A New Look at Development Economics

through Korea's Experience:

"United We Stand, Divided We Fall" — Truth or Fallacy?

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Abstract

Why have economists given up their search to discover the “secrets” of economic development? Is economic development too complex that there are really no discernable truths that might be useful when thinking about the subject? Through the reflection of economic life and the experiences of Korea’s modernization, we take on the challenge to discover the principles of development economics. Specifically, “discrimination”, we find, is the key to economic development, which we discuss thoroughly to build a discrimination-verticalism framework. On the other hand, we contrast this with its anti-thesis, the egalitarian-horizontalism world, which can be seen as the theory of economic digression.

The development paradigm presented in this paper is applied more concretely not only to help us understand better Korea’s development experience of the past 40 years, but also to clear some perennial issues in development economics: namely, 1) the meaning of markets, 2) the roles of government and markets in economic development, 3) the dilemmas presented by democracy and positive economics, 4) the questions of income distribution, and 5) the controversies of conglomeration in economics and development. The discussions here are far-reaching, not only in the scope of socio-economic issues it attempts to address, but also in its highly philosophical attitude, which questions the very foundations of human existence and beliefs and, above all, the possibilities of economic progress.

1.0 Introduction

It would not be far from the truth to claim that the birth of economics as an academic discipline begins with the natural ambition of man to find the “magic formula” towards building and sustaining a developed economy—an economy where every member of society would be free to explore life with minimal material constraints. Adam Smith (1723-1790) published *The Wealth of Nations* in 1776 with an appropriate title that reflected such an ambition. He set himself to understand how nations would acquire wealth and economic prosperity. Behind much of his writing was the perennial question: What is the secret of economic development? This fundamental question has over the decades continued to evade even the most brilliant minds, and it remains a sad fact that after more than 200 years of rigorous academic discussions among scholars, policy makers, and others who have set their mind to find how an economy should be properly managed, a large part of the world’s population remains bounded in the grips of poverty. Poverty, rather than wealth, it would seem, is an inescapable feature of the human existence.

The “dismal” science has not been completely devoid of usefulness, however. Adam Smith, the father of economics, wrote about the merits of the market system at a time when the world believed that a societies could function properly only under the diligent attention of political rulers that could prevent a society from degenerating into disorder and poverty. *The Wealth of Nations*, provided a drastic different view of the world, an alternative to the Hobbesian understanding of the human condition, clearly demonstrated that self-interest and the exchange of goods and services do actually result

in socially desirable outcomes, under the guidance of what he called the “invisible hand”. Adam Smith’s insight into the workings of the “lasses-faire” surely has proved to be one of the greatest intellectual contributions not only to economics, but also to humanity as a whole. Much of the truth behind his writings has been repeatedly demonstrated throughout the course of modern history.

Despite continued work by eminent economists and other scholars, many of them having helped deepen our understanding of the market economy, in the real world, the market system has been far from being the panacea to many economic problems, especially, of the less developed countries in Africa, Asia and Latin America. Neo-classical economics, the reigning branch of the discipline, somewhat is turning out to have a dangerous impact in misguiding thinking in development economics. One purpose of this paper is to demonstrate how many contemporary concepts in economics, including the neo-classical paradigm itself, can be highly misleading, which has resulted in unrealistic objectives and the implementation of harmful policies.

At the turn of the new century, with still many countries lagging showing little signs of development, it would seem that a new paradigm shift in the discipline is warranted. This is not an easy task, as there remains strong skepticism regarding whether an alternative way to view the economy beyond what has already been demonstrated by Adam Smith is indeed possible. Irma Adelman (1930~), who has been thinking about economic development throughout most of her academic career, has a few interesting conclusions about the state of the subject in the 20th century. She has presented four principles regarding the development process: 1) The development process is highly

non-linear, 2) Development paths are not unique, 3) Initial conditions shape subsequent development, and 4) The development path of countries is not only non-unique but also malleable.[1] Points 1 and 2 are quite reasonable principles about the development process, and remind us that economic development differs much from, say, the (physical) growth or simple elongation of a typical animals or plants. Surely enough, things are much more complex when it comes to the interplay of conscious beings. Point 3 is even more controversial, and seems to lose its punch in light of principle 4. The debates surrounding point 4, the malleability of development continues to enjoy considerable attention by development economists. The debate between the efficacies of policy versus institutions as the primary cause of development is a recent example,[2] which echoes the debate between the roles of government versus markets in economic management. Sometimes, it might be puzzling why economists are so split on the issue of governments and markets, or regarding institutions and policy, and so on. Is the discipline just going in circles? Surely, although such distinctions may have analytic conveniences, it often clouds the fact that the human interaction takes place in a highly complex and a tightly intertwined social fabric, which often are better understood jointly rather than separately.

To be sure, we adopt a more holistic approach to understanding the economic development process. In this paper, we ask some very old questions about economic development, and try as best to give "new" answers in the form of the principles of development economics. Be warned that some of the results presented here will have very surprising and non-standard interpretation. Yet, this paper is simple and non-

[1] Adelman (1999).

technical: the only pre-requisite to reading and understanding what follows is an open mind.

2.0 The failure of development economics

Perhaps, it would be useful to summarize the development of development economics such that the following discussions can be placed into context. The beginnings of modern development economics can be traced to around the mid-1940s,[3] when the economic problems of newly de-colonized countries in Asia and Africa brought the attention of economists of former colonial powers, perhaps by a sense of "obligation" to help "develop" the newly independent states. At about that time a consensus appeared that there was need to better our understanding of the forces of development to help, above all, the design of appropriate policies to achieve economic development in the former colonies.

Under the influence of the neo-classical school, the term economic development was constituted to mean the increase in per capita income. Solow (1956, 1957) is the hallmark of the neo-classical growth model which argues that economic growth consists of 1) growth in the labor force and stock of capital, 2) improvements in efficiency with which capital is applied to labor through greater division of labor and technological progress, and 3) foreign trade that widens the markets and reinforces the other two sources of growth. Hence, as long as growth favored income-generation, savings were guaranteed and additional capital accumulation helped cause growth. And with capital

[2] Glaeser, Edward L., Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer (2004).

accumulation, demand for labor would rise and the growing labor force would be absorbed in productive employment. Behind the actual mechanisms driving growth is the market, including foreign markets, which is to be seen as most important factor promoting the division of labor and driving economic growth.

The neo-classical doctrine was not fully accepted by all countries. In fact, in the 1950s and early 1960s, development policies of many countries began to emphasize the maximization of national income through capital accumulation and industrialization based on import substitution. Some governments even turned to central planning in view of a distrust of markets and a belief in the pervasiveness of market failure. Bhagwati (1984) vividly described the general optimism of what could be accomplished by emphasizing planned investment in new physical capital, utilizing reserves of surplus labor, adopting import substitution industrialization strategies, embracing central planning, and relying on foreign aid. Policymakers were adopting such policies not simply because of advice from economists, but also because of ideological and political reasons.[4]

As history progressed, and regressed for quite a proportionately more number of countries, pessimism about the neo-classical view of economic growth began to appear. Scholars created the new endogenous growth models, which extends the Solow model from its diminishing returns to capital and labor formulation by allowing for increasing returns due to specialization and investment in “knowledge” capital, and by doing so claimed better conformation to evidences in diversity of growth rates among countries

[3] See, for example, Meier and Seers (1984) and Arndt (1989).

in the world.[5] All the technical advances aside, the new growth theories were far removed from answering the perennial questions of what caused growth, and more importantly, economic development.

With no clear answer in sight, from the 1980s onwards, economists began to approach development economics with different areas of focus, and at times, with little consensus in their views. The World Bank, for example, emphasized redistribution with growth; the IMF looked to financial stability; the ILO concentrated on basic human needs; development debate in general seemed to move away from industrialization to rural development issues; social issues were juxtaposed with economics ones (e.g. feminism, AIDS, child labor, etc). For better or for worse, development economists today can be found addressing a wide range of socio-economic issues.

Development is undoubtedly a complex phenomenon. As is evident from the discussion so far, there seems little hope in finding the "right" answer not only to why some countries remain underdeveloped, but also how countries might realize sustained development into the future. If development economics cannot become a coherent and consistent branch of knowledge, then there is reason to question its very existence as a separate discipline. This is even more critical, if we consider the fact that the goals of economics and that of development economics are in fact the same—that is the improvement of society's material well being. Is then the whole of economics at stake? Before we lose all hope, we invite the reader to go over the next few pages, which lay out what we think to be the positive theory of development economics. We in no

[4] See for example Hirschman (1968).

manner pretend to rescue the “dismal” science. That is not the task of a single person, and this paper, we hope, will help further discussions about development economics.

3.0 Fundamental principles of economic development

Presented here, not too formally, yet not too casually, are the fundamental principles of development economics, which we argue to be indispensable when thinking about economic development.

Let us begin by mentioning what seems obvious. In life, each and every person in society interacts with others in various ways and through various institutions. For example, the consumer buys goods and services in the market place, say, the supermarket; the laborer participates in the labor market to sell his or her labor, skills and/or entrepreneurship; the saver and investor in interact through the country’s financial system, and so on. In fact, such human interactions are nothing but “markets” broadly defined. Outside of the economy, other aspects of daily life have their “markets” too: pupils interact with their teachers in the classroom; in democracies, politicians and civilians work together through governing apparatus, which includes the parliament and judicial system; parents and children function within the family institution, and so on. What should be noted is that exercising discriminatory power is fundamental in the interaction of individuals. The consumer by choosing to purchase a certain good over other alternatives in the market place is exercising his or her discrimination power. In a sense, consumers are choosing a particular supplier (or

[5] See for example Romer. (1994).

producer) over another, by “voting with their purchasing power”. An investor choosing to invest in the stocks of a certain company is again exercising discrimination power by favoring that particular company’s stock over other securities in the market place—the investor is “voting with their investment power”. A student choosing to register for an economics course, by “voting with their learning power” is, in fact, exercising his or her discrimination over other courses offered for the semester. Parents and their children “vote with their family interest power” when deciding, say, which child gets to go to summer camp and which child goes to summer school. Citizens in a democratic society, we might say, simply exercise their “voting power”, and so on and so forth.

There are two further aspects of economic discrimination worth noting. First, economic discrimination, by revealing the preferences of individuals affects indirectly the actions of other individuals. For example, by purchasing a Hyundai car over Toyota, the consumer is contributing first and foremost to Hyundai’s owners, management and labor, as well as to the company’s R&D efforts, stock value, brand name, and a host of other Hyundai factors. Secondly, economic discrimination not only reflects the preferences of individuals, but also signals what is less preferred or less desirable. This again has far reaching implications in that what is selected will have sustaining power, as we have already argued, while those that are simultaneously not selected are quickly set on their path to extinction. Since, by definition, “successful” economies come into existence with “successful” economic items,[6] sustaining “successful” economic items through discrimination in goods and services, investment opportunities, labor skills, and so on,

[6] Of course, there are exceptions. Even Brazil with the best soccer players in the world, occasionally loses against other national teams. On the other hand, societies with “poor” economic actors cannot be a “good” economy.

allows for economic progress. Successful interaction of economic actors exercising their economic discrimination power is both ubiquitous and vital for the survival and progress of economies. This is summarized as Principle 1 as follows:

Principle 1: *Economic discrimination is a necessary condition for economic development.*

Beyond this, defining “successful” and “unsuccessful” economic actors and their behavior might be seen as problematic. In fact, success is a subjective concept with different societies often having different goals and meanings of “success” and “failure”. On the minimum, “successful” economic actors should be serving to their societies, and since every society has its set of objectives, we can assume that constant evaluation with respect to some economically defined benchmark is sufficient to make judgment about success and failure. The bottom line is that an economy that are not discriminatory is bound for failure, while one that is constantly evaluating performance and rewarding “successful” economic behavior (while correcting “unsuccessful” ones) helps increase the development potential. Put differently, “differences should be treated as differences” and never as equals.

Another important aspect of economic discrimination is the reward to “successful” actors for their effort and contribution to the economy. If we “rip what we sow”, then the discrimination mechanism will reward as well as sustain the most “successful” economic actors, many of who, over time, will quite naturally receive the bulk of the economic reward. Furthermore, since efficiency drives further efficiency, a growing

economic entity will tend to attract and command increasingly more resources, often further increasing not only its economic size, but also its role in the economy as well, at least up to the point when diseconomies of scale might be realized. Placed on the discrimination-vertical scale, it is easy to see that those at the top of the "economic ladder" will tend to command greater amounts of resources, productivity activity and economic reward (profit).

With reference to economic development, what is important to realize is that the degree of economic discrimination will determine the speed of development. And, as we have just argued, since conglomeration is associated with economic discrimination, we can conclude that the more "successful" economic agents that control more resources, have greater roles in the economy, and also receive larger rewards, the more intense the economic discrimination mechanism and hence the faster the development process. We summarize this as Principle 2:

Principle 2: *Conglomeration or the amalgamation of economic resources and reward determines the speed of economic progress.*

We have already stressed mentioned the importance of differences, or what is the same thing, diversity, as a natural and important feature of successful existence. The upshot is that if some kind of change can only be initiated through discrimination, then diversity is absolutely required:

Corollary 1: *Diversity of economic actors allows for the functioning of the*

discrimination mechanisms. Economic discrimination cannot happen without economic diversity.

In economics, that means at least some difference should be maintained between any two economic items. Diversity with respect to some economic criteria allows for the discrimination mechanism to function. This may look like trying to split hairs, but we are not actually far from describing reality—it is easily observed in the real world that differences are everywhere. What we are emphasizing is the importance of economic diversity; say, between goods and services, across laborers, firms, banks and so on.

At this point, one might ask: What comes first, discrimination or diversity? To us, this is just the chicken and egg question. However, we chose to place discrimination "before" diversity to crown it as the first fundamental principle of development economics. After all, diversity is possible without progress, but there can be no notion of progress without discrimination. Diversity would in our context remain as the canvas upon which discrimination draws its picture.

To contrast with principle 1, we establish "equalization" as the anti-thesis of discrimination. Interestingly, the concept of equalization is intricately associated with "horizontalism", which can be understood by more technical terms such as homogeneity.[7] The upshot is that equalization although acknowledging differences does not treat differences as differences, but rather argues for deliberate action towards mitigating or nullifying differences to creating equal outcomes. It is not difficult to see

[7] Other terms with similar connotation are "uniformity", "collectivity", "socialism", "equality",

that equalization is also not supportive of diversity. With egalitarianism, economic digression then becomes reality. This is stated as Principle 3:

Principle 3: *Equalization is the first step towards economic digression.*

When speaking of development, it is critical that at the very least a 2-dimensional framework be kept in mind—assign a hypothetical "vertical" position as "discrimination" with its orthogonal "horizontal" position as "equalization". Here "vertical" and "horizontal" are relative notions in respect to the developmental space. The analogy of the ladder is immediately useful here. In order to reach a higher plane, the ladder must be standing, that is, it must assume the vertical position so that "higher" levels become reachable. On the other hand, a lying ladder is akin to no ladder at all—being parallel to the "horizontal" axis, it does not span the development space. Keep in mind that development is a "vertical" concept with progress being possible through discrimination (the in-built "ladder"). We summarize the concept of "verticalism" as corollary 2:

Corollary 2: *"Verticalism" is to development as "horizontalism" is to digression.*

We have established the two opposite forces of economic development—discrimination and equalization. Armed with these two concepts and the two corollaries established in this section, we further investigate their meaning by looking back over Korea's development experience over the past 40 years. We chose Korea, not only because it is

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"egalitarianism", and so on.

convenient to apply the principles of development economics stated above, but also because we wish to take up the challenge of explaining Korea's economic growth and stagnation, something that existing development paradigms unsatisfactorily explained.[8]

4.0 Re-interpretation of Korea's economic development

4.1 Act A. Discrimination in action (1): Korea's economic policy in the 1960s/1970s

Korea's export development strategy of the 1960s and the Heavy and Chemical Industries drive of the 1970s are well documented. How do our principles of development economics fare in the early two decades of Korea's modernization? What were the discriminatory features of these policies? For one, the export-oriented policy was based on a comprehensive incentive system that introduced and channeled important resources into the best performing export sectors. All exporters, regardless of what they exported, were eligible for preferential access to foreign loans and to preferential interest rates, and were allowed also to import, usually on preferential terms, machinery and intermediate inputs needed for manufacturing export products. In a sense, it can be argued that industrial policy involved neither "functional intervention" (addressing only specific types of market failure) nor "selective intervention" (influencing the industry-specific composition of the economy). True, but behind the apparently "neutral" export-oriented policy, there was much preparation and work involving regular meetings for evaluation and rewarding of good business performance

[8] The same seems true when looking at Africa. Many scholars have spent much time trying to understand Africa's economic problems and dilemmas—many "solutions" by "experts" have been suggested; yet economic development remains evasive for many African countries to this day.

(measured in terms of exports) carried out by the government personnel. At the end of each month, and even more dramatically at the end of the year, the Export Promotion Committee headed by the President reviewed progress of specific firms and industries, and prepared necessary measures toward meeting export targets. Moreover, public recognition was also bestowed on successful exporters by awarding them with achievement medals—a citation that provided entrepreneurs with enormous social prestige, as well as further tax and financial support. Financial resources, in particular, were allocated to successful firms not only as a result of the government's industrial policy, but also as voluntary response by banks that reacted to favorable signals from the evaluations and outcomes of the export meetings. The upshot is that the government through such "export contests" placed discrimination at the center of industrial policies.

In the period of the Heavy and Chemical Industry drive, the discrimination process was hardly toned-down. For example, HCI support was directed at those firms that had a certain minimum base to participate in the HCI package. The Promotion Plan for Heavy and Chemical Industries specifically stated that companies wishing to enter the HCIs must procure at least 30% of total investment with their own capital. In this way, mainly enterprises that had grown in the 1960s were selected again, because these companies were the only ones able to put out such a large amount of capital, which they acquired under the export wave of 1960s.[9] This is evidently a highly discriminatory system, which aims to build upon the capacities of firms that had grown in the 1960s. Arguably, if the potential enterprises were neglected, the HCI plan would have taken an even

[9] One more reason was that the heavy and chemical industries required a large production scale and therefore large amounts of money, giving a relative advantage to the big enterprises that had financial and managerial experience and ability.

longer time to achieve its policy objectives, or might not have been successful at all. Although the HCI drive pushed for rapid conglomeration, there were negative consequences such as the so-called chaebol problems.[10]

4.2 Discrimination in action (2): Korea's social transformation policy of the 1970s

Policy in the 1970s not only attempted to speed up economic development, but also aimed at modernizing society on the whole. In the rural areas, for example, under the Saemaul Undong (New Community Movement), the Ministry of Home Affairs aimed to modernize rural villages. Villages throughout the country were classified on the basis of performance and level of development into three categories: 1) basic (underdeveloped) village. 2) self-help (developing) villages, and 3) self-reliant (developed) villages. This ranking of villages, through recognizing differences as differences, was augmented by an objective rewarding system—the government adopted a different approach for each class of village. Most importantly, higher assistance (not lower assistance) went to higher-level villages. This discrimination spurred competition among villages particularly stimulating the lower villages to exert more effort towards advancing to a higher-level village in order to benefit from government support. The Saemaul Undong is a clear example of the discrimination principle at work.

Given that Korea is well known for her strong Confucian ethos that tends to stress egalitarian principles, it may be somewhat surprising that such a highly discriminatory policy, which proved to be very decisive in placing competitive entrepreneurs and firms

[10] For a discussion of the chaebol problem, see Chapters 1 and 3 in Jwa (2002)

as well as the successful Saemauls into the forefront of Korea's economy, as well as transforming the rural areas, was to become instrumental in driving social, as well as economic progress for nearly two decades.

4.3 Quick recap (1): The discrimination decades—1960s/70s

In our discrimination-verticalism framework, we have shown that Korea's economic development over the two decades of the 1960s and 1970s has been possible because of highly discriminatory policies—"government-led discrimination" seems to be an appropriate term to describe this era. The export-orientation policy, the HCI drive and the Saemul Undong movement, each contained an consistent economic criteria backed by regular evaluation and reward of superior performance. Principle 1, in short, was fundamental to realizing the growth "miracle" of the 1960s and 1970s.

Result 1: *Korea's export-promotion strategy and the Heavy and Chemical Industry Drive were highly discriminatory policies.*

The "conglomeration" process on the other hand with respect to the HCI drive is consistent with principle 2 of development economics laid out earlier, which argues that conglomeration is a natural result of economic progress.[11] What the HCI plan demonstrates is that developmental constraints can be overcome and the "catch-up" phase considerably shortened through the sharpening of the discrimination process. The result is increased amalgamation of economic resources, for the better or for the worse.

[11] It seems impossible to site any contrary evidence.

Result 2: *The degree of conglomeration can help speed up economic progress.*

At this stage of our discussion, one could also ask what the term "neutrality" means in regards to economic policy. Can and should government policy be "neutral"? Contemporary literature points out that the export-oriented strategy was "neutral", and according to the usage of the term, being contrasted with "sector-specific" policies of the HCI drive, "neutrality" seems to mean not-sector-specific. We ask whether there is need to differentiate between "neutral" and "sector-specific"? The answer is simply, No. It was indeed because of the inbuilt discriminatory mechanism of the export-orientation policy and the HCI drive, and not its "neutrality" or "sectoral-bias" that stimulated Korea's economic growth and development in the 1960s and 1970s. Also, we warn that it is easy and dangerous to misinterpret or confuse "neutrality" as meaning "non-discriminatory":

Result 3: *Policy need not be "neutral" or "sectoral-specific" to be successful. Discrimination, rather, is the key to economic development.*

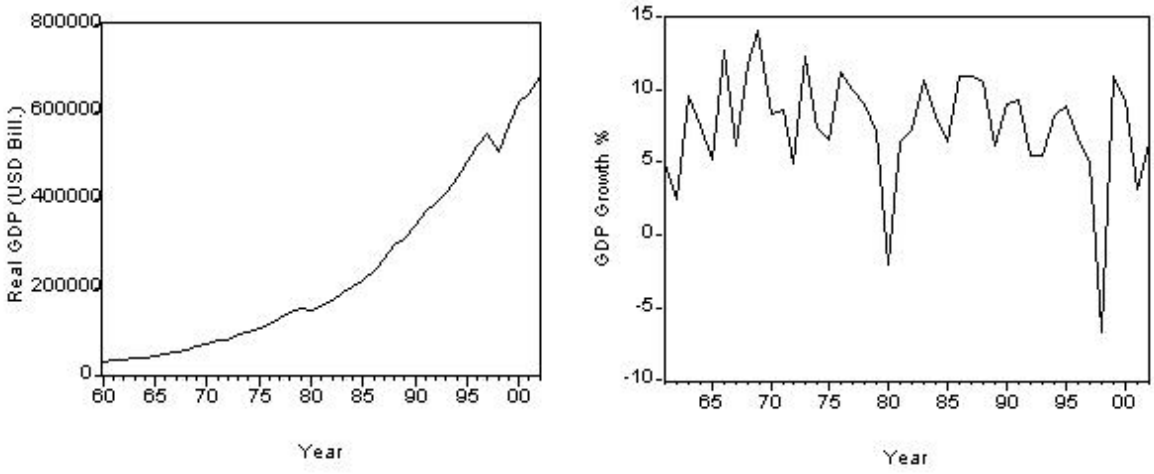
4.4 Digression: Was there a break around the mid-1980s?

We interrupt this policy discussion to present some empirical investigation for a break around the mid-1980s. According to World Bank statistics, Korea's real GDP in 1995 prices rose from USD 33 billion in 1960 to 680 billion by 2002 (see Fig <1>). Korea once behind in terms of GDP compared to many African and Asian countries in 1960

expanded by 20 times in a little over 4 decades to become the 12th largest economy in the world. In terms of real GDP growth an impressive average of 7.5% growth was maintained. Only one other country in the world, Botswana, managed faster growth of 9.7%.

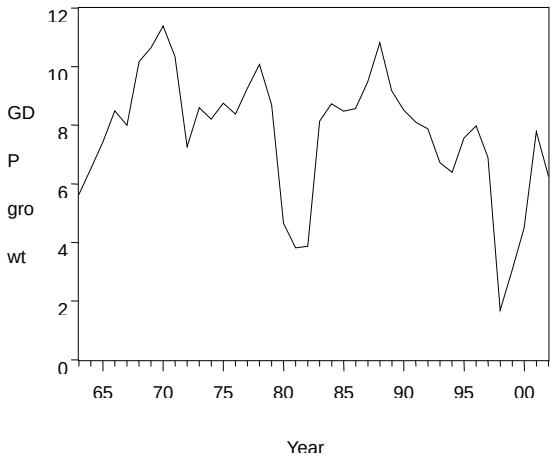
GDP growth since 1960 has been far from smooth. The figure below, for example, shows two striking negative growth rates in 1980 and 1998. With the exception of 1970, there seem no definite peaks in the GDP growth rates.

Fig 1 Real GDP Level and Growth: 1960-2002



A picture of the 3-year moving average for real GDP growth, by filtering out noise to some extent, while continuing to show the peak at 1970 also displays two more interesting local peaks in 1978 and 1988 (see Fig. 2).

Fig 2 Real GDP Growth 3 YR Moving Average



A quick look at real GDP suggests some breaks, which requires further empirical testing. We need to identify in the data, for example, the years for which Korea might have experienced important structural shifts? Also, we could question whether such structural shifts were abrupt or gradual, and also by studying other variables, we might look to see which sectors were most seriously affected.

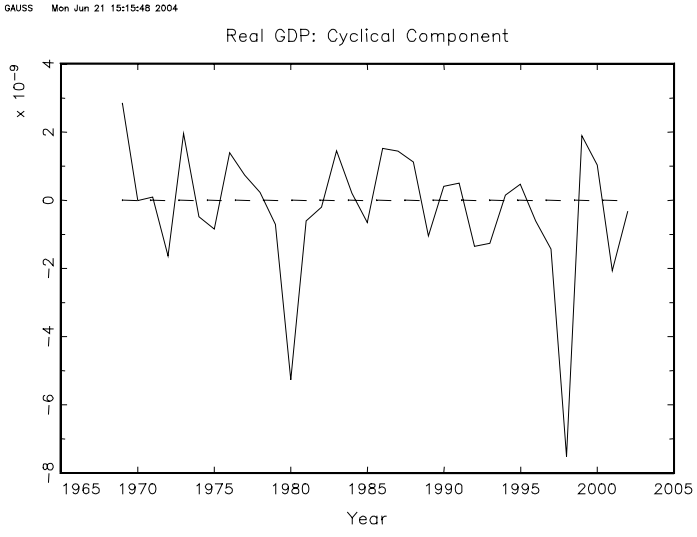
A series of popular tests for structural breaks exist in the economics literature. Broadly speaking, these can be divided into tests for discrete breaks and tests for continuous change. The F-test for parameter stability by Chow (1960) and the CUSUM test of Brown, Durbin and Evans (1975) are perhaps the most representative of discrete-time and continuous-time change, respectively. Recent state-of-the art econometrics techniques in searching for structural shifts are capable of tackling non-linear time series and include the markov-chain model (MSM) for regime switching and state-space models.

For the purposes of this paper, we experiment with the most basic models for a selection

of time series variables including not only real GDP, but also total factor productivity growth, domestic demand, return on investments, equity and sales, and others.

There is considerable debate whether macroeconomic data should be considered as exhibiting fluctuations around a smoothly growing trend or as Nelson and Plosser (1982) contend, rather than linear detrending, first differencing for nonstationary series would be more appropriate, which means describing data as random walk with drift as opposed to a straight line. To begin with, we use the same method of Clark (1987) to decompose the GDP series for the period 1960 to 2002 using the Kalman filter into a random walk (stochastic trend) component and a stationary (cyclical) component.

The cyclical component for the log of GDP is presented below. As expected the crisis periods of 1980 and 1997 are shown.



Removing the cyclical component, we are left with the time-varying coefficient as shown below. What is clear is that there is a drop in the coefficient as from 1978/79 onwards. The recovery between 1981 and 1987/8 never quite reaches the previous peak.

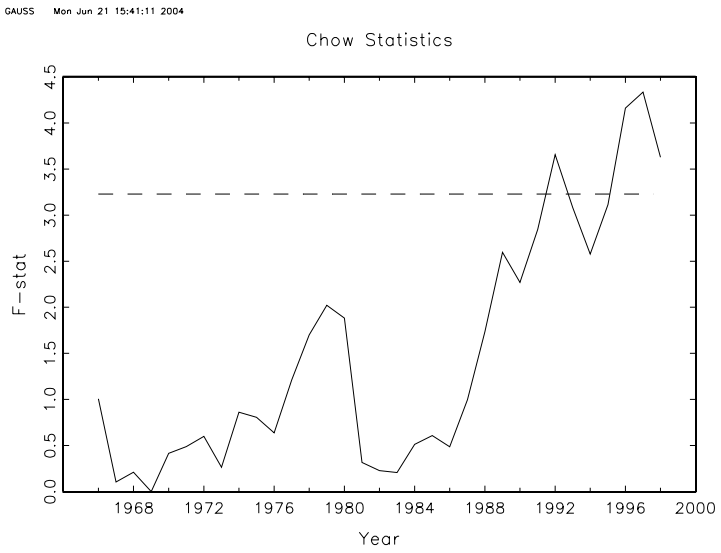
From around the 1990s onwards, there is quite a distinct decline culminating in the 1997 economic crisis.

OUTPUT: likelihood value is 63.206198
Estimated parameters (standard errors) are:

σ_v	σ_e	σ_w	ϕ_1	ϕ_2
1.009922	9.366428	3.959105	0.036440	-0.035159
(0.00470)	(0.000873)	(0.004509)	(0.019512)	(90.005529)

The test for continuous change shows a gradual structural shift in the 1979/80 and 1987 onwards.

We also carried out a number of tests for discrete structural break (see the Appendix for details of the various econometrics techniques investigated). For GDP growth, structural breaks can be dated at 1992 and 1997/8, but the period around the 1980 is not picked up as strongly (see diagram below).



We also applied the Max-Chow test on a number of other economic variables, the results of which are provided below (also see the Appendix).

The Max-Chow test on other economic variables

Other Variable	Break Years	F-stat
Domestic Demand	1990 through 1997	6.8 to 19
Return on Equity	1979, 1990, 1997 (local max)	18.1, 20,2 and 18
Fixed Investment	1991, 1997	7.2, 7.3

The table above shows the results of the Max-Chow test on other economic variables for which breaks are statistically significant. The CUSUM, MSM and Dummy-regression models give more or less the same results. Besides GDP and the variables represented in the table above, data on total factor productivity (TFP) growth tell that the average for 1988 to 1997 was significantly lower at 3.41% compared to 6.64% for the earlier 1964 to 1979 period.[12] Comparing the same two periods again, the growth rates of investment in plant and equipment fell from 24.7% for the 1964-1979 period to

[12] If we break down the TFP figures into their constituent parts such as efficiency of resource allocation, economies of scale, and so on, a similar declining rate is observed.

9.7% for 1988-1997.[13]

Empirical investigation of various Korean economic data suggests that the economy changed gears around the period 1979/80, 1988/90 and 1997/8. Given the conceptual understanding of the development mechanisms presented above, we continue to reinterpret the features of Korea's economic experience, which arguably has been backed by the data.

4.5 Act B. The revenge of egalitarianism (1): Korea in the post mid-1980s

In the late-1970s, the government became concerned with economic stabilization and welfare issues as resistance to Park Chung-hee's 18 years rule intensified. A stabilization plan was announced in April 1979, and following the assassination of Park Chung-hee on October 26, 1979, the central focus on HCI within government policy was quickly removed. Inflation concerns following the "high-investment" in HCIs and the expansionary monetary policy, as well as the poor export performance and harvest failure in 1980, became the main concern of economic policy.[14] The government went further than simply refraining from HCI policies, and redirected policy more broadly and "equally", for example, to support technology-intensive industries. Although government involvement in the HCI sector did not stop here—the government

[13] Of course, this is not to say that there have been absolutely no improvements in the economy and in the Korean society over the past fifteen years or so. Industrial policy unambiguously has helped bring about Korea's "miraculous" growth of the 1960s and 1970s. We must question, however, why the phenomenal success of the initial two decades has not been repeated, let alone surpassed, despite serious economic reform measures introduces in the later 1980s and 1990s.

[14] The international economic environment in the early 1980s was extremely unfavorable—a situation that further restricted Korea's exports, and encouraged the new government to concentrate on stabilization, and in its first two years on controlling inflation.

throughout most of the 1980s closely interfered in industrial and corporate restructuring—from the 1980s the amalgamation of resources into certain firms and industries were certainly discouraged. In a sense, de-concentration of economic entities became increasingly popular, as if to reverse the policy effects of the 1960s and 1970s.

Leipziger and Petri (1994) place the principal reference date and period when Korea's industrial policy shifted when support for HCI was replaced by support for research and technology, which was clear articulation in the Fifth Five-Year Plan (1982-86).[15] They write that, "Korea's new industrial policy was formalized by the Industrial Development Law of 1985 and the simultaneous repeal of selective industrial promotion laws."[16] Obviously, different dates could be considered as candidates, but we chose Korea's 29 June 1987 democratization pledge as the turning point in the country's economic history. We do not dismiss this era as purely negative. The political change is most welcome, but good politics should not necessarily be interpreted as good economics. Most critical was the amendment in 1987 of Paragraph 2, Article 119 of the Korean constitution that reads, "the state may regulate and coordinate economic affairs in order to maintain the balanced growth and stability of the national economy, to ensure proper distribution of income, to prevent the domination of the market and the abuse of economic power and to democratize the economy through harmony among the economic agents". Quite significantly, many of the ideals of what a modern society should be can be literally read

[15] The Plan specifically emphasized the establishment of institutions to train scientists and to conduct basic and applied research so as to advance technology development. Institutions such as the National Project for Research and Development, in 1982, were established to fund public as well as public-private R&D products in the fields of electronics, chemistry and engineering. Furthermore, new tax incentives under the Technology Development Promotion Act were strengthened in 1981.

[16] Leipziger and Petri (1994, p. 593). The Industrial Development Law became effective from July 1986, replacing seven individual industry promotion laws.

of this Act: Economic policy, and Korea's public policy at large, has since come under the influence of such terms as "regulation", "balanced growth", "proper income distribution", "domination of market", "abuse of economic power", "economic democratization", and so on and so forth, which are accepted as "norms" even by the general public and media.

At this point of our discussion, we need to bring in the political world, specifically, egalitarianism, which can be seen as the political expression of equalization (referred to in Principle 3). Egalitarianism is a contested concept in social and political thought. The Stanford Encyclopedia of Philosophy puts it that egalitarianism is a trend in political philosophy, that favors equality of some sort—people should get the same, or be treated the same, or be treated as equals, in some respect. That is, egalitarianism is a protean doctrine, because there are different types of equality that might be thought to be desirable. Most relevant to our discussion on economic development is that the term "egalitarianism" is often used to refer to a position that favors, for any of a wide number of reasons, a greater degree of equality of income and wealth across persons than currently exists. To bring the conclusion of this paper forward, we warn against egalitarianism, which is obsessed with the "equality of outcomes", and as suggested by principle 2, a system that stresses equalization of economic outcomes tends to destroy the very incentives to better oneself: economic actors already doing well and those that are struggling to do better, sooner than later, become discouraged as they find that despite their efforts, results or outcomes are to be homogenized artificially (by a third party) at the end.

A prime economics example in Korea is the pressure to mitigate economic concentration of corporations under uniform regulation over the past 15 years or so. Korea's industrial organization has been affected by the Fair Trade Laws,[17] which with the backing of the "economic democracy" doctrine, as well as the almost atavistic fear of big businesses, has taken on as its responsibility to check corporate expansion and growth. The Korea Fair Trade Commission (KFTC) is the main body that carries out these laws and, until recently, classified on an annual basis the top 30 *chaebols* to which special regulation, much of it aimed at de-concentrating economic power of large corporations, were uniformly applied.[18] This is a direct reversal of principle 3 stated above. If successful companies are stripped of their resources or if amalgamation is restricted, the result will be nothing more than a loss to society.

Efforts at restricting economic concentration of large corporations have however been ineffective, and have not equalized outcomes. For example, the proportion of value-added for the 30 largest *chaebols* and 5 largest corporations actually increased from 39.3% and 21.7% in 1986, to 51.5% and 25.0% in 2001, respectively. The share of value-added of Samsung Corporation (currently the no. 1 corporation in Korea) to total national product increased from 4.7% to 9.0% over the same period. More worryingly, regulations have adversely distorted the economy's incentive structure. In fact there are two forces at work here—on the one hand, regulation adversely affected large corporations, which resulted in reduced risk-taking, entrepreneurship, investments,

[17] The Monopoly Regulation and Fair Trade Law was set up in 1980.
[18] Recently, as Jwa (2003) warns, another type of regulation imposed is the blind pursuit of "global standards". The dangers of uniform regulation, whether to check the growth of the top 30 chaebols or to force the adoption of Anglo-American business practices, has in it much potential to destroy corporate entrepreneurship, investment and innovation.

profitability, and so on, while on the other hand, despite efforts to support smaller enterprises (as we argue shortly), the small and medium enterprises (SMEs) did not show any signs of significant improvement or growth because, after all, there was "easier" access to privileges that were somewhat divorced from their economic performances. Interestingly, not a single "new" SME has grown into a large corporation over the past couple of decades.

Under egalitarian motives, a counterpart to the regulation of large corporations has been the "need" to address the troubled small- and medium-sized enterprises (SMEs), which has since taken a central role in the new balanced growth strategy. The government since the 1980s turned to promoting SMEs, not only by establishing SME sanctuaries, but also by requiring banks to comply with a compulsory lending ratio program. Some of the objectives related to supporting SMEs have included efforts to improve the sector's industrial competitiveness, to reduce trade deficits with Japan, and to improve foreign exchange earnings power of Korea's exports. The results of government efforts have, however, been largely unsuccessful: Trade deficits of SMEs in intermediate capital goods and parts industries with Japan has continued to increase in the past decade;[19] the intermediate capital goods and parts enterprises continue to rely on foreign imported parts, the foreign-exchange earnings rate decreased from 69.8% in 1995 to 63.3% in 2000, thereby falling back to the levels of 20 years ago (63.1% in 1980), and so on. We explain this as follows: Typical of populist policies, SME policy packages set a general and uniform criterion, which allowed SMEs (irrespective of their capacity and potential) access to governmental support and privileges, and in this sense, policy was

[19] The deficit reduced somewhat right after the financial crisis in 1997, but has increased again recently.

uniformly applied (non-discriminatory). Moreover, policy was static in that constant evaluation of those SMEs receiving support was largely absent or, at least, highly politicized—the evaluation and reward system was never as rigorous or as strict or as objectively carried out, as the earlier two decades of Korea's economic modernization.

Thus, given the widespread egalitarian ethic that continues to this day, the highly government-initiated "discriminatory" system characterized by a constant evaluation and reward system of the best performers gradually lost favor with consecutive governments. Economic policies since the mid-1980s, under the weight of democracy, became more cautious and sensitive to popular opinion, particularly refusing to bias itself to a specific group or sector. Without the discrimination mechanism largely absent, the economic incentive structure became distorted; breeding complacency and moral hazard behavior and encouraging waste as well as corruption.

4.6 The revenge of egalitarianism (2): The "egalitarian trap"

To help identify egalitarian policy that seeks equality, we have coined the term the "egalitarian trap" in line with principle 2 of section 3, which states that equalization is the first step towards economic digression. In Korea, what we observes is that public policy, under the influence of egalitarian sentiments, has increasingly been applied to the economy and to society in a uniform and equality-seeking manner. The public and many of the democratic political leaders, to be sure, have frowned upon discrimination.

Egalitarianism can be instrumental or noninstrumental. Given a specification of some

aspect of people's condition or mode of treating them that should be equal, one might hold that the state of affairs in which the stated equality obtains is morally valuable either as a means or as an end. Instrumental egalitarianism values equality as a means to some independently specifiable goal, while noninstrumental egalitarianism values equality for its own sake—as an end, or as partly constitutive of some end.[20] In Korea, aruguable, egalitarianism has been largely the nonstrumental kind. Political leaders and policymakers assume that ALL members of society should and can benefit equally from policy measures—this is clearly a "horizontal" principle of which we had mentioned earlier. Be as it may, public policy over the past 15 years or so, has sought to equalize outcomes across various individuals. This is what brings the economy and society into what we call the "egalitarian trap", which has become quite widespread in Korean society, as can be observed in the country's R&D policy, urban policy, rural income policy, and so on. Let us look at some further examples:

Korea's focus on R&D might have replaced the HCI drive of the 1970s, but with the exception of information technology, particularly, the mobile and wireless communication sector, there has been little success elsewhere. On the surface, R&D policy might seem not much different from the export-orientation policy of the 1960s. A trained eye however reveals that implementation of policy, for one, became more and more uniform and diffused, corresponding with the country's move towards egalitarianism. Economic policies, as we have seen above with the corporate sector, became less and less discriminatory. They were instead made available to a wider

[20] For example, someone who believes that the maintenance of equality across a group of people fosters relations of solidarity and community among them, and is desirable for that reason, qualifies as an instrumental egalitarian. Someone who believes that equality of some sort is a component of justice, and

audience, which was assumed to be equal. To be sure, the emphasis on technology lacked the discriminatory strength of the export-promotion policy, as well as the HCI drive. Furthermore, policy after mid-1980 differed from the export-orientation policy in its execution, as there seems to be nothing corresponding to the "export contests" in, say, a form of "technology contests" or otherwise, under which constant evaluation and rewarding takes place.[21] Understandably, the economy had matured considerably in the 1980s, and the "government-led discrimination" *a la* 1960s/70s might have reached its limitations—for sure, economic planning had become a much more complex problem. But this is going a little astray from the point we wish to make. The real change has been the replacement of the strong discriminatory-vertical incentive structure that involved the constant evaluation and reward cycle, by a diffused-horizontal system that aimed at equalizing outcomes under an egalitarian view of the world.

Another example is Korea's urban policy. Seoul is one of the most densely populated cities in the world, and the government has tried to reduce its concentration. Under the spirit of egalitarianism, the government has aimed to equally upgrade non-metropolitan regions to mitigate the rural-urban divide. Resources were made equally accessible to other regions across the country, but because it was done in a non-discriminatory function, as the principles of development economics would predict, development has evaded rural areas. Statistics shows that, on the contrary, the economic concentration of GDP for Korean metropolitan areas including Seoul in fact rose from 42% in 1985 to 47.7% in 2002. In addition, over the same period, among the total Korean population,

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morally required as such, would be a noninstrumental egalitarian.

[21] Although export performance was easily measured, usually in sales volume abroad, perhaps, it was not as easy to make a corresponding definite judgment about technological improvement.

those living in the metropolitan area increased from 39.1% and 46.7%.[22] Furthermore, rural incomes have not improves, despite rural support programs worth more than won 52 trillion,[23] and the proportion of income of farm household compared to workers in urban areas has declined from 95.1% in 1995 to 73.0% in 2002. In addition, the debt per farm households increased from won 9 million to 20 million over the same period, with debt ratios to income going up from 42% to 81.3%.[24]

4.7 Quick recap (2): The egalitarian period—post mid-1980s

The great English philosophy Samuel Johnson warned that, “Hell is paved with good intentions”. Korea should have taken the warning seriously. To sum up, the attempt to equalize outcomes has meant the erosion of competitiveness in economic life, bringing about many undesirable consequences. We have seen that the attempt to mitigate economic concentration of large corporations has been detrimental to the economy, not only adversely affecting large corporations, but also has not resulted in improvements in SMEs. Despite good intentions, R&D policy has been largely ineffective, Seoul has become an even more densely populated city, and rural areas still remain far behind compared to their urban counterparts in terms of income. Such are the consequences when discrimination mechanisms are ignored or mitigated. Such are the vices of the “egalitarian trap”.

The findings from the discussions of Korea’s economic development experience of the

[22] Korea National Statistical Office, 2002.
[23] Structural Reform of Rural Areas, for example.
[24] Roh (2003).

1980s and 1990s is as follows:

Result 4: *Egalitarianism, the political view supporting equalization of outcomes, tends towards economic digression.*

Result 5: *Uniform regulation distorts the economic incentive structure, discouraging capacity building and the pursuit of self-improvement throughout all sectors of the economy.*

5.0 Revisiting some issue and problems in development economics

Earlier on in this paper, we mentioned the hope of discovering the "secret" of economic development, and we went forward to set three fundamental principle and two corollaries. In this section, we further apply the theory to some perennial issues in development economics.

5.1 Reinterpreting the market: Back to the future

It is worth re-interpreting the meaning of markets under the discrimination paradigm presented in this paper. After Adam Smith, Hayek is perhaps the most important figure in economics to show to the world the importance of markets. Throughout much of his career, he was interested in understanding how people's actions were coordinated, and he defined the market as spontaneous order. By spontaneous, he meant unplanned—the market was not designed by anyone but evolved slowly as the result of human actions,

and which was beneficial to society—this echoes the "invisible hand" of Adam Smith. Also stressed by Hayek was the information-clearing role of markets. Markets, he argued, could process more information than could possibly be done by any central government, and he strongly argued how decentralized, unorganized individual decision-making through markets could outperform the central planner. It is difficult to improve over Hayek's view of markets, but we wish to highlight one aspect that seems to have been ignored. In our understanding, the market is a tireless discriminator. Indeed, its primary function is to discriminate, that is constantly evaluate and reward market players and their behavior. Here, the market can be seen as impersonally and objectively "treating differences as differences". The market is the ultimate economic discriminator to which we have attached the term "market-led discrimination"—the discrimination of consumers, investors, lenders, managers, laborers and so on.

Our interpretation of markets can be contrasted with the neo-classical framework, which emphasizes the ideals of perfect markets, identical firms, a constant choice set, and so on. The neo-classical method leaves out important aspects, which have more negative implications to our understanding of the economy than might be intended.[25] For one, the neo-classical method tends to disregard differences, and their economists can be heard speaking of identical firms in a perfect competition setting. This disregard of differences is in itself contradictory and tends to miss the main aspect of markets. Contrary to what such a nirvana position might claim, markets cannot exist and cannot function, both

[25] Neo-classical economics has been criticized to being somewhat empty in content. For example, it has been known that neo-classical economics can be used to justify socialism as well as capitalism, two quite different economic systems. We will provide a further critique of the neo-classical economics paradigm in a latter section.

theoretically and in practice, in a homogenous world.[26] Simply put, the function of markets is to allow each and every economic actor to exercise their discriminatory power, and it cannot do so if all actors are identical. We summarize this in result 6 below:

Result 6: *Markets are (the ultimate) discriminatory mechanism through which the whole collection of economic actors can exercise their discriminatory powers.*

5.2 Markets versus governments: Are any panaceas?

Daniel Yergin and Joseph Stanislaw's *The Commanding Heights* is a very readable book about the struggle of markets and governments.[27] A common dilemma of economists and policymakers has been whether to promote the role of markets or of governments to attain certain national goals. With the collapse of the Soviet Union, many economists are quick to champion markets over governments, and today, a minimal government is seen as desirable. This dichotomy of markets versus governments is too simplistic a view, which, although allowing for interesting discussion of world events, can lead to serious mistakes. The battle on the field should not be placed in the context of markets and governments. How then could one explain economic success, such as the case of Korea, where governments have been instrumental?[28] Understandably, it can seem puzzling to the neo-classical economist, many of whom would agree that markets and

[26] The phrase "nirvana world" is borrowed from Demsetz (1969).
[27] A similar type of discussion has taken shape between the importance of policy versus institutions in economic growth. Here, again economists seem to be missing the point.
[28] Chang Ha-joon (2002) has in fact argued that nearly all countries, at least during the early stages of their development, benefited from government support, in particular protectionist policies, to stimulate economic growth.

its “discrimination” function is indispensable for development, to come to terms with the fact that there can exist successful government intervention. This puzzle is however easily resolved if we recognize that not unlike markets, the achievements of a successful economic policy, or “government-led discrimination”, can indeed mimic the function of markets. In other words, what government intervention can do is to substitute for market discrimination. The upshot is that discrimination is possible either by governments or by markets, or both.

However, one reason to favor discrimination by markets over discrimination by government is that markets, by their very nature, are often consensus-based and never egalitarian.[29] We have already mentioned that markets are constantly evaluating and discriminating among economic actors and their behaviors. Governments, on the other hand, might be burdened by continuously evaluation, or might choose to turn a blind eye, or simply provide wrongful evaluation intentionally.[30] Government and business relations, after all, has been known to have its own set of problems that includes the contamination of politics and economics, moral hazard behavior, corruption, rent-seeking, sustaining non-viable firms, and resentment by those that are not selected by government. But while we emphasize markets as a “more” viable way forward, the upshot of our argument is that regardless of the discriminator, whether government or market, an economy will only develop if the discrimination mechanism is built firmly into the economic management system. The old age argument between the role of

[29] By consensus-based, we mean free of value judgment or void of political bias, and the like. In fact, according to our approach, a “free-market” would be one where the discrimination function is allowed to work without interruption or distortion from policy, institutional deficiencies, arbitrary regulation, and other (often man-made) restrictions.

[30] Here, it is interesting to note that wrongful evaluation and rewarding are often not sustainable.

government and markets in economic development becomes redundant. Discrimination, rather, is the key to sustainable economic development. And, of course, what we have to watch out for are non-discriminatory mechanisms, of which egalitarianism is happy to endorse, which by mitigating the discrimination process can reverse economic progress.

Result 7: *Either markets or governments or both can assume the role of the economy's discrimination mechanism.*

5.3 Democracy and the market economy: Are they really sisters?

Democracy has been the catch phrase of many countries in the modern era. Broadly speaking, the ideals of democracy including the rule of law, secure property right are consistent with the market economy, as well as the preservation of economic discrimination. However, in practice, we find that the ideals of democracy can get into the way of economic development when egalitarianism takes the center stage. Specifically, as we have elaborated in carious parts of this paper, the egalitarian-type democracy has tended to hinder and in some cases reversed the economic discrimination mechanism in favor of equalization of outcomes, which has become a major force behind economic slowdown in many parts of the world. There is need to be cautious about equality-seeking democracy and their potential negative impact of economic development. We do not intend to divorce economics from politics—this is hardly possible in the real world—but, we warn about the pervasiveness of egalitarianism in economic life. The market economy and democracy are compatible, if each the discrimination mechanism is not sacrificed. Result 8 provides a summary:

Result 8: *A democracy seeking equal opportunity is compatible with the market economy, while one seeking equal outcome (egalitarianism) will cause economic digression.*

5.4 Equity versus efficiency: Is there some natural income distribution?

There is a controversial debate in the literature regarding the tradeoff between equity and efficiency. The common argument is that with equity-seeking policies, when the government redistributes income from the rich to the poor, it reduces the reward for working hard and as a result people work less producing less goods and services. That is, efficiency is sacrificed when more balanced distribution of income is sought. Our view is consistent with this view, but we go even further to emphasize that not only are incentives of the most productive actors diminished, incentives of the poor as well are also distorted. With the poor receiving benefits based on their low income, rather than their contribution to the economy, incentive for moral hazard behavior creeps in. Yet, there continues to be much support in developing as well as developing countries for distributive justice. Arguments of distributive justice are often normative, many of which propose some design to allocate goods in limited supply relative to demand, and do vary in numerous dimensions.

A widely held view of distributive justice is that of strict or radical equality. This view says that every person should have the same level of material goods and services, and is most commonly justified on the grounds that people are “owed” equal respect with

equality in material goods and services being the best way to give effect to this ideal. We have so far argued that such egalitarian views are a cause of negation of economic development. Outside the transfers made to the elderly, the disabled, and other members of society that cannot engage in productive activities, income distribution is best left alone.

Given that the discrimination mechanism is allowed to function unhindered, then we can expect that all potential productive members of society be rewarded according to his or her ability and effort. Under a system that “helps those that help themselves”, one can think of a fair pattern of income distribution. For different levels of development, there could of course exist different income patterns, but the point is that if one forcefully interferes with whatever the income distribution results under the economic discrimination system, then although it might have a temporary effect in redistribution, in the long run, everyone is left worse off.

Often, the main cause of dissent regarding income distribution has been the quick judgment that follows some observation of a “snapshot” of earning differences at a particular point in time. This is a common mistake, and income patterns rather should be observed over time. With some social mobility in place, or what is the same thing, with an in-built discrimination mechanism, over time, it is possible that individuals (and their family members) will move across income levels. The upshot is that, for a fair income distribution to prevail, the discrimination mechanism should never be sacrificed and the government should be extra careful to correct income distribution artificially.

Result 9: *Income distribution patterns should not be deliberately changed outside the dictates of the economic discriminatory mechanism; as such actions will destroy incentives and make everyone worse off.*

A somewhat subtle issue is the implication of conglomeration on income distribution. Principle 2 suggests that conglomeration is a natural feature of discrimination. What might be worrying is that more successful economic actors will command more resources, play a bigger role in the economy and receive greater economic reward, thereby skewing the income distribution in their favor. We see no harm in this. Rather, this is viewed positively, not only because it is consistent with the discrimination mechanism, but also because, as we have mentioned repeatedly, artificially changing the distribution pattern will only make everyone worse off. That is, we need not haste and make judgment about the "unfairness" of economic distribution, and rather than being pessimistic about the outcome of the discrimination mechanism, we should appreciate its usefulness in driving development. Result 10 summarizes our view on income distribution.

Result 10: *The skewness of income distribution through economic discrimination and conglomeration is quite natural, and outcomes need not be tempered with.*

5.5 To conglomerate or not to conglomerate—that is the question!

Let's address the issue of conglomeration before concluding this section. We have mentioned that it is an important feature of the development process, but throughout

much of the experiences of capitalism, conglomeration has been subject of much controversy. But why should conglomeration be worrisome? We have already discussed the dangers of de-concentration policies, particularly when driven by populism and egalitarian motives. The question, however, could still be pressed: How can we properly understand how to treat conglomeration?

We do not pretend to have a complete answer, but the research on monopoly by Alchain and Allen (1977) and Demsetz (1974) could prove to be a useful starting point. The views on conglomeration, not unlike that on monopoly, can be seen as either the outcome of government protection[31] or a result of efficiency.[32] An important implication is that in the absence of government protection, there is no presumption that behavior will be monopolistic, or in our context, simply dominant or abusive. Hence, the very notions of "dominant position" and the accompanying fear of "its abuse" tend to be meaningless in an efficient-form conglomeration.[33] Ability should not be confused with incentives.[34] Again, as we have already mentioned, it follows that public policy should refrain from trying to contain the apparent threat of conglomerations. Rather, policy should help create and sustain a competitive environment by re-enforcing the discrimination mechanism in the economy. After all, the threat of market power can be efficiently tackled by the existence of strong competitive pressure of potential rivals. In the context of our principles of development economics, the recommendation would be

[31] Demsetz (1974) argues one belief of monopoly is that it is generated by government action that prevents rivals from competing. Alchian and Allen (1977) refer to this as "monopoly power".
[32] Demsetz (1974) argues that the other type of belief about monopoly is that it exists without an explanation of how it came about. We follow more closely the interpretation of Alchian and Allen (1977), where the term "market power price searcher" is used to define efficiency type monopoly.
[33] See also Chapter 5 of Deepak (1999).
[34] Alchian and Allen (1977, p. 306).

"let discrimination do its work". Conglomeration, again, arguably is the other side to economic discrimination and should be seen as a natural process of the development process.

There is another point about conglomeration that is worth mentioning. As principle 2 states, the amalgamation of economic resources can accelerated development. This is most evident if we look at the development of societies from the beginning of time to the present period while tracing the major events that have allowed for the amalgamation of economic resources. At the beginning, the hunter-gatherer would be more successful if he were able to co-ordinate his activities with others. With the birth of agriculture, man had more time to spend his energies in other economic activities such as craft, which helped him secure a better future. It took quite some time before trade became an important activity, but when it did, it transformed societies, helping to build trade centers and cities.[35] Governments were also quick to gather resources for military, as well as for governance and productive use. Up until the period before the industrial revolution in the 18th century, we can easily find evidence of the importance of the amalgamation of economic resources by early corporate forms and guild in driving exploration, conquest, production and economic development. The most important institution in the modern era, which assumes the role of amalgamating economic resources for productive activities, is undoubtedly the corporation. Economists have elaborated why corporations are important to economic development.[36] Companies are an important way to coordinate economic activity by

[35] See Jacobs (1984).
[36] See for example, Douglass North and R. P Thomas (1973), and also Nathan Rosenberg and L. E. Birdzell (1986).

providing a way of imposing effective management structures on large organizations. Companies also help minimize risk while helping to increase the pool of capital available for productive investment. A cluster of competing companies also makes for a remarkably innovative economy. The Corporation through its role in resource gathering for productive use is at the center of the modern economy. De-concentrating corporations is one sure way to halt economic development. It is almost impossible that the modern era would have dawned without the corporation as we know it today. We summarize this concluding section on conglomeration in result 11:

Result 11: *Conglomeration is the other side of the economic discrimination coin.*

6.0 Concluding remarks

This paper has presented three fundamental principles of development economics: 1) Discrimination is a necessary condition for economic development, 2) Equalization is the first step towards economic digression, and 3) The degree of amalgamation of economic resources determines the speed of economic progress.

Using the three principles, we have re-interpreted Korea's development experience from the 1960s to the present time. By doing so, we have not only established the principles of development economics, but have shown its applicability in explaining other perennial dilemmas in development economics including 1) the meaning of markets, 2) the roles of government and markets in economic development, 3) the dilemmas presented by democracy and positive economics, 4) the questions of income distribution,

and 5) the controversies of conglomeration in economics and development.

To summarize, it would be useful to look at Korea's development experience once again, in the context of slogan attached to the paper's title "United We Stand, Divided We Fall". Like all slogans, the context is what gives it substance and meaning. "United We Stand, Divided We Fall" has a dual and opposite meaning in the context of economics and politics. In the economic sense, the principles of development economics would suggest that "united" means conglomeration, while "divided" would mean economic de-concentration. The former being helpful to economic development, while the latter doing just the opposite. In the political sense, which arguably contains the more common meaning, associated "united" with "creating equals", which is thought to be favorable, while "divided" means maintaining differences, which is seen as harmful. Needless to say, this is a highly egalitarian interpretation. The have argued quite fervently that egalitarianism is an enemy to good economic policy. From the viewpoint of egalitarian politics, "togetherness" often implies equality and the egalitarian trap. At the same time, the meaning of "divided" in egalitarian politics, which has a negative meaning, can, first of all, be stretched too far so as to place suspicion on all kinds of differences, and secondly, to create sentiment for equalization through re-distribution. This, we have argued, are not what the principles of development economics would endorse.

As a last statement, we stress that the handling of the relationships between government and markets and politics is a delicate matter. Whatever systems or institutions in place, what must not be sacrificed is the discrimination mechanism of economic actors. In

light of our discussions in this paper, there is urgent need to stir away from political systems that seek equal outcomes, under an egalitarian view of the world, to one that acknowledges difference as differences.

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Appendix on Tests for Structural Break

1) The time-varying parameter (TVP) model

The time-varying parameter (TVP) model may be represented as a special case of the general state-space model, which is described by a measurement and transition equation:

Measurement equation: $y_t = \beta_t + u_t$

Transition equation: $\beta_t = T_t\beta_{t-1} + v_t$

A recursive prediction error method, for example, based on the Kalman filter, allows us to acquire the one-step ahead prediction error y_t as

$\hat{u}_t = y_t - X_t b_{t|t-1}$.

Since we can write $y_t = X_t b_{t|t-1} + X_t(\beta_t - b_{t|t-1}) + u_t$, the variance of the prediction error may be written as $D_t = X_t V_{t|t-1} X_t' + R_t$.

Hence Kalman's recurrence relations are

$b_t = b_{t|t-1} + V_{t|t-1} X_t' D_t^{-1}(y_t - X_t b_{t|t-1})$.

The Kalman filter is a recursive procedure that derives the distribution of β_t conditional on y_t.

Below is the stochastic trend for Korea's total factor productivity, which shows a noticeable decline form mid-1980s to 1992. There is a small improvement up until mid-990s, but this never reaches the level of the early 1980s.

2) The CUSUM test (and CUSUMSQ test)

The CUSUM test (Brown, Durbin, and Evans, 1975) is based on the cumulative sum of the recursive residuals, and is based on the simple statistic:

$$W_t = \sum_{r=k+1}^{t} w_r / s \text{, with } t = t+1,...,T$$

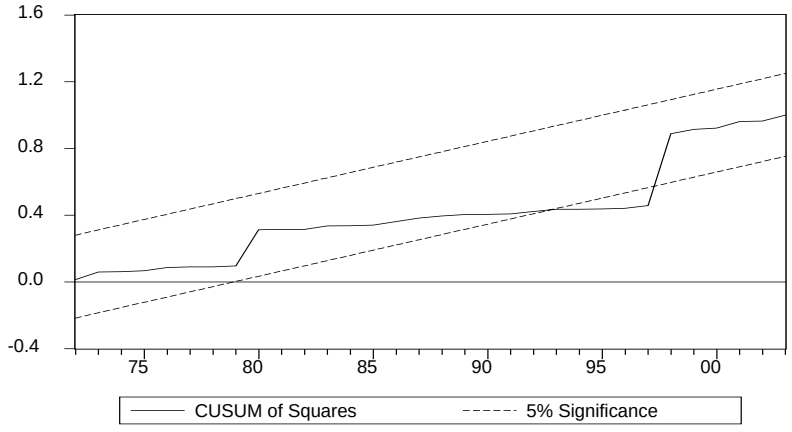
w is the recursive residual, and s is the standard error of the regression fitted to all T sample points. If the β vector remains constant from period to period, $E[W_t] = 0$, but if β changes, W_t will tend to diverge from the zero mean value line. The significance of any departure from the zero line is assessed by reference to a pair of 5% significance lines, the distance between which increases with time.

The CUSUM of squares (CUSUMSQ) test is based on the test statistic:

$$St = \frac{\sum_{r=k+1}^{t} w_r^2}{\sum_{r=k+1}^{T} w_r^2}$$

which has expected value of S under the hypothesis of parameter constancy as $E[St] = (t-k)/(T-k)$, which goes from zero at $t = k$ to unity at $t = T$. As with the CUSUM test, the significance of the departure of S from its expected value is assessed by reference to a pair of parallel lines around the expected values (see, Brown, Durbin, and Evans (1975) or Johnston and DiNardo (1997) for a table of the significance lines for the CUSUM of squares test).

<> CUSUMSQ for GDP growth 1971-2003



3) Max-Chow test

One of the earliest tests for structural breaks is Chow (1960), which are for stationary variables and a single break. Assuming that the dates of break are unknown, we can set up the Max-Chow test.

The generalized form of the model is often depicted as:

$$y = \begin{pmatrix} y_1 \\ y_2 \end{pmatrix} = \begin{pmatrix} X_1 & 0 \\ 0 & X_2 \end{pmatrix} \begin{pmatrix} \beta_1 \\ \beta_2 \end{pmatrix} + \begin{pmatrix} u_1 \\ u_2 \end{pmatrix}$$

And, the null hypothesis to be tested is

$$H_0 : \beta = \beta_1 = \beta_2$$

where is estimated using the first part of the data (regime 1) and is estimated using the second part of data (regime 2).

The F-test statistic with k and $k-1$ degrees of freedom can then be used to test the hypothesis.

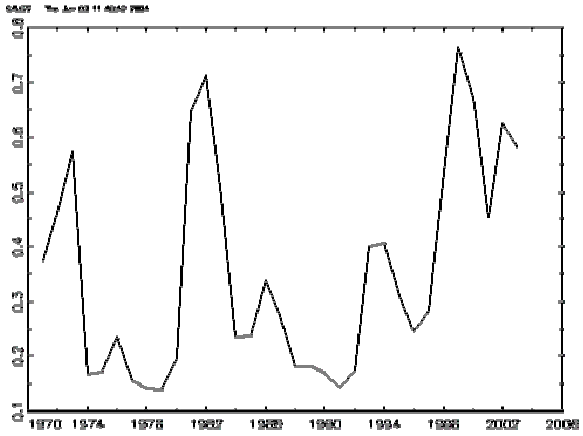
$$F(k, n-2k) \sim \frac{(SSE - SSE_1 - SSE_2)/k}{(SSE_1 - SSE_2)/(n-2k)}$$

The general Chow test for means is conducted for n_1 and n_2 observations, starting with n_1=5 and $n_2 = n - n_1$, and consecutively adding adjacent data to n_1 from n_2 until n_2=5.

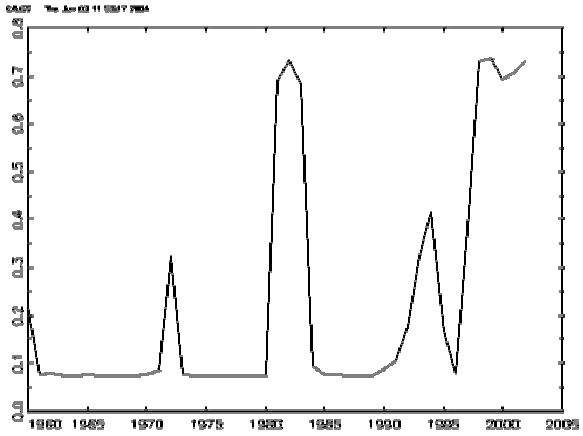
4) Markov-Switching Model

For MSM, we find clear regime switches for fixed investments, returns on equity and sales, as shown below, and these breaks correspond with the break periods defined in this paper.

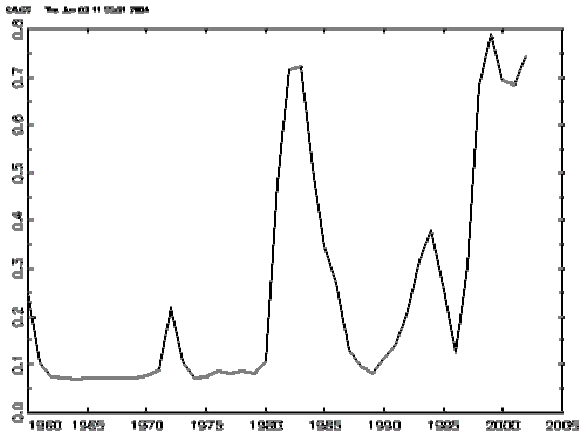
Probability of regime 2 in Fixed Investments



Probability of Regime 2 in Returns on Equity



Probability of Regime 2 in Returns on Sales



A two-state MSM model is applied. Hence, given observed data, $\Delta y_t \quad (= y_t - y_{t-1})$, say, GDP growth, equations 1~5 represent the two-state MSM model:

(1) $\Delta y_t = \mu_{st} + e_t, \quad t = 1,2,...,T$

(2) $e_t \sim N(0, \sigma_{St}^2)$

(3) $\mu_{St} = \mu_0(1 - S_t) + \mu_1 S_t$

(4) $\sigma_{St}^2 = \sigma_0^2(1 - S_t) + \sigma_1^2 S_t$

(5) $S_t = 0$ or 1

Given information up to and including $(t-1)$, and knowing the states S_t, the likelihood function for Δy is represented by:

$$f(\Delta y_t \mid S_t, \Psi_{t-1}) = \frac{1}{\sqrt{2\pi\sigma_t^2}} \exp\left(- \frac{(\Delta y_t - \mu_s)^2}{2\sigma_{St}^2} \right)$$

where ψ_{t-1} represents all information up to $(t-1)$.

Since S_t is not observable, we can integrate out S_t and the likelihood function will then be:

$$f(\Delta y_t \mid \Psi_{t-1}) = E_{St \mid \Psi t-1}[f(\Delta y_t \mid S_t, \Psi_{t-1})]$$
$$= \sum_{St=0,1} f(\Delta y_t \mid S_t, \Psi_{t-1}) \Pr[S_t \mid \Psi_{t-1}]$$

Then the log-likelihood function is

(6) $$LnL = \sum_{t=1}^{T} \ln[\sum_{St=0,1} f(\Delta y_t \mid S_t, \Psi_{t-1})] \Pr[S_t \mid \Psi_{t-1}],$$

the marginal densities of Δy_t can be viewed as the weighted sums of the conditional densities of $\Pr[S_t \mid \Psi_{t-1}]$ given states 0 and 1.

For (6), we need to calculate $\Pr[S_t = 0 \mid \Psi_{t-1}]$ and $\Pr[S_t = 1 \mid \Psi_{t-1}]$. We cannot do this without prior assumption about the stochastic behavior of S_t, which we assume follows a first-order Markov process. Then the filtering process consists of 2 steps:

Step 1:
If at t, we have $\Pr[S_{t-1} = i \mid \Psi_{t-1}]$, for $i = 0,1$, then $\Pr[S_t = j \mid \Psi_{t-1}]$ is:

$$\Pr[S_t = j \mid \Psi_{t-1}] = \sum_{i=0,1} \Pr[St = j, S_{t-1} = i \mid \Psi_{t-1}]$$

$$= \sum_{i=0,1} \Pr[S_t = j, S_{t-1} = i] \Pr[S_{t-1} = i \mid\mid \Psi_{t-1}]$$

Step 2:

With Δy_t at t, step 1 gives $\Pr[S_t = j \mid \Psi_t]$, which using Bayes' rule can be updated to

$$\begin{aligned}\Pr[S_t = j \mid \Psi_t] &= \Pr[S_t = j \mid \Psi_{t-1}, \Delta y_t] \\ &= \frac{f(S_t = j, \Delta y_t \mid \Psi_{t-1})}{f(\Delta y_t \mid \Psi_{t-1})} \\ &= \frac{f(\Delta y_t \mid S_t = j, \Psi_{t-1}) \Pr[S_t = j \mid \Psi_{t-1}]}{\sum_{j=0,1} f(\Delta y_t \mid S_t = j, \Psi_{t-1}) \Pr[S_t = j \mid \Psi_{t-1}]}\end{aligned}$$

where $\Psi_t = \{\Psi_{t-1}, \Delta y_t\}$.

Repeating steps 1 and 2 gives $\Pr[S_t = j \mid \Psi_{t-1}]$, $t = 1,2,...,T$.