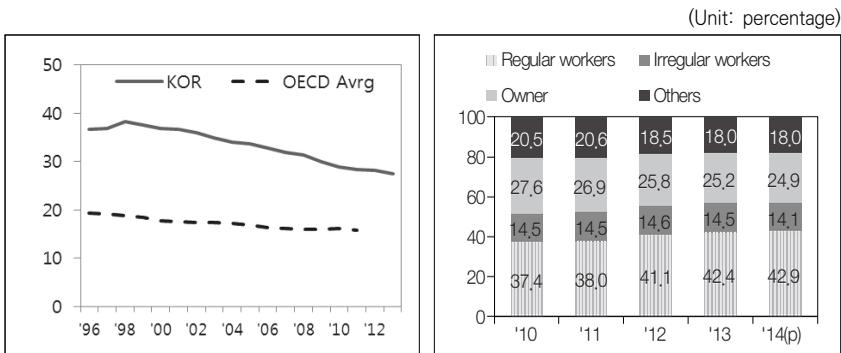
(Unit: percentage)



after the credit card lending boom. [Figure 4-2] also describes that the ratios of financial debt to financial assets and of financial debt to income have significant upward trends after the credit card lending boom.

As mentioned in Chapter II, one possible reason for the decrease in the household disposable income and for the increase in the household debt is linked to the presence of the significant share of self-employed workers (that is, necessity-driven entrepreneurs).<sup>11)</sup> As shown in the first panel of [Table 4-3], the proportion of necessity-driven entrepreneurs among all paid workers in Korea was 36.8% in 1999 which is much greater than the OECD average<sup>12)</sup>. Although this proportion has been decreased since then, it still has remained at a high level of 27.4% in 2013.

**Figure 4-3. The Ratios of the Self-employed among all Paid Workers and all Employments**



Source: OECD Statistics Labour Force Statistics, <http://stats.oecd.org/> (accessed October 1st, 2015).

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabId=M\\_01\\_01&parentId=B.1;B2.2;B2\\_336\\_33601\\_01.3;#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabId=M_01_01&parentId=B.1;B2.2;B2_336_33601_01.3;#SubCont) (accessed October 1st, 2015).

- 11) Hereafter, we use the terms “self-employed workers (households)” and “necessity-driven entrepreneurs” synonymously.
- 12) According to OECD, the self-employment is defined as workers who work for themselves, members of producers’ co-operatives, and unpaid family workers.

Despite of the decrease in the proportion of the self-employed workers, the number of the self-employed workers has been increased by 10.4% from 2009 to 2013.<sup>13)</sup> In particular, the number of the self-employed small business owners such as the fast-food related restaurants and cell-phone agencies increased sharply. For instance, the number of self-employed households who operate a restaurant selling chicken, pizza, and hamburger has increased by 64.1% from 2009 to 2013 (See Table 1 in Appendix for more details on the statistics about 30 major categories of necessity-driven entrepreneurs in Korea, which are provided by the National Tax Services, and the difference in the number of business in each categories between 2009 and 2013). The rise in the number of self-employed households leads to high competition which results in a substantial decrease in income. In addition to the problems created by low incomes, the self-employed households may struggle with heavy debt (i.e., business loans). In what follows, we look into the characteristics of necessity-driven entrepreneurs in detail so that we can better understand links among household debt, consumption, and domestic demand.

## 2. Necessity-driven Entrepreneurs

This subsection aims at explaining the seriousness of household debt problem, especially on the self-employed households, by looking at financial soundness indicators and making comparisons by work status classified into regular workers, irregular workers (i.e., temporary employees and daily workers), self-employed workers, and other workers.<sup>14)</sup> To do this, we use the database of Survey of Household Finance and Living Conditions (SFLC) released by the

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13) According to the National Tax Service (<http://www.nts.go.kr/news>, accessed by November 8th, 2015), the total number of self-employed households in 2009 is 4,874(thousands), while it is 5,379(thousands) in 2013.

14) Other workers include unpaid family workers, the jobless.

**Table 4-1. Items of SFLC**

Item		Description
Total assets	┌ Financial	Savings, A deposit for a lease
	└ Non-financial <sup>15)</sup>	Real estate, Other than non-financial assets
Total liabilities	┌ Holding of debts	Secured loan <sup>16)</sup>
	└ Others	Receiving money from a lease
Net worth		Total assets minus total liabilities
Income <sup>17)</sup>		current income (wage and salary income, business income, property income, transfer income) and noncurrent income
Expenditure		consumption expenditure to buy goods & services and non-consumption expenditure

Source: Statistics Korea, "2014 Survey of Household Finance and Living Conditions".

Statistics Korea, the Bank of Korea and the Financial Supervisory Service which has collected information such as the size, composition, and distribution of income, assets, debts, and expenses according to household work status every year since 2010.

We begin with comparing income and debt across working types (i.e., regular workers and self-employed workers). The self-employed workers' income is about 90% of regular worker's income, which is shown in [Figures 4-4 and 4-5].<sup>18)</sup> Note that the total income (or disposable income) differences between two groups are not significant. It should be also noted that the self-employed tend to underreport their income relative to wage workers, thus the income gaps between the two may not be a critical issue in order to capture the difference in consumption behavior between two groups. Nevertheless, this does not mean that the decrease in the growth of household real disposal income has no connection with the decrease in household consumption and thus domestic demand.

15) Primary residence, other than primary residence, down payment and middle payment, vehicles, other than vehicles.

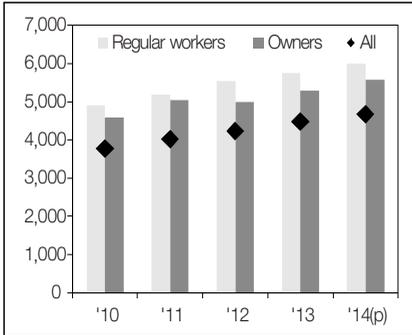
16) Mortgages on both the real estate and the primary residence.

17) Disposable income is regular income minus non-consumption expenditures.

18) The average income of irregular workers is about half of regular workers.

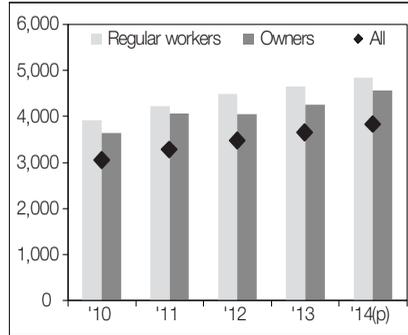
**Figure 4-4. Total Income**

(Unit: 10 thousand won)



**Figure 4-5. Disposable Income**

(Unit: 10 thousand won)



Note: 1) On average. 2) Data in 2014 preliminary.

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabl=M\\_01\\_01&parentId=B.1:B2.2:B2\\_33601\\_01.3:#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabl=M_01_01&parentId=B.1:B2.2:B2_33601_01.3:#SubCont) (accessed October 1st, 2015).

In contrast to income, the financial debts (total liabilities) of self-employed workers are 1.3-1.7% (1.5-2.0%) higher than that of regular workers, which directly shows the seriousness of self-employed households' debt problem (see Figures 4-6 and 4-7).

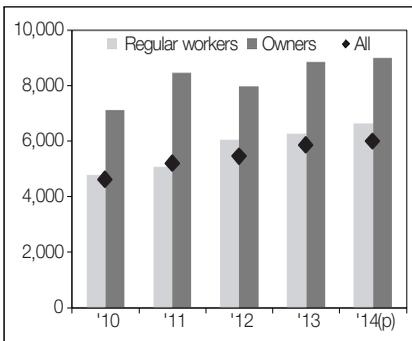
To be more specific, the main sources of financial liabilities of self-employed workers are loans (i.e., collateral loans, credit loans, credit card-related loans, etc.) and installment balance, which account for about 75% of total debts since 2010. Besides, the financial- to total-liabilities ratio of self-employed workers is nearly 10% higher than regular workers. These facts together imply that the self-employed households' burden of liabilities due to repayment of principal and interest is heavier than that of regular workers that may results in the decrease of consumption. According to SFLC in 2012, 72.3 percent of self-employed households that have financial liabilities replied that 'repaying principal and interest is burdensome' while 62.9 percent of regular workers with financial liabilities responded the same.

In addition, the self-employed households suffer from enterprising funds (i.e., business loans) that accounts for 65 percent out of total credit loans and 47 percent out of total secured loans (see Table

4-2). In contrast to self-employed, the enterprising funds of regular workers in 2014 accounts for 8.9 percent out of total credit and 7.2 percent out of total secured loans, respectively. Instead, regular workers tend to use a large part of their credit loans for living expenditures (23.6% out of total credit loans), which is directly related to consumption expenditure. See [Table 2] in Appendix for more details on the composition of total credit and secured loans across purpose of uses.

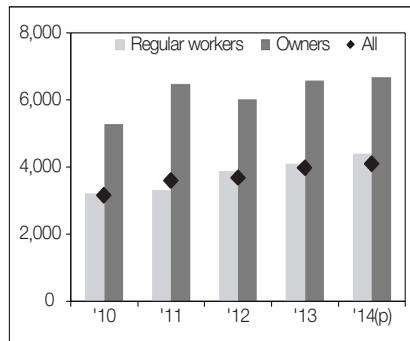
**Figure 4-6. Total Liabilities**

(Unit: 10 thousand won)



**Figure 4-7. Financial Debts**

(Unit: 10 thousand won)



Note: On average.

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabId=M\\_01\\_01&parentId=B.1:B2.2:B2\\_336\\_33601\\_01.3:#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabId=M_01_01&parentId=B.1:B2.2:B2_336_33601_01.3:#SubCont) (accessed October 1st, 2015).

**Table 4-2. Utility of Credit Loan by Self-employed Households**

(Unit: percentage)

	Housing	Other than Housing	Deposits for lease	Repayments	Enterprising funds	Living expenditures	Etc.
'10	3.3 (25.6)	1.4 (18.1)	1.2 (2.0)	4.8 (3.7)	71.0 (45.5)	9.7 (1.2)	8.6 (3.9)
'11	6.5 (23.4)	2.0 (18.4)	1.6 (1.3)	5.4 (3.3)	58.8 (48.4)	9.8 (1.5)	15.9 (3.7)
'12	4.8 (27.1)	2.4 (16.5)	3.5 (2.2)	2.9 (1.1)	66.5 (48.0)	12.6 (1.6)	7.3 (3.5)
'13	4.6 (26.4)	2.8 (15.3)	2.6 (2.3)	3.6 (2.2)	69.7 (48.2)	11.2 (2.7)	5.3 (2.7)
'14(p)	4.5 (27.7)	6.5 (16.0)	2.6 (2.5)	4.0 (1.7)	64.9 (46.7)	10.4 (2.0)	7.1 (3.3)

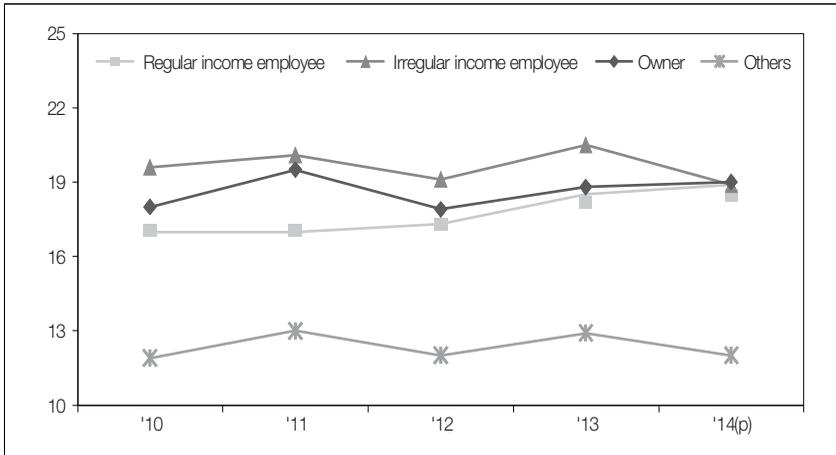
Note: Numbers in brackets means utility of secured loan by self-employed households.

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabId=M\\_01\\_01&parentId=B.1:B2.2:B2\\_336\\_33601\\_01.3:#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabId=M_01_01&parentId=B.1:B2.2:B2_336_33601_01.3:#SubCont) (accessed October 1st, 2015).

Now, we investigate some indicators that are often used for the financial soundness of individual households. As shown in [Figure 4-8], the ratios of total debts to total assets are similar across all households except for unpaid family workers who have particularly low total debt-to-total assets ratio. However, the ratio of total liabilities to financial assets (Figure 4-9) and the ratio of total liabilities to disposable income (Figure 4-10) clearly differs between self-employed and other paid workers, which may capture a debt problem of self-employed households. In particular, the total debt-to- disposable income ratio is much higher for self-employed households compared to the other wage workers, which is shown in [Figure 4-10]. More details on the ratios of total liabilities to i) total assets, ii) financial assets, and iii) disposable income across different groups are provided in [Table 4-3].

**Figure 4-8. The Ratio of Total Liabilities to Total Assets**

(Unit: percentage)



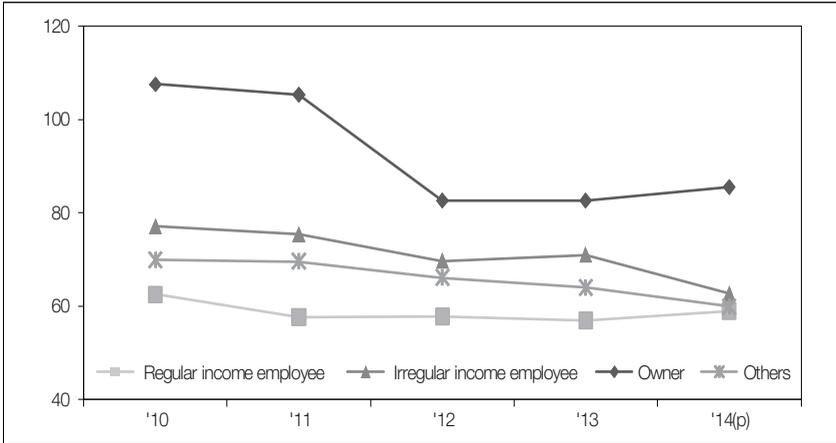
Note: 1) Preliminary data in 2014.

2) Average of all households.

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabl=M\\_01\\_01&parentId=B.1:B2.2:B2\\_336\\_33601\\_01.3:#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabl=M_01_01&parentId=B.1:B2.2:B2_336_33601_01.3:#SubCont) (accessed October 1st, 2015).

**Figure 4-9. The Ratio of Total Liabilities to Financial Assets**

(Unit: percentage)

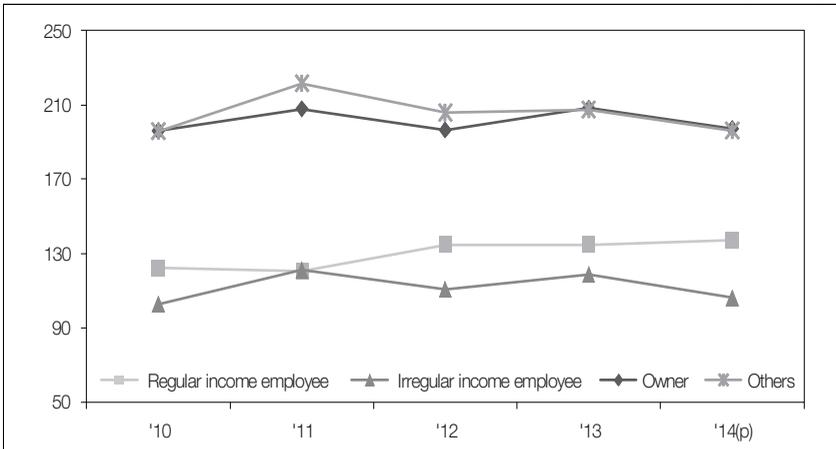


Note: same as [Figure 4-8].

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabld=M\\_01\\_01&parentld=B.1;B2.2;B2\\_336\\_33601\\_01.3;#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabld=M_01_01&parentld=B.1;B2.2;B2_336_33601_01.3;#SubCont) (accessed October 1st, 2015).

**Figure 4-10. The Ratio of Total Liabilities to Disposable Income**

(Unit: percentage)



Note: same as [Figure 4-8].

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabld=M\\_01\\_01&parentld=B.1;B2.2;B2\\_36\\_33601\\_01.3;#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabld=M_01_01&parentld=B.1;B2.2;B2_36_33601_01.3;#SubCont) (accessed October 1st, 2015).

**Table 4-3. Total Liabilities Ratios of all 4 Groups**

(Unit: percentage)

	All	Regular income employee	Irregular income employee	Owner	Others
'10 Total assets	16.7 (22.2)	17.0 (22.4)	19.6 (28.9)	18.0 (22.4)	11.9 (19.2)
'10 Financial assets	78.5 (119.1)	62.5 (92.7)	77.1 (142.8)	107.5 (145.5)	69.9 (145.5)
'10 Disposable income	151.6 (222.9)	122.0 (177.2)	102.7 (184.5)	196.0 (262.1)	195.7 (375.6)
'11 Total assets	17.5 (22.5)	17.0 (21.7)	20.1 (27.9)	19.5 (22.9)	13.0 (21.1)
'11 Financial assets	75.4 (110.2)	57.7 (83.3)	75.4 (121.9)	105.3 (133.3)	69.6 (158.7)
'11 Disposable income	158.5 (220.6)	120.4 (166.8)	121.1 (200.9)	207.8 (257.4)	221.5 (453.9)
'12 Total assets	16.9 (21.2)	17.3 (21.4)	19.1 (26.8)	17.9 (21.4)	12.0 (17.6)
'12 Financial assets	66.9 (92.0)	57.8 (78.5)	69.7 (109.8)	82.6 (103.9)	66.1 (122.1)
'12 Disposable income	156.8 (210.1)	134.6 (177.1)	110.7 (173.4)	196.5 (246.2)	205.8 (359.5)
'13 Total assets	17.9 (22.2)	18.5 (22.6)	20.5 (27.8)	18.8 (22.1)	12.9 (18.4)
'13 Financial assets	66.4 (90.2)	56.9 (76.3)	71.0 (110.9)	82.6 (102.7)	64.0 (117.2)
'13 Disposable income	160.5 (212.2)	134.6 (174.7)	118.8 (181.5)	208.2 (257.9)	207.4 (355.9)
'14 (p) Total assets	18.0 (22.6)	18.9 (23.5)	18.9 (26.2)	19.0 (22.3)	12.0 (18.1)
'14 (p) Financial assets	67.1 (94.3)	59.0 (82.6)	62.7 (98.4)	85.5 (107.1)	59.9 (119.7)
'14 (p) Disposable income	156.4 (208.4)	136.9 (181.3)	106.0 (164.3)	197.2 (240.0)	196.1 (353.6)

Note: Numbers in brackets for households possessing liabilities.

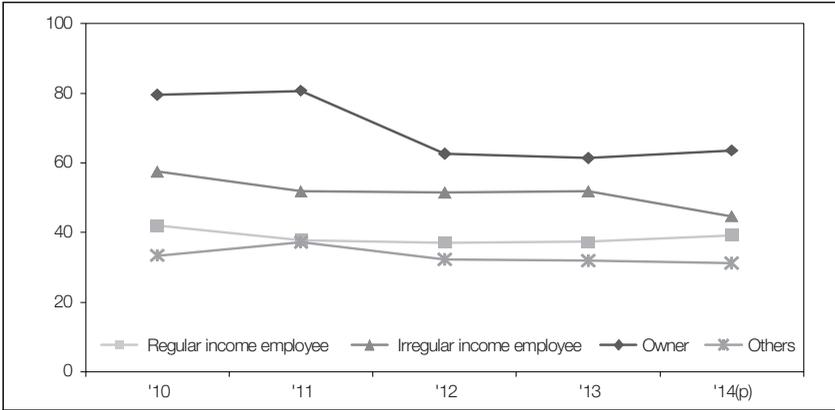
Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?wcd=MT\\_ZTITLE&parmTabd=M\\_01\\_01&parentId=B.1:B2.2:B2\\_336\\_33601\\_01.3:#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?wcd=MT_ZTITLE&parmTabd=M_01_01&parentId=B.1:B2.2:B2_336_33601_01.3:#SubCont) (accessed October 1st, 2015).

Similarly, the differences in the proportion of financial liabilities to financial assets (or disposable income) between self-employed and regular workers are huge. On the one hand, the financial debts of regular workers only account for about 38% of their financial assets on average. On the other hand, the ratio of self-employed households' financial debts to financial assets peaked in 2011, accounting for nearly 81% of their financial assets, and then reduced to some extent. However, this is still significantly higher than regular workers, which is shown in [Figure 4-11].

As shown in [Figure 4-12], the financial liabilities of self-employed households are about 1.5 times of disposable income, which is nearly 1.5 to 2 times higher than that of households with wage earner householder.<sup>19)</sup> More details on the ratios of financial liabilities

**Figure 4-11. The Ratio of Financial Liabilities to Financial Assets**

(Unit: percentage)

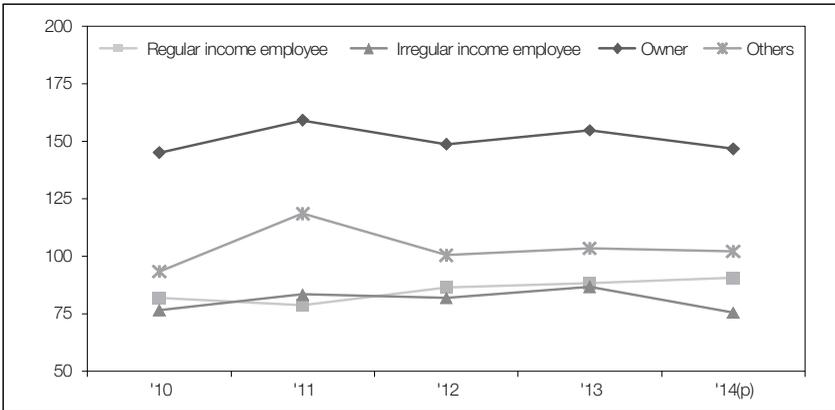


Note: same as [Figure 4-8].

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabld=M\\_01\\_01&parentld=B.1;B2.2;B2\\_336\\_33601\\_01.3;#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabld=M_01_01&parentld=B.1;B2.2;B2_336_33601_01.3;#SubCont) (accessed October 1st, 2015).

**Figure 4-12. The Ratio of Financial Liabilities to Disposable Income**

(Unit: percentage)



Note: same as [Figure 4-8].

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabld=M\\_01\\_01&parentld=B.1;B2.2;B2\\_336\\_33601\\_01.3;#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabld=M_01_01&parentld=B.1;B2.2;B2_336_33601_01.3;#SubCont) (accessed October 1st, 2015).

- 19) As noted previously, the proportion of unemployed households' financial liabilities is strikingly higher than that of financial assets, which is believed to be due to their remarkably low disposable income.

to i) financial assets and ii) disposable income are provided in [Table 4-4]. The distinction of the financial debt-to-income ratio between self-employed and regular-income households may relate to the decrease of the self-employed households' consumption, and hence overall domestic demand.

**Table 4-4. Financial Liabilities Ratios of all Groups**

(Unit: percentage)

		All		Regular income employee		Irregular income employee		Owner		Others	
'10	Financial assets	53.5	(81.2)	42.0	(62.3)	57.5	(106.6)	79.6	(107.7)	33.4	(69.5)
	Disposable income	103.4	(152.1)	82.0	(119.1)	76.6	(137.7)	145.1	(194.0)	93.4	(179.3)
'11	Financial assets	52.1	(76.2)	37.8	(54.6)	51.9	(84.0)	80.7	(102.2)	37.2	(84.9)
	Disposable income	109.6	(152.4)	78.9	(109.2)	83.4	(138.5)	159.2	(197.2)	118.5	(243.0)
'12	Financial assets	45.3	(62.2)	37.1	(50.5)	51.5	(81.2)	62.6	(78.7)	32.3	(59.6)
	Disposable income	106.0	(142.1)	86.6	(113.9)	81.9	(128.3)	148.8	(186.5)	100.5	(175.6)
'13	Financial assets	45.0	(61.2)	37.3	(50.1)	51.9	(81.1)	61.4	(76.4)	31.9	(58.4)
	Disposable income	108.8	(143.9)	88.3	(114.6)	86.9	(132.7)	154.8	(191.7)	103.4	(177.4)
'14 (p)	Financial assets	45.8	(64.4)	39.1	(54.7)	44.7	(70.2)	63.6	(79.7)	31.2	(62.3)
	Disposable income	106.8	(142.4)	90.7	(120.1)	75.6	(117.3)	146.7	(178.6)	102.1	(184.1)

Note: Numbers in brackets for households possessing liabilities.

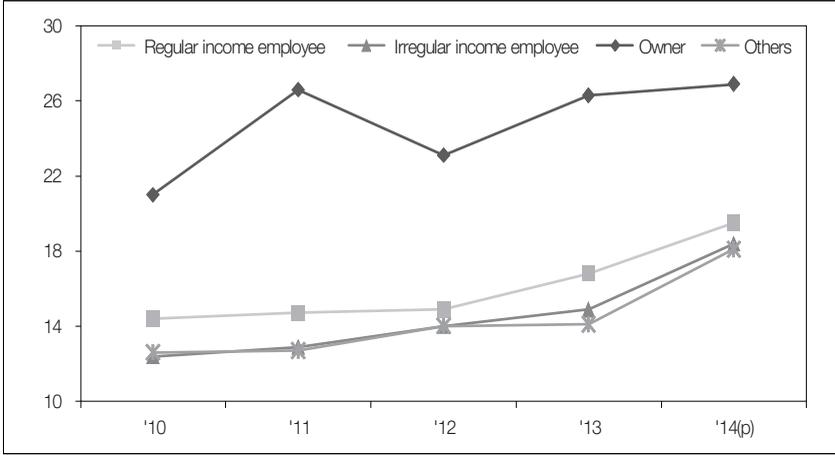
Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabld=M\\_01\\_01&parentld=B.1:B2.2:B2\\_336\\_33601\\_01.3:#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabld=M_01_01&parentld=B.1:B2.2:B2_336_33601_01.3:#SubCont) (accessed October 1st, 2015).

Finally, the amount of principal and interest repayment as a proportion of disposable income has been rising over the last three years throughout all households, but the burden of debt repayment across self-employed households is notably higher than the other types of households. From 2012 to 2014, self-employed households have used 23%, 26%, and 27%, respectively, of their disposable income for debt services, and it implies that the self-employed households' weak income source may lead to increased uncertainty

of repayment due to the relatively large size of their debt. More details on the ratio of debt service to disposable income across different types of households are shown in [Table 4-5].

**Figure 4-13. The Ratio of Repayments to Disposable Income**

(Unit: percentage)



Note: same as [Figure 4-8].

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabld=M\\_01\\_01&parentld=B.1;B2.2;B2\\_336\\_33601\\_01.3;#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabld=M_01_01&parentld=B.1;B2.2;B2_336_33601_01.3;#SubCont) (accessed October 1st, 2015).

**Table 4-5. The Ratio of Repayments to Disposable Income**

(Unit: percentage)

	All		Regular income employee		Irregular income employee		Owner		Others	
'10	16.2	(23.9)	14.4	(20.9)	12.4	(22.4)	21.0	(28.1)	12.6	(24.1)
'11	18.3	(25.5)	14.7	(20.4)	12.9	(21.5)	26.6	(33.0)	12.7	(26.1)
'12	17.2	(22.3)	14.9	(18.9)	14.0	(21.5)	23.1	(28.3)	14.0	(23.1)
'13	19.1	(24.5)	16.8	(21.2)	14.9	(21.7)	26.3	(31.8)	14.1	(23.1)
'14 (p)	21.5	(26.9)	19.5	(24.4)	18.4	(24.7)	26.9	(31.1)	18.1	(29.7)

Note: Numbers in brackets for households possessing liabilities.

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabld=M\\_01\\_01&parentld=B.1;B2.2;B2\\_336\\_33601\\_01.3;#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabld=M_01_01&parentld=B.1;B2.2;B2_336_33601_01.3;#SubCont) (accessed October 1st, 2015).

### 3. Empirical Framework

In the previous subsection, we look into the seriousness of the self-employed households' debt that may negatively affect consumption, and hence the overall domestic demand.<sup>20)</sup> In this section, we examine the effects of household debt, especially the self-employed households, on consumption using the household-level survey data (Korean Labour and Income Panel Study, KLIPS) between 2001 and 2011. Following Son and Choi (2015),<sup>21)</sup> the main regression equation is of the form:

$$\begin{aligned} \log(C_{it}) = & \alpha_1 + \alpha_1' D_i + \alpha_2 \log(DI_{it}) + \alpha_3 \log(FD)_{it} + \alpha_3' \log(FD)_{it} D_i \\ & + \alpha_4 \log(TA_{it}) + \alpha_5 \log(DS_{it}) + \alpha_6 X_{it} + \gamma_i + \gamma_t + \varepsilon_{it}, \end{aligned} \quad (4-1)$$

where,  $C_{it}$  stands for a household  $i$ 's total consumption at time  $t$  excluding a national pension, insurance, and taxes etc.  $DI$  is the disposable income.<sup>22)</sup>  $FD$  is the household financial debts that are from financial institutions or private sources.  $TA$  is the total assets that include both financial assets and real estate assets, and  $DS$  denotes the total debt service (i.e., repayment of principal and interest).  $X$  denotes a vector of the household characteristics that may vary with time as well. Household characteristics include *HHSTUD*

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20) According to KLIPS data, the proportion of the self-employed households in sample is about 36 percent.

21) Son and Choi (2015) focus on a relationship between consumption and the proportion of financial debt to disposable income, while we emphasize the role of the self-employed household in explaining a link between financial debts and consumption expenditure. To do this, we include a self-employed dummy as an interaction terms.

22) We remove possible outlier by discarding the total expenditure and the disposable income that are negative. Disposable income includes earned income, income from financial and real assets, transfer income, and other income except for tax, pension payment, and health insurance payments.

(the proportion of students enrolled in household), *HHEDU* (the level of household head's education), *HHAGE* (the age of household head), and *HHSIZE* (the number of family members), respectively. Finally, *D* is a dummy variable that takes the value one if household is self-employed. All variables excepts for individual characteristics are compiled in real terms using the consumer price index.

The household-fixed effect,  $\gamma_i$ , controls for heterogeneity across individual households so that it is the unobserved time-invariant individual effect.  $\gamma_t$  is a year dummy to control for an aggregate macro shock that occurs across time. In the regression, we use the total assets (*TA*) and the total debt service (*DS*) in order to control an individual household's financial status.  $\varepsilon$  is an idiosyncratic error term.

More details on the descriptive statistics of the main variables used in the regression are provided in [Table 4-6]. As expected, the average consumption, disposable income, and total asset of self-employed households are relatively lower than wage workers' households. In contrast, the financial debt and debt service of self-employed households are much higher than wage workers' households.

**Table 4-6. Descriptive Statistics of the Variables used in the Regressions**

Variable	Wage Workers' Household				Self-Employed Household			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
<i>log(C)</i>	3.06	0.57	0.07	5.24	2.99	0.66	0.17	5.78
<i>log(DI)</i>	3.30	0.68	-2.54	7.00	3.22	0.83	-2.50	7.08
<i>log(FD)</i>	1.42	1.83	0.00	7.66	1.76	2.02	0.00	8.73
<i>log(TA)</i>	2.12	1.82	-0.01	9.63	2.15	2.00	-0.01	9.30
<i>log(DS)</i>	0.62	0.88	0.00	8.25	0.81	1.06	0.00	8.25
<i>HHSTUD</i>	0.24	0.23	0.00	0.75	0.18	0.22	0.00	0.75
<i>HHEDU</i>	5.32	1.45	0.00	9.00	4.74	1.40	2.00	9.00
<i>HHAGE</i>	45.81	10.74	19.00	85.00	52.51	11.49	22.00	88.00
<i>HHSIZE</i>	3.42	1.18	1.00	10.00	3.42	1.28	1.00	10.00

Source: Author's Calculation.

## 4. Empirical Results

We first estimate the equation above using ordinary least squares (OLS) regression with household-year fixed effects so that we examine the within-household average effect of income or debt on consumption expenditure. In the regression, the main independent variable of interest is the self-employed dummy ( $D$ ) from the interaction term that may capture the different consumption behavior of the self-employed compared to wage workers. As mentioned in the previous section, the financial liabilities of self-employed households are much higher than that of other paid workers. In this context, we focus on the effect of financial debt on consumption expenditure that may differ between self-employed and other paid workers.

[Table 4-7] reports the estimation results. The effect of disposable income ( $DI$ ) on household consumption ( $C$ ) is positive as expected, which indicates that the marginal propensity to consume is about 0.2.

As shown in columns (1) and (2) in [Table 4-7], a relationship between financial debt and household consumption is positive for wage workers. This result can be supported by the following: wage workers increase their consumption expenditure via increased debt that is related to a relaxation of liquidity constraints (i.e., an expansion of credit to households). As in Kim and Kim (2009), Son and Choi (2015), we include the quadratic term of financial debt in the regression to capture a nonlinear relationship between consumption and debt, but the coefficient corresponding to the quadratic term is statistically insignificant at the conventional significance levels (not report here).

The main result in the regression is that the financial debt has a negative effect on consumption when taking into account the self-employed households only. In fact, a ten percent increase in the self-employed households' debt leads to about .07 percent decrease in consumption expenditure. That is, the self-employed households tend to make a loan that is not directly related to consumption

itself. Rather, they tend to reduce their consumption due to a heavy debt burden of business loans.

**Table 4-7. Estimation Results from the Household-year Fixed Effects Regression**

	log(C)			
	(1)	(2)	(3)	(4)
<i>log(DI)</i>	0.219*** (0.008)	0.187*** (0.007)	0.234*** (0.008)	0.197*** (0.007)
<i>log(FD)</i>	0.012*** (0.003)	0.006** (0.002)		
<i>log(FD)*D</i>	-0.014** (0.004)	-0.013** (0.004)		
<i>DTI</i>			0.007*** (0.001)	0.004** (0.001)
<i>DTI*D</i>			-0.003** (0.002)	-0.003** (0.002)
<i>log(TA)</i>	0.008*** (0.002)	0.007*** (0.002)	0.008*** (0.002)	0.007*** (0.002)
<i>log(TA)*D</i>	-0.003 (0.003)	-0.002 (0.003)	-0.004 (0.003)	-0.002 (0.003)
<i>log(DS)</i>	0.002 (0.006)	-0.005 (0.005)	0.011** (0.004)	-0.001 (0.004)
<i>log(DS)*D</i>	0.018** (0.009)	0.025** (0.009)	-0.001 (0.007)	0.007 (0.007)
<i>HHSTUD</i>		-0.009 (0.024)		-0.006 (0.024)
<i>HHEDU</i>		0.054*** (0.016)		0.052*** (0.016)
<i>HHAGE</i>		0.000 (0.003)		-0.001 (0.003)
<i>HHSIZE</i>		0.155*** (0.006)		0.153*** (0.006)
<i>No. of Obs.</i>	20,771	20,768	20,771	20,768
<i>R-Squared</i>	0.24	0.31	0.25	0.32

Note: 1) The estimation is the OLS with household-year fixed effects.

2) Robust standard errors are in parentheses.

3) \*\*\*, \*\*, and \* refer to significance at the 1 percent, 5 percent, and 10 percent level, respectively.

Source: Author's Calculation.

Instead of using the level of financial debt (*FD*), we include the household debt-to-income ratio (*DTI*) in the regression.<sup>23)</sup> The estimation results including *DTI* are shown in column (3) and (4) in [Table 4-7]. The ratio of household debt to disposable income is positively associated with consumption expenditure which is consistent with the results of a previous study conducted by Kim and Kim (2009), Son and Choi (2015). However, the positive effect of the debt on household consumption is diminished when taking into account the self-employed household only. In fact, the sign for coefficient of the interaction dummy (*DTI\*D*) is negative, and the positive effect of the debt-to-income ratio on household consumption almost disappears. These results imply that an increase in self-employed households' debt does not lead to consumption increases.

The increase in total assets (*TA*) is positively associated with the level of household consumption as predicted, that is, households with higher assets tend to consume more. However, the level of debt service (*DS*) has insignificant effect on consumption, which is shown in column (2) and (4) in [Table 4-7]. In general, if the debt service rises, household can suffer from increased financial payments (i.e., principal and interest) that results in the reduction of consumption. However, the effect of debt service on consumption is negative but insignificant. This unexpected result, as explained by Son and Choi (2015), can be accounted for by the facts that the majority of household debt in the 2000s is from the high-income family who have expanded their consumption level through a wealth effect from housing investments.

The pattern of consumption expenditure related to total assets does not differ between wage workers' and self-employed households. Note that, as in column (2) and (4) in [Table 4-7], the effect of self-employed dummy (*D*) that interacts with the total assets is negative but insignificant. The other variables associated with

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23) *DTI* is the proportion of household financial debt in disposable income, which is defined as the percentages like a proportion in decimal multiplied by 100.

household characteristics, such as the number of family member and the education level of household head, have a positive effect on consumption. In contrast, the proportion of students in family and the age of household head have no effect on consumption expenditure.

## 5. Concluding Remarks

In this chapter, we first looked at the database of Survey of Household Finance and Living Conditions (SFLC) to capture the differences of debt burden between self-employed and wage workers that may affect different patterns of consumption expenditure. In fact, the financial liabilities of self-employed households are about 1.5 times of disposable income, which is nearly 1.5 to 2 times higher than that of households with wage earner householder. Furthermore, the amount of debt service as a proportion of disposable income rises over the last three years throughout all households, but the burden of debt repayment across self-employed households is notably higher than the other types of households. In this context, we examined the different pattern of household consumption behavior in response to changes in financial liabilities between the self-employed and wage workers.

We estimated the effect of financial debt on household consumption using ordinary least squares (OLS) regression with household-year fixed effect so that we capture the within-household average effect of financial debt on consumption expenditure. The key finding is that the financial debt of self-employed households is negatively associated with consumption expenditure, whereas this relationship is positive for wage workers. That is, the self-employed households tend to make a loan (i.e., business loans) that is not directly related to consumption itself. Rather, they tend to reduce their consumption due to a heavy debt burden from business loans.

## V. Conclusion



We have investigated the reasons why the Korean domestic demand growth has significantly slowed down after the Asian financial crisis in 1997 in this report. The growth rate of domestic demand was about -11.5% in 1998 right after the crisis. This significant decline turned to strictly positive growth of domestic demand during the recovery and the credit card lending boom period of 1999-2002. Government policies relaxing credit constraints and encouraging starting information technology related business also helped the growth. Nevertheless, the boom was not sustainable. The growth rate of domestic demand has been close to zero or even negative in the last 12 years after the burst of the credit card lending boom. This suggests that the causes for the decline in the growth of domestic demand are less likely to be related to short-run business cycle components, but should be found in the shifting structure of the Korean economy.

We considered two structural problems of the Korean economy that affects the significant decline in the growth of domestic demand: one is the dampened ripple effects from the export sector and the other is the decrease in the growth of household real disposable income. The former problem is closely linked to the fact that large-sized Korean exporting firms changed their investment behaviors after the crisis. That is, they do not invest their export earnings to create new industries in order to expand their business groups. Rather, they concentrated on investing in a particular industry in order to obtain competitiveness in world markets. The same motivation made them participate actively in the global value chains. As a result, they have used more and more foreign value added contents for their exports and increased their investment in foreign countries rather than in Korea. Although more rigorous analysis may be needed, this changed investment behaviors resulted in the dampened ripple effects from export sectors: Korean exports have been mainly done by large-sized firms. And most of the Korean exports are from manufacturing sectors. On the other hand, the Korean service sector mainly consists of small-and medium-sized firms and there has been a significant productivity gap between service and manufacturing

sectors. Further, this productivity gap in Korea is the lowest among the OECD member countries. That is, although the Korean large-sized exporting firms have improved their productivities and thus enormously increased their exports, this impressive performance does not spill over the other industries such as the service industries as well as small- and medium-sized firms.

The second problem is related to the labor market reform after the Asian financial crisis. As mentioned in the Chapter IV, a sizable number of necessity-driven entrepreneurs and non-regular workers can contribute to the decline in the growth of household disposable income. Since most of these entrepreneurs belong to the service sector and most of these non-regular workers have jobs in small- and medium-sized firms, these two groups are likely to contribute to the decrease in productivities in the service sector as well as in the small- and medium-sized firms. This may also result in the significant productivity gap between manufacturing and service sectors. In this sense, the two structural problems are closely linked with each other. On the other hand, the decrease in the growth of the disposable income is likely to induce both private consumption and saving to decrease. If this problem is not solved, the Korean households may plunge in the vicious cycle: decreased the growth of disposable income inducing decreased consumption growth. In turn, this can result in the increases in household debts and the amount of debt services. This eventually may result in the decrease of consumption and thus domestic demand.

To the extent that the dampened ripple effects of the export sectors are mainly due to the changed investment behaviors of large exporting firms, policy makers should develop policies which aim at providing an environment where small- and medium-sized firms can participate in global value chains more actively. Those firms are not likely to use more foreign value added contents or invest in foreign countries because of their small sizes and limited capabilities. Instead, they may participate in global value chains by attracting foreign firms. For this, those firms should develop technologies or produce goods and/or services which can be differentiated from

foreign small- and medium-sized firms so that they can have comparative advantages. And policies should be able to encourage small- and medium-sized firms to develop those technologies and produce those goods and services.

To the extent that the decrease in the growth of household disposable income is due to the presence of significant share of necessity-driven entrepreneurs and non-regular workers, policy makers should reform labor markets. In particular, to reduce the number of necessity-driven entrepreneurs, alternative job opportunities which may absorb those self-employed workers should be created. There is a large degree of human capital mismatch: retired workers, in general, are more likely better matches for new businesses such as food and beverage franchise and agency for selling mobile phones. If there exist jobs where they can take advantage of their existing human capital, they would have less incentive to open those businesses which contribute to decreasing labor productivity in the service industry.

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## Appendix



**Table 1. 30 Major Categories of Self-employed Business**

(Unit: thousands)

	Number of Self-employed Households		
	2009	2013	% Changes
Supermarket	24,170	24,370	0.80%
Convenience Store	14,596	22,842	56.50%
Butcher Shop	21,055	19,117	△9.2%
Fruit Shop	7,036	9,158	30.20%
Cosmetics Shop	27,181	33,611	23.70%
Clothing Store	83,757	88,825	6.10%
Furniture Store	7,103	6,812	△4.1%
Book Store	8,986	7,409	△17.5%
Optical Store	7,318	8,065	10.20%
Stationery Store	14,269	11,219	△21.4%
Hardware Store	10,169	9,630	△5.3%
Flower shop	18,507	18,995	2.60%
Accommodation	24,796	26,689	7.60%
Restaurant	439,223	462,839	5.40%
Fast-food Restaurant	14,729	24,173	64.10%
General Bars	64,897	60,371	△7.0%
Bakery	11,022	12,058	9.40%
Real Estate Agency	76,681	78,571	2.50%
Private Educational Institute (arts, music, and physical)	47,080	49,509	5.20%
Private Educational Institute (others)	44,333	47,805	7.80%
Auto Repair Shop	35,195	36,698	4.30%
Karaoke	34,238	32,484	△5.1%
Internet Cafe	14,212	11,535	△18.8%
Laundry	20,822	22,457	7.90%
Barbershop	14,199	13,131	△7.5%
Beauty Shop	66,759	79,691	19.40%
Public Bath House	6,704	6,035	△10.0%
Grocery Store	68,800	60,219	△12.5%
Interior Design	19,752	26,720	35.30%
Cell-phone Agencies	11,511	17,974	56.10%
Total	1,259,100	1,329,012	5.60%

Source: National Tax Service Press Release. (October 27, 2014), [http://www.nts.go.kr/news/news\\_03\\_01.asp?minfoKey=MINF8420080211204826&top\\_code=&sub\\_code=&type=LR&isSearch=0&mbsinfoKey=MBS20141027103104710](http://www.nts.go.kr/news/news_03_01.asp?minfoKey=MINF8420080211204826&top_code=&sub_code=&type=LR&isSearch=0&mbsinfoKey=MBS20141027103104710) (accessed November 8th, 2015).

**Table 2. The Composition of Total Credit and Secured Loans across Purpose of Uses**

(Unit: percentage)

Credit loans		Housing	Other than Housing	Deposits for Lease	Repayments	Enterprising Funds	Living Expenditure	Etc.
'10	self-employed	3.3	1.4	1.2	4.8	71.0	9.7	8.6
	regular worker	11.5	9.9	18.1	5.1	8.8	24.7	21.9
'11	self-employed	6.5	2.0	1.6	5.4	58.8	9.8	15.9
	regular worker	13.0	9.9	16.1	5.1	6.6	24.6	24.8
'12	self-employed	4.8	2.4	3.5	2.9	66.5	12.6	7.3
	regular worker	11.8	7.7	20.2	5.8	8.8	25.1	20.5
'13	self-employed	4.6	2.8	2.6	3.6	69.7	11.2	5.3
	regular worker	13.6	8.1	15.7	5.8	9.4	27.1	20.3
'14 (p)	self-employed	4.5	6.5	2.6	4.0	64.9	10.4	7.1
	regular worker	14.6	8.5	15.5	8.9	8.9	23.6	19.9
Secured loans		Housing	Other than Housing	Deposits for Lease	Repayments	Enterprising Funds	Living Expenditure	Etc.
'10	self-employed	25.6	18.1	2.0	3.7	45.5	1.2	3.9
	regular worker	45.5	21.4	6.5	2.3	17.6	2.0	4.6
'11	self-employed	23.4	18.4	1.3	3.3	48.4	1.5	3.7
	regular worker	53.6	22.0	7.6	2.3	6.8	2.4	5.3
'12	self-employed	27.1	16.5	2.2	1.1	48.0	1.6	3.5
	regular worker	54.5	21.1	7.1	2.2	8.0	2.6	4.4
'13	self-employed	26.5	15.3	2.3	2.2	48.2	2.7	2.7
	regular worker	53.3	20.6	8.6	2.7	7.6	2.7	4.6
'14 (p)	self-employed	27.7	16.0	2.5	1.7	46.7	2.0	3.3
	regular worker	54.0	19.7	9.6	2.2	7.2	3.6	3.7

Note: Numbers in brackets means utility of secured loan by self-employed households

Source: KOSIS, [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabld=M\\_01\\_01&parentld=B.1;B2.2;B2\\_336\\_33601\\_01.3;#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabld=M_01_01&parentld=B.1;B2.2;B2_336_33601_01.3;#SubCont) (accessed October 1st, 2015).

## Executive Summary

### Why Did Korean Domestic Demand Slow Down after the Asian Financial Crisis?

WHANG Unjung, MOON Seongman, AHN Taehyun, KIM Subin, and KIM Junyup

Economic growth in Korea has slowed down dramatically after the Asian financial crisis of 1997. The average growth rate of real GDP of Korea before the crisis (1981-1996) was 9.3%, while it was reduced to 3.7% during the period (2003-2014) after the credit card lending boom following the financial crisis. Coincidentally, the patterns of domestic demand growth before and after the crisis were similar to the GDP growth: the average growth rate of Korean real domestic demand was 8.8% and -0.3%, in the respective periods.

This remarkable decline in both growth rates should not be attributed to the factors that are linked to the short-run economic fluctuations because these phenomena have lasted more than 10 years after the Asian financial crisis. Instead, structural factors related to the domestic market or exports are more likely to induce the significant declines in the growth of these two variables. In this study, we focus on identifying those structural factors that are responsible for the decline in the growth rate of domestic demand after the Asian financial crisis, which may result in the decrease in economic growth.

Motivated by observing dramatic changes in the growth rates of the relevant variables such as GDP, domestic demand, investment, and exports, we consider two structural problems that the Korean economy faced after the Asian financial crisis: i) one is the dampened ripple effects of exports on domestic demand and thus on GDP; ii) the other is the decrease in the growth of household

disposable income.

First, exports can contribute to the economic growth via two channels. One is the direct contribution to the GDP. The other is the indirect contribution to the GDP through the domestic demand (that is, the ripple effect of exports on GDP). As firms export more, they tend to use more production inputs and thus are more likely to increase investment and employment, which results in the increase in domestic demand. In fact, the data reveal that about one third of GDP growth can be accounted for by exports directly in the period of 1981-1996. This implies that two third of GDP growth can be explained by the domestic demand. In contrast, the Korean economic growth after the Asian financial crisis is entirely driven by export growth, that is, the growth of export sector does not boost domestic demand after the crisis. In other words, the ripple effect of export sectors on GDP has significantly dampened after the Asian financial crisis. Furthermore, we found two potential reasons for the dampened ripple effect from the export sector. These reasons are closely related to changes in investment behaviors of large-sized Korean exporting firms before and after the Asian financial crisis: i) the large-sized exporting firms do not invest their earnings from exports any more to create new industries; ii) they tend to use more foreign value added contents for their exports and to increase outward FDI by participating in the Global Value Chains (GVCs).

Second, another structural factor that affects the pattern of domestic demand before and after the Asian financial crisis is closely associated with the decrease in the growth of household real disposable income. Its growth rate was 10.3% in the former period (1981-1996), which is higher than the GDP growth rate. Its growth rate, in contrast, was 2.3% after the financial crisis, which is lower than the GDP growth rate. This remarkable decrease in the growth of household income may influence household consumption, and hence economic growth. In fact, the data reveal that the real consumption growth rate was 8.4% in the former period and 2.4% in the latter period, respectively. These patterns of consumption

growth rates before and after the crisis were similar to the patterns of both the GDP and the income growth rate. In addition, the decrease in household disposable income is more likely to induce increase in household debts and thus an increase in the burden of debt service. This will further restrict consumption and domestic demand growth, which may result in an overall decline in economic growth.

To be more specific, we pointed out three potential factors that are closely linked to the decrease in the growth of household disposable income. These reasons are related to the labor market reforms after the Asian financial crisis: i) a sizeable number of necessity-driven entrepreneurs (i.e., self-employed households) whose income are relatively low, ii) a large proportion of temporary workers whose wages are about 70 to 80% of the regular workers, and iii) a relatively low wage in small and medium-sized enterprises (SMEs) which employ a large portion of total workforce.

In the two subsequent chapters, we examined the two issues related to the structural problems of the Korean economy using the micro-level data: i) a link between temporary employment contract and firms' productivity and ii) a difference in consumption behavior between wage workers and self-employed households. Motivated by concerns that an increase in the share of temporary workers in total employment can potentially harm firm productivity, we empirically investigated the relationship between temporary employment and firms' productivity. The estimated results show that using temporary workers decreases firms' productivity. Besides, we found some evidence that a higher conversion rate from temporary to permanent worker leads to the increase in firm's productivity.

Finally, we looked into the seriousness of the self-employed household debt that may negatively affect consumption, and thus the overall domestic demand. To do this, we examined the different patterns of consumption behavior between wage workers and self-employed households using the household-level panel survey data. The key finding is that the financial debt of self-employed households is negatively associated with consumption expenditure,

while this relationship is positive for wage workers. That is, the self-employed households tend to make a loan (i.e., business loans) that is not directly related to consumption itself. Rather, they tend to reduce their consumption due to a heavy debt burden from business loans.

To the extent that the dampened ripple effects from the export sectors after the Asian financial crisis are mainly due to the changed investment behaviors of large exporting firms, policy makers should develop policies which aim at providing a better environment where small and medium-sized firms can participate in global value chains more actively. Those firms are not likely to use more foreign value added contents or invest in foreign countries because of their small sizes and limited capabilities. Instead, they may participate in global value chains by attracting multinational firms. To do this, those firms should develop better technologies or produce high quality goods and/or services which can be differentiated from foreign small- and medium-sized firms so that they can have comparative advantages. And policies should be able to encourage small and medium-sized firms to develop those technologies and to produce those goods and services. Most importantly, policies should be aimed at attracting foreign multinational firms so that domestic firms benefit from the active participation in global value chains.

To the extent that the decrease in the growth of household disposable income is due to the presence of significant share of necessity-driven entrepreneurs and non-regular workers, and their relatively low income, policy makers should reform labor markets to deal with these issues. In particular, policies should be aimed at reducing the use of temporary workers by raising the conversion rate from temporary to permanent employment. In addition, alternative job opportunities which may absorb those self-employed workers should be created. There is a large degree of human capital mismatch: retired workers, in general, are more likely better matches for new businesses such as food and beverage franchise and agency for selling mobile phones. If there exist jobs where they can take

advantage of their human capital, they would have less incentive to open those businesses which contribute to decreasing labor productivity in the service sector.

# List of KIEP Publications(2015)

## Policy Analysis

15-01 Why Did Korean Domestic Demand Slow Down after the Asian Financial Crisis? / WHANG Unjung, MOON Seongman, AHN Taehyun, KIM Subin, and KIM Junyup

## Policy Analyses I (in Korean)

15-01 Factors Influencing North Korea's Trade and the Relationship between Trade and Economic Growth in North Korea / LIM Ho Yeol, CHOI Jangho, BANG Ho-Kyung, IM So Jeong, KIM Junyoung, ZHU Xianping, JIN Hualin, and JOUNG Eunlee

15-02 Macroprudential Response to Increased Global Market Volatility / KANG Tae Soo, LIM Tae Hoon, SUH Hyunduk, and KANG Eunjung

15-03 Differential Effects of FDI on the SMEs and Wage Premium for Skilled Labor / CHOI Hyelin, HAN Minsoo, WHANG Un Jung, and KIM Subin

15-04 Strategy Analysis of Offshore Renminbi Hub and Korea's Countermeasures / HAN Minsoo, SEO Bongkyo, LIM Tae Hoon, KANG Eujung, and KIM Youngsun

15-05 Determinants of Value Added in Exports and Their Implications / CHOI Nakgyoon and PARK Soon Chan

15-06 The Difference in the Level of Services Liberalization and Its Impact on Services Trade / KIM Jong Duk and SUNG Hankyoung

15-07 Productivity and Export Performance in Korea: Focusing on Comparisons with China and Japan / BAE Chankwon, KIM Young gui, and KEUM Hyeyoon

15-08 The Determinants of Greenfield and M&A Foreign Direct Investment / LEE Seungrae, KANG Jungu, KIM Hyuk-Hwang, PARK Ji Hyun, LEE Joun Won, and LEE Jumi

15-09 Changes in Market-opening Strategy for China's Service Sectors and the Implications: with a Focus on Shanghai Pilot Free Trade Zone / NO Suyeon, OH Jonghyuk, PAK Jinhee, and LEE Hanna

15-10 Study on China's Consumption Based Growth Strategy / LEE Chang-Kyu, Furong Jin, CHOI Pil Soo, NA Su Yeob, KIM Youngsun, CHO Ko Un, and LEE Hyo Jin

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- 15-13 Economic Cooperation between North Korea and China, and Implications for Inter-Korean Economic Cooperation / CHOI Jangho, KIM Junyoung, IM So Jeong, and CHOI Yoojeong
- 15-14 A Study on Japan's Regulatory Reform in the Era of Low Growth / KIM Gyupan, LEE Hyong-Kun, and LEE Shin-Ae
- 15-15 Indian Modi Government's Economic Development Policy and Implication for Cooperation between Korea and India / CHO Choong-Jae, SONG Young-Chul, and LEE Jung-Mi
- 15-16 Comparative Analysis on Climate Support: Key Findings and Implications / JUNG Jione, MOON Jin-Young, KWON Yul, LEE Ju Young, and SONG Jihei
- 15-17 ASEAN Integration: Changing Patterns of Trade and Direct Investment within Southeast Asia and Its Implications / KWAK Sungil, LEE Chang Soo, CHEONG Jaewan, LEE Jaeho, and KIM Jegook
- 15-18 Issues of International Digital Trade and Their Policy Implications / KIM Jeong Gon, NA Seung Kwon, JANG Jong-Moon, LEE Sunghee, and LEE Minyoung
- 15-19 Urbanization and Economic Development in Southeast Asia / OH Yoon Ah, RA Hee Ryang, LEE Jaeho, SHIN Mingeum, and SHIN Minlee
- 15-20 An Analysis of Private Sector Development(PSD) in Africa and Opportunities for the Korea-Africa Development Cooperation / PARK Young Ho, JEONG Jisun, PARK Hyunju, and KIM Yejin
- 15-21 Employment Policy in Low Growth Period: Case and Empirical Studies of European Countries / KANG Yoo-Duk, LEE Cheol-Won, OH Tae Hyun, LEE Hyun Jean, and KIM Junyup
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- 15-25 Russia's Economic Modernization Policy and Implication for Cooperation between Korea and Russia / JEH Sung Hoon, KANG Boogyun, and MIN Jiyoung

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## Why Did Korean Domestic Demand Slow Down after the Asian Financial Crisis?

WHANG Unjung, MOON Seongman,  
AHN Taehyun, KIM Subin, and KIM Junyup

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This research mainly focuses on identifying structural factors that are responsible for a remarkable decline in the growth rate of domestic demand occurred after the credit card lending boom following the Asian financial crisis. Two structural factors are closely related to a slowdown in domestic demand growth after the financial crisis: i) one is the dampened ripple effects of exports on domestic demand and thus on GDP; ii) the other is the decrease in the growth of household disposable income that may negatively affect domestic demand. Understanding the causes of these two structural problems in more detail is one of our main objectives. This research also aims to derive meaningful policy implications to deal with these structural problems that are closely linked to a sluggish domestic demand.

