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Digital Divide in the APEC: Myth, Realities and A Way Forward

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**KOREA INSTITUTE FOR
INTERNATIONAL ECONOMIC POLICY
KOREA NATIONAL COMMITTEE FOR
PACIFIC ECONOMIC COOPERATION**

Digital Divide in the APEC: Myth, Realities and A Way Forward

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Executive Summary

There is a growing concern about the ‘Digital Divide’ at the APEC. Many are fearful that Digital Divide would worsen the existing gap among the member economies. While many policy prescriptions are suggested and implemented, there is no academic attempt questioning the validity of the logic of Digital Divide. This paper offers a preliminary attempt to the question from an evolutionary and long-term perspective. Drawing on the time series data on the penetration ratio of fixed and mobile telecommunications lines from the APEC members, it is found that, whereas the current disparities are substantial, disparities in access to information infrastructure have been steadily decreasing and disparities are more rapidly being declined in fixed network. The paper concludes that there exist neither firm bases nor compelling evidences which point out the deepening of the Digital Divide over time.

About the author

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I. Introduction

The 80% of the world's population still does not have telephone. And 90% of Internet users are in OECD countries. The 30% of traffic over the net is international; 46% of orders are not fulfilled; 85% of sites cannot take international orders. This would suffice to paint a gloomy picture of the current status of information infrastructure in the world. APEC is a mirror image of this world. This state of affairs, dubbed as 'Digital Divide' between the haves and the have-nots, called the high attention of policy makers. The 'Digital Divide' has made its entry in the agenda for the APEC Economic Leaders Meeting.

Top policy makers are worrisome because the emerging digital economy, in general, and internet, in particular, may exacerbate disparities among the APEC member economies: the more accelerating growth of internet in the developed economies, the more disparities. Economic leaders take it for granted that the gap would increase between developing economies with less information infrastructure and developed ones with more information infrastructure. They believe that this ever-widening gap is creating so-called 'Digital Divide.' This Digital Divide, they are convinced, would cause harm to the vision of APEC co-prosperity. This line of thinking has made them to propose policy actions which would lessen the Digital Divide.

While it is certain that there exist undeniable disparities of information infrastructure between the developed economies and the developing ones in the APEC, the severity of the disparities and the effectiveness of current policy debates geared to deal with the Digital Divide need to be scrutinized. At a glance, Internet is such a sweeping phenomenon that any society appears to be doomed if it has a poor and undeveloped access to Internet. In a close scrutiny, there is a certain element of media hype and bubble. Just take this. A year ago, the entire business world enthusiastically embraced for the Internet. Numerous dot.com companies were created and they found no difficulty of financing. Some on-line companies were valued more highly than traditional off-line companies. After one year, share prices of these companies tumbled down. Euphoria is gone. What remarkable turnaround! Is this an indication that market is finally beginning to see real value of on-line companies? In any case morale of this roller coaster ride of

the fate of on-line companies is that we need to see the whole issue of Digital Divide from a balanced perspective.

This paper is organized in the following way. In section II, the concept of Digital Divide is defined and some competing views are offered. Section III and IV discuss Internet access in the APEC and the current status of information infrastructure. Using a measure of divergence, an attempt is made to gauge the evolution of information disparities in the APEC. On the basis of these discoveries, section V responds to the question that how serious is the Digital Divide at the APEC. Section VI concludes the paper.

. Asking Right Questions on Digital Divide

A. Concept of Digital Divide: Definition and Confusion

The 'Digital Divide' is widely understood to mean the disparities in access to information devices across groups. Here information devices include telephones (either fixed or mobile), personal computer, and Internet. Without these devices people cannot make access to information sources. Groups may vary by contexts. It can be economic status (rich vs. poor), social class (white collars vs. blue collars), gender (man vs. woman), age (young vs. old), region (urban vs. rural) or sovereign nations (wealthy economies vs. poor economies).

In theory, there exist all sorts of Digital Divide. Spectrum of Digital Divide runs a whole gamut from Digital Divide in gender to Digital Divide between countries.

Why Digital Divide rather than Analogue Divide? The word 'digital' is used to capture two essential aspects: first, all the information is now being expressed as a binary digital code; and second, digital technology is associated with the emergence of new on-line economy in contrast to old off-line economy.

To be meaningful from a policy point of view, disparities across groups must be significant and severe. When people speak of Digital Divide, they are trying to convey an

indelible impression that Digital Divide causes the ever-widening gap of the groups over time. In the context of APEC, people envision uneven plateau with a deep chasm running in the middle where a group of developed countries (hereafter group A) lies in a high plateau and a group of developing countries (hereafter group B) lies in a low plateau. This situation is portrayed at $t = t_1$ in Figure 1. The blindfolded belief of policymakers is that the Digital Divide at $t = t_1$ will lead to the worsening of divide as depicted at $t = t_2$ and $t = t_3$.

However, it needs to be noted that the presence of Digital Divide as such has nothing to do with the evolution of the gap across the groups. Many policy makers take it for granted that Digital Divide would deepen the divide. This is where confusion comes from. This perception drives all the hypes. This belongs to the realm of scientific debate.

B. Questions Need to Be Asked

To bring any policy debate on the Digital Divide in a proper context, the following two basic questions need to be addressed. First, is there any severe disparity between the group A and the group B to create the Digital Divide? (This question is tantamount to confirm whether or not we have the situation at $t = t_1$ in Figure 1) Second, will the Digital Divide in the APEC deepen over time? (This is another way of asking that the situation at $t = t_1$ will lead to the situation at $t = t_2$ and $t = t_3$ in Figure 1)

If the answer is ‘no’ to the first question, then it is the end of all the debates. Any discussion of Digital Divide is groundless and just a political slogan. If the answer to the question is ‘yes’, then we move on to the second question. If answer to the second question is ‘no’, Digital Divide is just a fact but not a source of much concern. If answer to the second question is ‘yes’, it confirms the fear of policy makers. That is, Digital Divide is to become a meaningful policy agenda, and we should be able to find sufficient evidences leading to affirmative answers to both the first and the second question. Otherwise, what policy makers are doing at the APEC forum might be ended up as waste of scarce resources which could have been allocated to other pressing issues.

Someone might object the formulation of research strategy in the preceding manner. Even if one fails to find sufficient evidences in favor of an affirmative response to the second question, one may argue, that should not be an outright rejection of fears associated with the Digital Divide. As a matter of fact, one may build a strong case that a mere presence of Digital Divide is threat to the APEC goal. While this would be a clever way of eschewing the core of the issue, it is self-defeating for the following two reasons.

First of all, that is not what policy makers, at least important top decision makers, in the capitals of APEC member economies think. They are simply obsessed with the notion of ever-widening gap between group A and group B. They have already determined that the answer to the first and the second questions are both ‘yes!’ and ‘yes!’ Second, without a proper sense of direction over time, any policy discussion would be short-lived and ineffective. Suppose that the situation at $t = t_1$ is not highly likely to bring about the worsening situation like that at $t = t_2$ or $t = t_3$. Implication is that the market would solve the problem using its own mechanism. In that case, any government intervention under the name of corrective measures may make the problem worse.

. Access to Internet in the APEC

Much of public perceptions about Digital Divide stem from internet. APEC members' access to and use of internet varies by economies, although in some member economies internet uses are on the rapid rise in terms of users and numbers of registered domains. Reflecting a growing nature of internet, it is difficult to construct a comprehensive picture of a current status of internet access. Table 1 is a compilation of APEC member economies' internet access as of year 2000.¹ Even though it is not completely updated and accurate, it is not difficult to get the idea of the picture. There exists substantial gap among APEC members regarding their Internet access.²

A glimpse of current status of internet throughout the APEC gives an idea of Digital Divide. Many are afraid that this divide would get worse over the time. To better understand a ground for this fear, we turn to the theory of technology adoption. It is a conventional wisdom in the economics of technology that technology adoption pattern is S-shaped. (refer to Figure 2) According to this theory, a new technology is slow to be adopted at first. Adoption rate is sluggish up to a certain time. But once it reaches a 'critical mass point' (x in Figure 2), the speed of adoption gets accelerating. This acceleration continues until it hits a 'high plateau point' (y in Figure 2). After point y, the adoption rate becomes stabilized. Once a society gets to point Y, it attains a high saturation point.

In the case of internet, developed economies of the APEC have just passed a critical mass point, while developing economies are not getting there yet (Refer to Figure 3). Due to the exact logic of technological adoption, developed economies would see an explosive growth of internet uses and developing economies would not undergo that much rapid growth. Consequently, the gap between these two groups would only increase. Such an

¹ Statistics cited in the table 1 are from various sources: Data on internet users, hosts from www.netsizers.com. Data on domain from www.nic.or.kr, and data on internet access charge from www.nic.or.kr. Internet access charge is based on 30 hours' access measured in US dollars.

² In the case of US, the registered number of domains as reported in the table 1 is only those registered under the domain name of us. Most US companies and organizations use com or org for their domain.

ever-diverging gap between the developed and developing economies would continue for some foreseeable time.

Is this a confirmation of Digital Divide scenario in the preceding section? While the current picture of internet access and the future projection along the technology adoption curve render a pessimistic view that Digital Divide is here to stay, such an interpretation may lose the sight of underlying trend. For this discussion, we turn to the analysis of information infrastructure in the APEC.

Table 1. APEC Economies' Internet access

Economy	Hosts (thousands)	Users (thousands)	Domains (2000. 11)	Access charges (2000. 12 /US\$)
Australia	1459.38	8734.83	151,456(.au)	32.92
Brunei Darussalam			109 (.bn)	
Canada	3429.42	16093.3	28,044 (.ca)	29.74
Chile	64.7266	655.356	51,552 (.cl)	
China	105.216	15750.3	85,813 (.cn)	
Hong Kong, China	462.963	3098.11	42,934 (.hk)	
Indonesia	22.65	218.328	7,656 (.id)	
Japan	4456.08	33456.4	216,254(.jp)	74.29
Korea	477.743	13467.8	511,003 (.kr)	21.89
Malaysia	67.3533	1826.39	18,417 (.my)	
Mexico	399.336	1700.40	58,090 (.mx)	25.89
New Zealand	350.65	1123.32	77,593 (.nz)	34.80
Papua New Guinea	No data	No data	No data	No data
Peru	6.41666	520.444	9 (.pe)	
Philippines	28.2233	393.976	4,451 (.ph)	
Russia	263.766	7836.69	53,399 (.ru)	
Singapore	208.046	1957.96	28,543 (.sg)	
Chinese Taipei	1128.61	6224.54	36,543 (.tw)	
Thailand	67.0733	908.172	5,331 (.th)	
United States	44346.5	112279	3,355 (.us)	34.23
Viet Nam			11 (.vn)	

IV. Current Status of Information Infrastructure at the APEC

Using a dispersion measure³, we trace the evolution of disparities within the APEC. The dispersion measure used in this paper is calculated as v/m^2 , where v = variance, m = mean. One may interpret that the higher the number, the larger the disparities. As the number is close to 0, the disparities get smaller and vice versa. Two information infrastructures are considered in this analysis: fixed telecommunications network and mobile telecommunications network.⁴

For the 21 member economies of the APEC, three salient features are observed: First, disparities in access to information infrastructure have been steadily decreasing; Second, disparities are more rapidly being declining in fixed network; Third, despite years of network growth, there remain substantial amount of disparity. Figure 4 is a vivid testimony to these trends.

A. Fixed Network

1. General Trend

Dispersion for the fixed network is measured at 1.191 in year 1984. This value is in a steady decline and it is calculated to be 0.638 in year 1998, and 0.563 (projected number) in year 2000 (Refer to Figure 5). Disparity in fixed network is reduced by 52.7% during the time period of 1984 to 2000.

2. Panel Data

We decompose the current 21 member economies to probe what factors are working behind the general trend. (Refer to Figure 6)

- Old APEC members

³ The dispersion measure used in this paper is widely used in the economics growth literature.

⁴ Data that were used for calculation came from *World Telecommunication Development Report 1999* (International Telecommunication Union: Annual Report).

In the establishment of APEC, it did not have 21 member economies. Recently joined members such as Peru, Vietnam, and Russia are from developing economies. If these members are excluded from the trend analysis, disparities are further reduced. This means that fixed network of these economies are lagged behind other developing members of the APEC.

- **China effect**

When China is excluded from the sample, the value of divergence parameter is reduced by 0.1 consistently throughout the sample period. This implies that, despite years of fixed network growth in China, such a populous country like China wields such a disproportionate effect on the convergence.

- **Developed economies APEC OECD members and Hong Kong, Singapore, Taipei**
There exists no meaningful disparity among the APEC OECD member economies and economies like Hong Kong, Singapore and Taipei since the mid 1990s.

B. Mobile Network

1. General Trend

Dispersion for the mobile network is measured at 1.22 in year 1990. This value is in a steady decline and it is calculated to be 0.97 in year 1998, and 0.81 (projected number) in year 2000 (Refer to Figure 7).

Disparity in mobile network is reduced by 33.6 % during the time period of 1990 to 2000.

2. Panel data

We decompose the current 21 member economies to probe what factors are working behind the general trend (Refer to Figure 8) .

- **Old APEC members**

The same analysis is repeated as in the case of fixed network, implying that mobile networks of newly acceded economies are lagged behind other developing economies.

- China effect

The same story is true of China as in the case of fixed network.

- Developed economies APEC OECD members and Hong Kong, Singapore, Taipei

In contrast to the case of fixed network, there exist some disparities among APEC OECD members and economies of Hong Kong, Singapore, Taipei.

Even though both the fixed and mobile network infrastructure display a decreasing trend of disparity, disparity remain high in mobile network. This is accounted for by the fact that the growth of mobile network is in a relative sense a new phenomenon. Even in the developed economies, it was not until the mid 1990s that they start to see major investment surge in the mobile sector. Many developing economies start to join investment in mobile sector in the later part of 1990s. Before this investment drive in the mobile sector throughout the APEC region, monopoly and high price of mobile phone and services charges hampered the development. Commercial application of digital technology, introduction of competition, and rapidly decreasing cost – all these forces gained momentum and hit hard the APEC economies in the mid and late 1990s.

APEC developed economies already reached the saturation point of the fixed network in the early 1990s. Advanced economies like the US, Canada, Japan and Australia were already there in the late 1980s. Newly industrialized economies like Korea, Taiwan, Hong Kong and Singapore joined them in the mid 1990s.⁵ Once reached in the stable point, any further increase would not be great.

On the other hand, many developing economies set out to invest highly in the development of fixed network since the late 1980s. Some did strategically with a view to creating information sectors and some did in a natural response to support expansion of economic activities. This investment drive of developing economies was translated into moving along the declining curve of disparity in the fixed network.

⁵ The average telephone penetration ratio of fixed network of these economies was 32.7 in the early 1990s.

. Analysis of Digital Disparity at the APEC

For many developing economies where access to internet is not growing by leaps and bounds, factors like high access charges and expensive terminal are blamed for the backwardness. Over time, competition and deregulation would bring these prices down. Then, the problem for these backward economies would face a problem which it may not tackle so easily: physical bottleneck of fixed and mobile networks. Put it differently, if an economy has a relative well developed fixed and mobile network but has a population not so much connected by internet, prices are the main problem to be addressed. Presence of information infrastructure serves as ultimate bottleneck to the internet access. In this regard, the analysis of fixed and mobile network play a role to see through what would happen in the future when the economic forces work out.

Panel data analysis of the fixed and mobile networks shows that remaining disparity in information infrastructure stems from developing economies. Among these developing economies, big economies like China, Indonesia and Russia contribute to the state of disparity disproportionately higher than other economies in the group.

At this juncture, it would be instructive to turn to the discussion of technology adoption. Figure 9 describes the current status of the fixed network in the APEC. As indicated in the Figure 9, developed economies have already reached at a high plateau point, and developing economies have just passed a critical mass point (Compare Figure 9 with Figure 2). Thereby, we expect sharp reduction of disparities in the fixed network in the future.

Figure 10 depicts the current status of the mobile network in the APEC. In the mobile network, some developing economies have just arrived a critical mass point and other developing economies are about to get there. As of now, developed economies are not yet reached a high plateau point: they are a couple of steps short of it. It is likely that developed economies would reach a high plateau point soon, probably less than a couple of years. At the same time, it is equally likely that developing economies hit a critical mass point soon. Until such a time, decline in disparities would continue but not

substantial. When both groups pass these points, we expect sharp reduction of disparities in the mobile network, which eventually catch up any disparities in the fixed network.

Figure 11 shows a projection of disparities of information infrastructure in the future. The upper solid line is the projected dispersion curve of mobile network and the lower solid line is the projected dispersion curve of fixed network. T^* in the Figure 11 is the time where all the developing economies reach at a critical mass point in their deployment of mobile network. After T^* , one expects a rapid reduction of disparities among the APEC economies.

This projection casts doubt about the current widely acclaimed version of Digital Divide. Over time, disparities among the APEC member economies would reduce, not increase, at a rather accelerating speed. Just looking at data related to the internet access and claiming the hazard of Digital Divide is to lose the sight of the forest. As discussed in the section III, internet access situation between a group of developed economies and that of developing economies would get worse in a due course. But such an increasing gap would die out eventually. Projected convergence of information infrastructure among the member economies would play a positive role so that time of ‘eventually’ would arrive early in the APEC.

A theory has it that there will be a positive correlation between the economic growth and the development of information infrastructure. As an economy grows over time, it creates more demand for effective provision of information services. An economy which meets this demand effectively is better positioned to grow more and faster, since the efficient information infrastructure is a social capital. Like any other social capital, it takes non-negligible time to build and establish an information infrastructure. Demand not readily fulfilled would serve a bottleneck for the operation of economy. In this context, establishing extra-capacity information infrastructure beyond the current demand may help to earn time to install them. Some economies are actively pursuing this strategy of promoting information sector.⁶

⁶ Whether this strategy of promoting information sector is successful requires other intensive study. The jury is still out on the question. While country like Korea and Singapore is heralded as successful examples, one swallow does not make the summer;

Using the time series data of teledensity and GDP of APEC members, it is found that such a positive correlation exists empirically, as illustrated in Figure 12 and Figure 13. This finding carries an important implication. Economic growth may be the best way to address the question of Digital Divide. While information sector plays a dual role in the economic growth as a distinct sector and as a social capital, which is a underlying mode of delivery of information, there are many other sectors in the economy as equal as or even greater than information sector in their impact on the economy.⁷ Lopsided emphasis of information sector runs the risk of being too simplistic to forget the law of gravity. Economics is about the allocation of scarce resources. When too much resources are poured to information sectors, other pressing priorities such revamping financial sector and overhauling outdated transportation system, and redesigning education system.in order to meet the challenge of the global integration would be less served. Consequences would be so predictable.

VI. Conclusion

This paper attempts to look the issue of Digital Divide from an evolutionary and long-term perspective. Using a divergence parameter drawing on the teledensity, the paper traces the development of fixed and mobile networks of APEC economies throughout the 1990s. The analysis shows two salient facts: steady decline of disparities and remaining substantial gap. The panel data analysis indicates that disparities become more problematic in the newly joined members and populous economies.

The paper also finds that there exists a positive correlation between teledensity and economic growth. The paper argues that many developing economies in the APEC have just passed or are about to reach the critical mass point of S-shaped network penetration curve, whereas developed members have reached or about to reach the saturation point of the same curve. This argument leads to conjecture that remaining information gap among the APEC members would be reduced in the years ahead. Mobile network would undergo a more accelerated speed of reducing disparities.

it is too premature to render any definitive judgment. Most treatment of this question suffers from problems associated with a partial equilibrium analysis.

The main conclusion of the paper is that, despite substantial information disparities among the APEC economies, there is neither firm bases nor overwhelming evidences which point out the deepening of the Digital Divide over time.

After all, Digital Divide is an agenda driven by politics rather than by solid economics. In particular, Digital Divide at the international level like the APEC. Findings of this paper should not be taken as flat denial of the problems associated with the Digital Divide. Digital Divide may exist within the economy. Some countries are starting to figure out what is happening. A central message of the paper is that to prove the existence of Digital Divide is one thing and ever-expanding disparities due to Digital Divide is another. These two issues are related, but they are separate issues. The problem is that policy makers cannot and do not try to distinguish these two issues as separate ones. Worse, they are the people in the position of calling the shot and economists have been silent in the dark. In this regard, this paper rings a wake-up call to economists.

References

World Telecommunication Development Report 1999. International Telecommunication Union: Annual Report.

Falling Through the Net: Defining the Digital Divide. (2000). National Telecommunications and Information Administration (NTIA), U.S. Department of Commerce.

Korea Internet Information Center: www.nic.or.kr.

Telcordia Technologies: www.netsizers.com

⁷ Witness the on-going productivity debate on information technology sector in the US.

Figures

Figure 1 Perception of Digital Divide

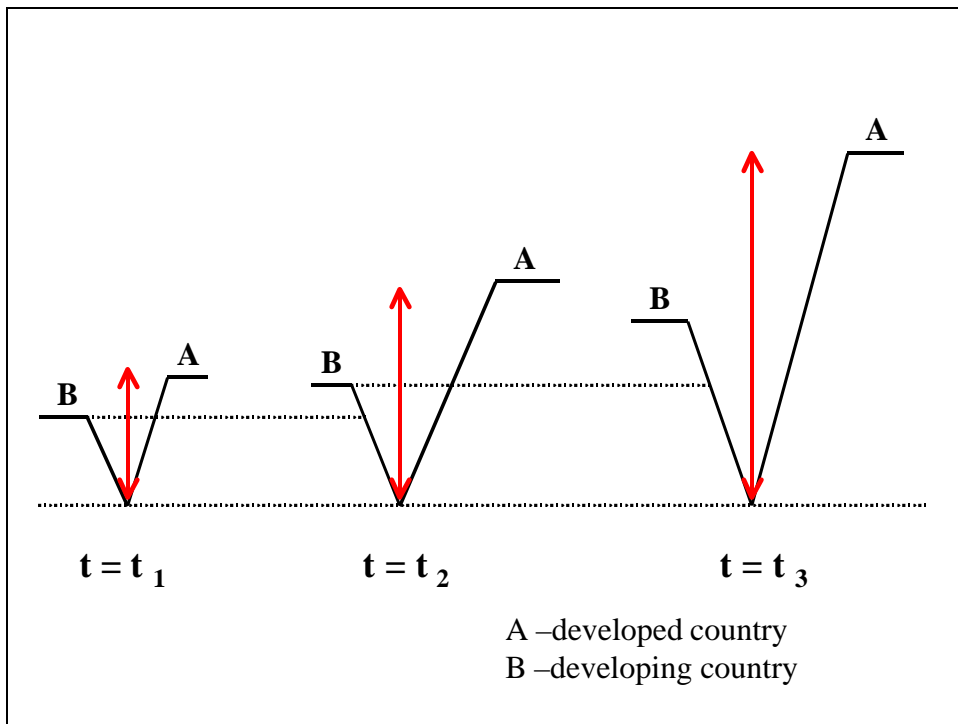


Figure 2. Technology Adoption

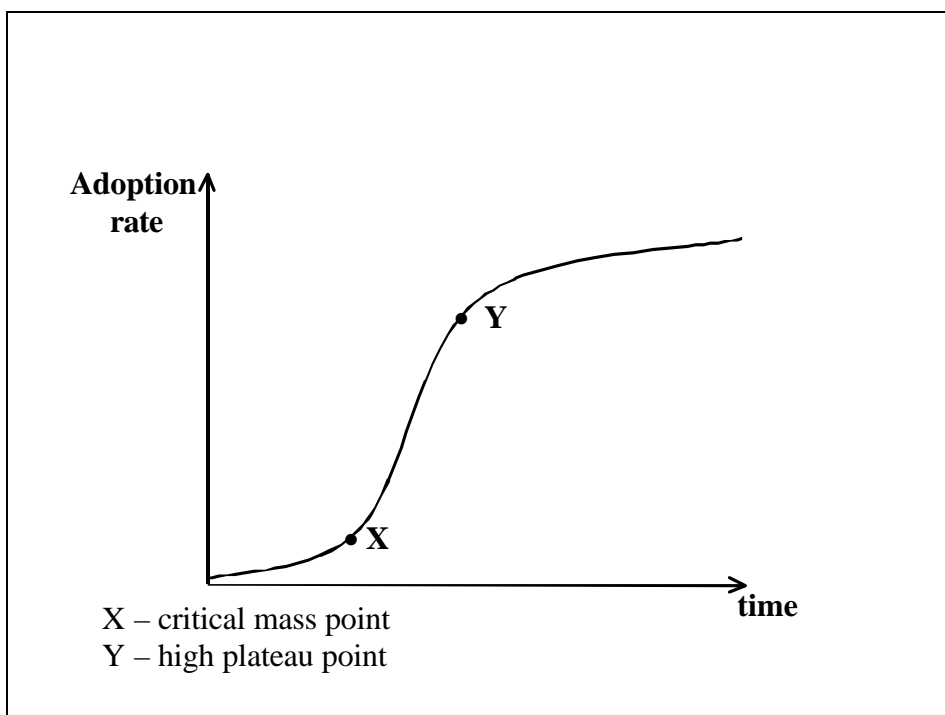


Figure 3. Technology Adoption: Case of Internet

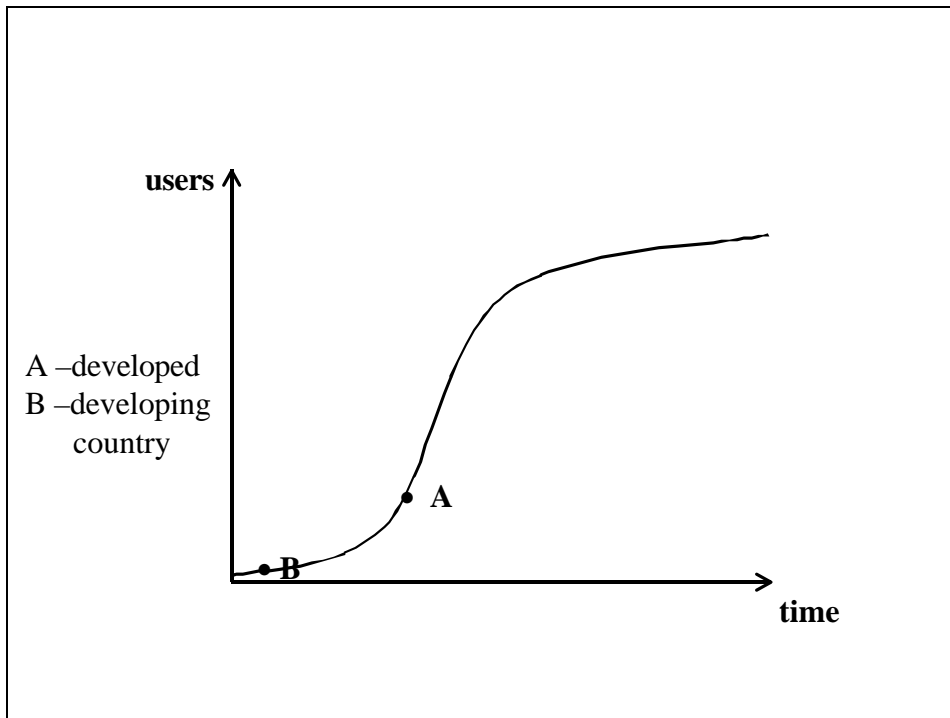


Figure 4. Disparities in APEC

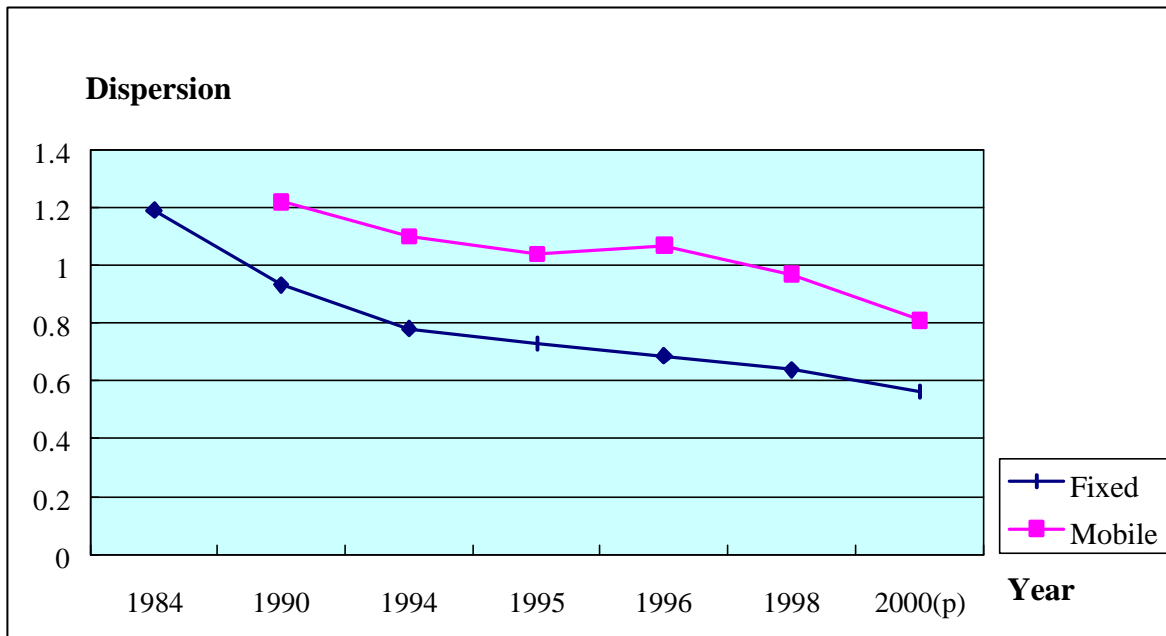


Figure 5. Case of Fixed Network

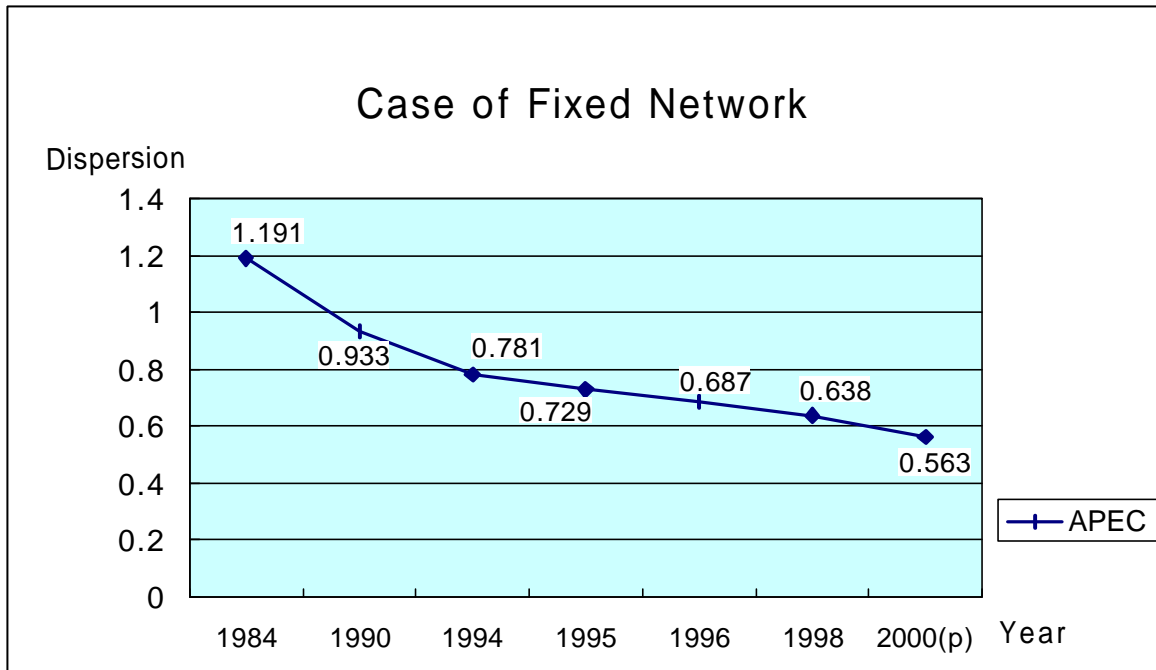


Figure 6. Case of Fixed Network (Decomposition)

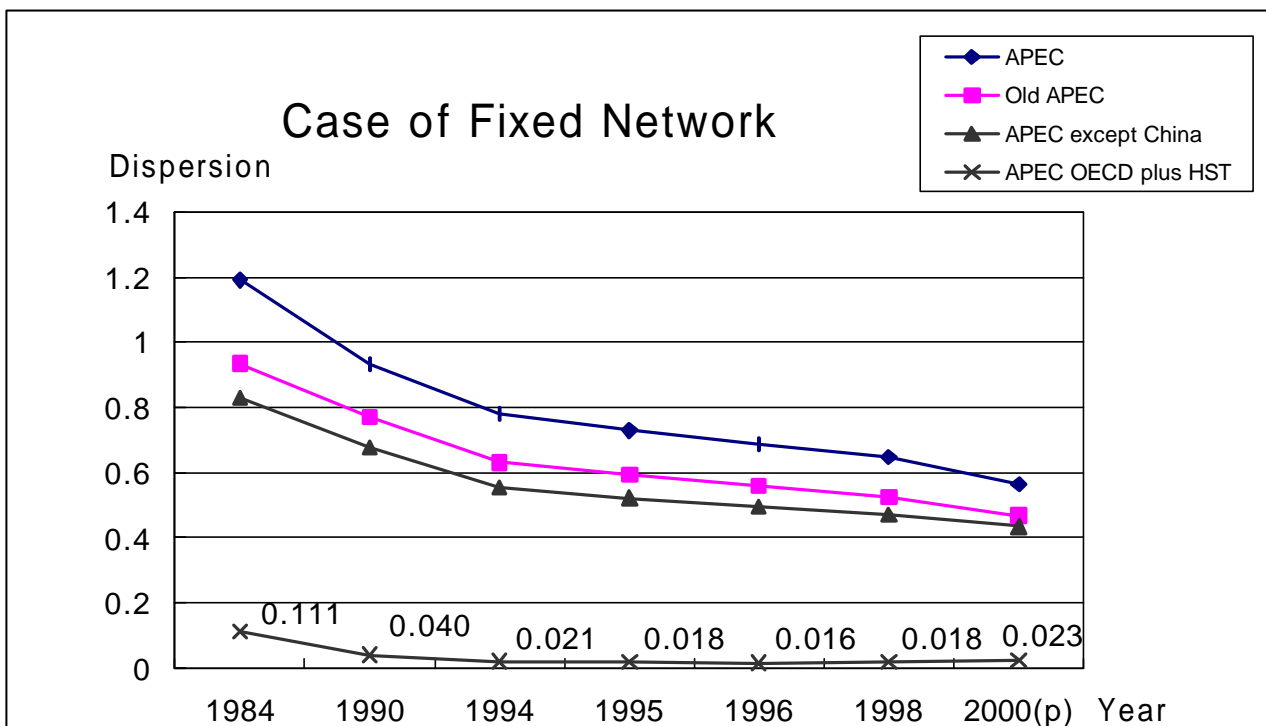


Figure 7. Case of Mobile Network

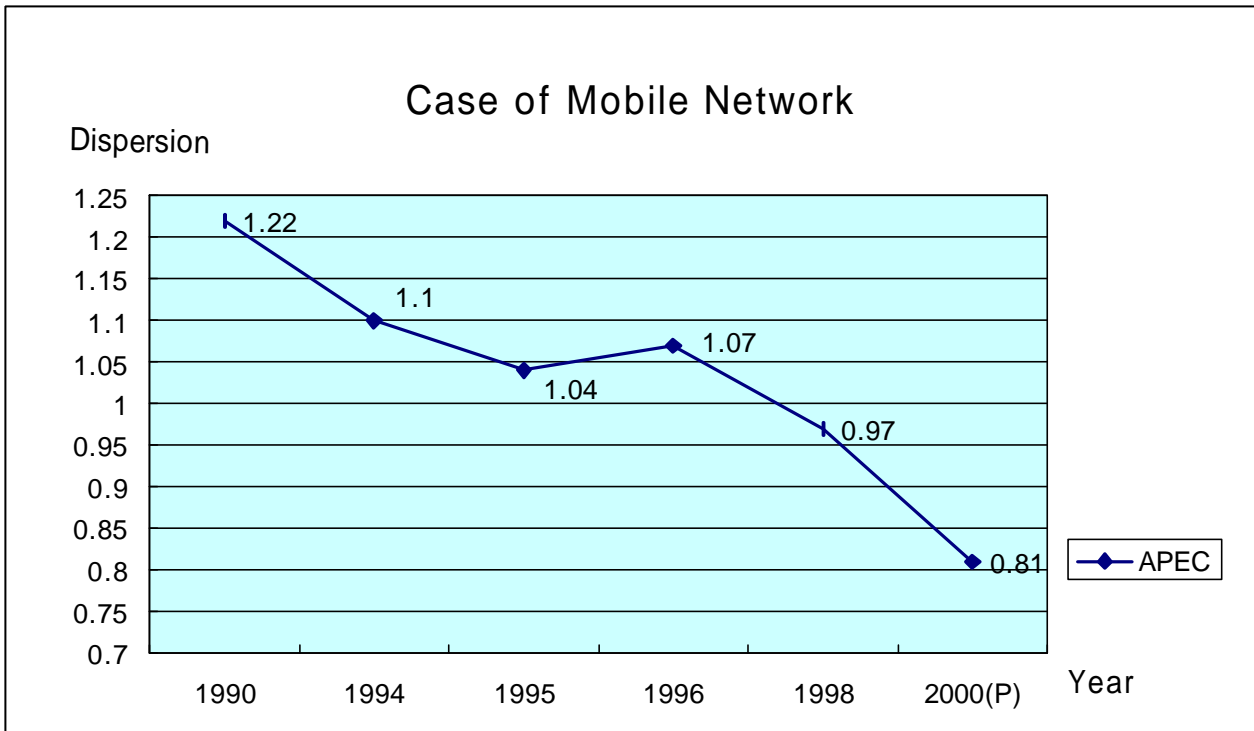


Figure 8. Case of Mobile Network (Decomposition)

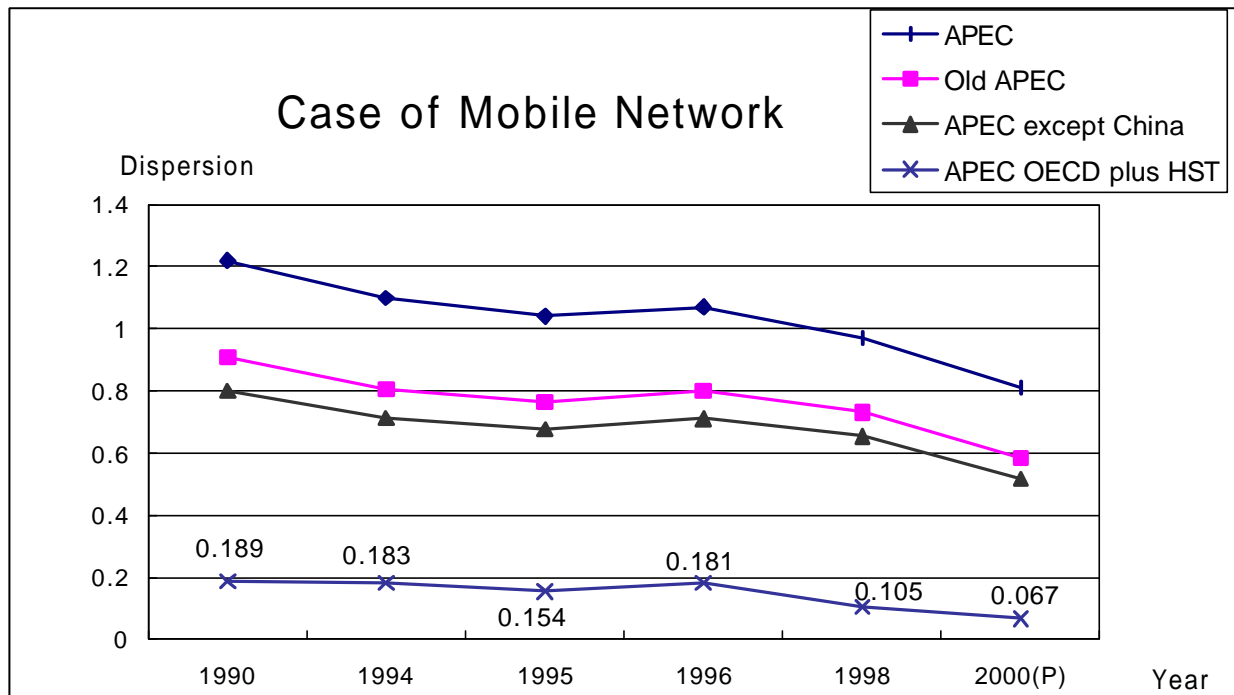


Figure 9. Penetration ratio over time: Case of Fixed Network

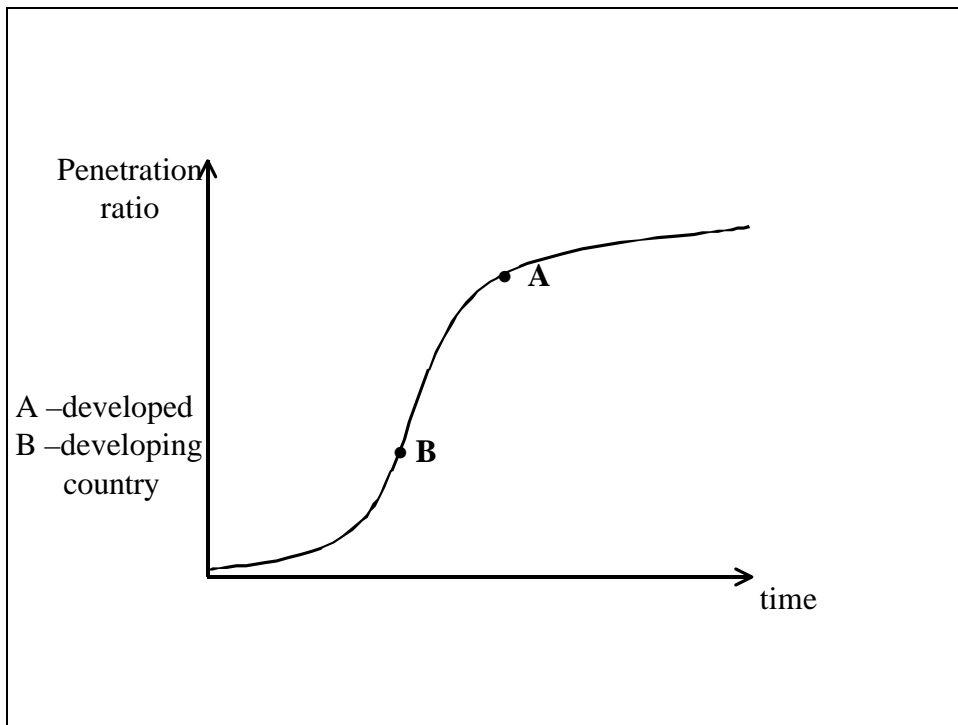


Figure 10. Penetration ratio over time: Case of Mobile Network

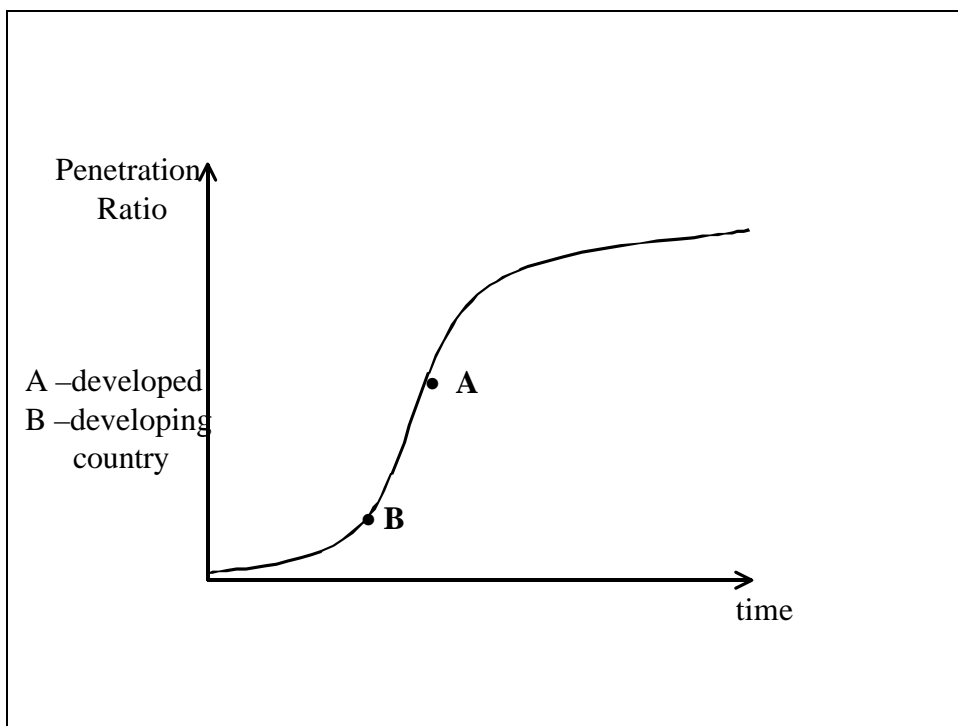


Figure 11. Projection of Network Dispersion in the APEC

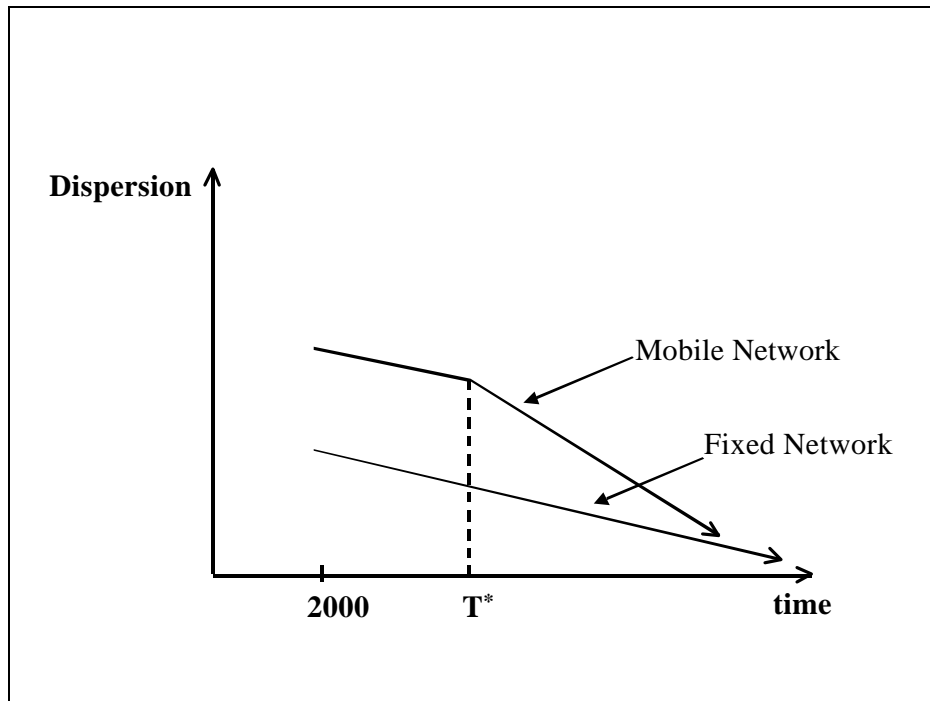


Figure 12 Relationship between GDP & Fixed Penetration

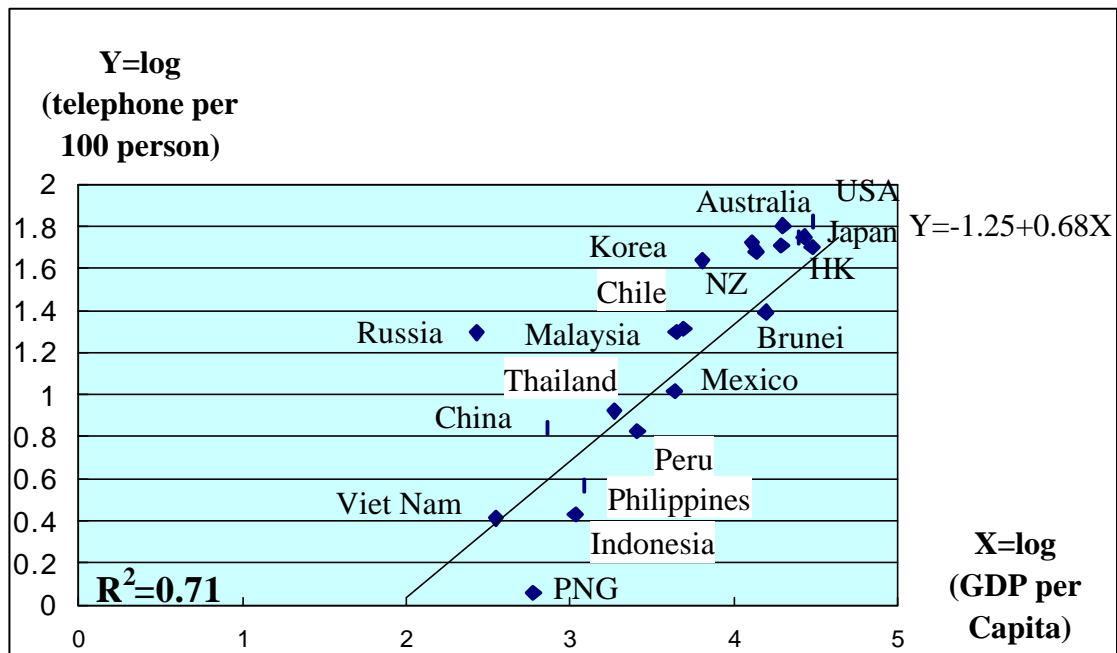
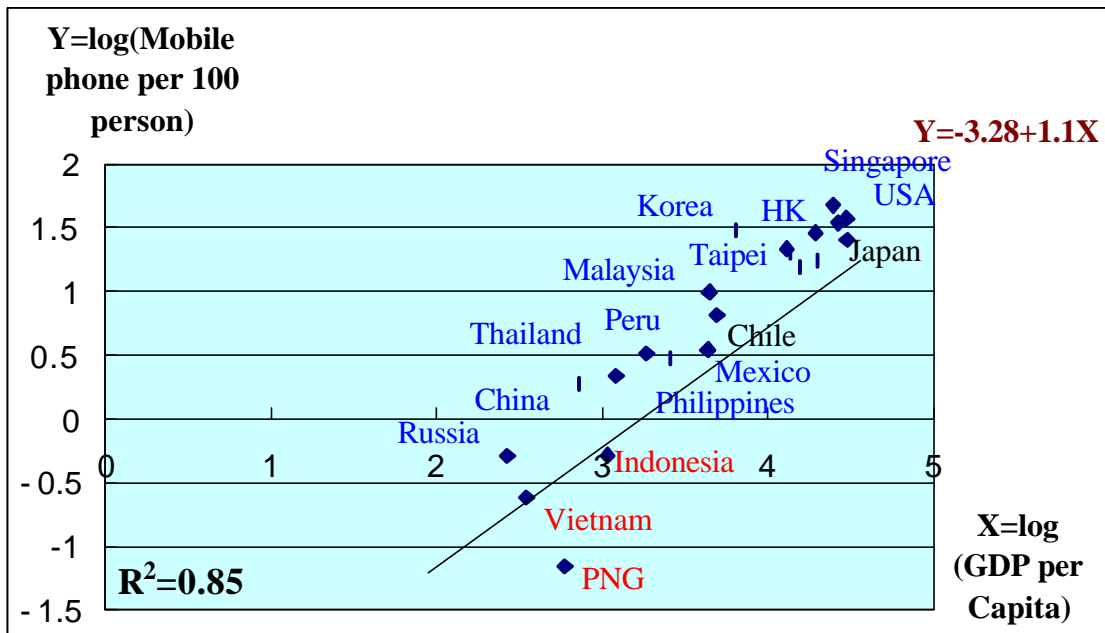


Figure 13 Relationship between GDP & Mobile Penetration



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APEC Business Facilitation Steering Group (1996)
 (1998-)
 (, E-mail: byc@mm.ewha.ac.kr)

“Competition Principles and Policy in the APEC: How to Proceed and Link with
 WTO” *Global Economic Review*, Fall(1999)
 “E-Commerce and Effect on Korea’s Trade.” *Journal of Trade and Industry Studies*,
 summer. (2000)
 “Next Step in the APEC Competition Principle.” *Journal of APEC Studies*, Summer
 (2000)

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