

# İHRACAT ODAKLI EKONOMİLERDE TEKNOLOJİ, İNOVASYON VE KALKINMA: TÜRK VE KORE EKONOMİLERİ KARŞILAŞTIRMASI

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## ÖZET

Bu çalışma, gelişmekte olan ülkelerin ihracata dayalı ekonomilerinde teknolojik yeniliklerin ve inovasyonun rolünü analiz etmeyi amaçlamaktadır. Kitleli üretim sistemlerinin düşüşü, teknoloji ve tasarım odaklı üretimin küresel ekonomide ağırlık kazanması, gelişmekte olan ülkeleri, kendi ihracat odaklı ekonomilerini teknolojik yenilik ve inovasyon yoluyla küresel ekonomiye entegre etmeye itmektir. Çalışmada Türk ve Güney Kore ekonomileri, kalkınmaya dair sosyolojik teoriler ile teknoloji ve inovasyona dair tartışmalar çerçevesinde karşılaştırılmıştır. Türkiye, ekonomik liberalleşme ve kalkınma sürecine Kore'den önce başlamış olmasına rağmen, Kore Türkiye'den yüksek bir kalkınma seviyesine erişmiştir. Kore deneyiminin arka planındaki parametreler Türk kalkınma deneyimi ile karşılaştırılarak incelenmiştir.

**Anahtar Kelimeler:** Modernleşme, Kalkınma, Teknoloji, İnovasyon, Küreselleşme

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**TECHNOLOGY, INNOVATION, AND DEVELOPMENT IN EXPORT ORIENTED  
DEVELOPING ECONOMIES: A COMPARISON OF THE KOREAN AND TURKISH  
ECONOMIES**

**ABSTRACT**

The study aims to analyze the role of technological improvements and innovations in the economic development of newly emerging and developing countries and export oriented economies. Declining of the mass production systems and rising of technology and design oriented production in the globalized world economy force developing countries to integrate their export oriented economies to the global system through technological improvements and innovations. The Turkish and South Korean economies were compared in the study around the arguments about technology, innovation, and development through some sociological theories related to development. Although Turkey has started economic liberalization and development before Korea, Korea has achieved higher development level than Turkey. The parameters behind to Korean experience and the comparison to the Turkish development process will be evaluated.

**Keywords:** Modernization, Development, Technology, Innovation, Globalization

### **1. Technology, Innovation, and Development**

In the globalized world in where the countries are much more integrated to each other, development is always hot topic for both less developed and well developed countries. Global problems including international migration, poverty, crime, starvation, unemployment, and education are being seen related to development paradigm. Development is scholarly interesting topic not only for economics but also for other fields of social sciences such as sociology, psychology, law, and administrative sciences. To define development, there are many theoretical frameworks and assumptions that can be looked at. However, in this study, development will be defined within the framework of sociological and political-economic theories.

Development is seen equals to modernization in classical modernist school in sociology. To define the concept of development, first modernization must be defined. The socio-cultural consequence of development is a transformation from rural, sentimental, and communitarian

to urban, rational, and individual lifestyle. Development is not only a socio-cultural but also an economic transformation. In economic framework, development is a transformation from agriculture to labor intensive and raw material processing industry to capital, technology, and skill intensive industry; then to service sectors such as banking, finance, and commerce.

Modernization school was born just after the rise of the USA as a new super power after the World War II., and the spread of communist movements and the establishment of the East Bloc as a counter opponent of the West-capitalist Bloc. The political elites of the USA motivated and encouraged their social scientists to study on the Third World nation states to establish political stability and to promote capitalist economic development (So, 1990: 17). The biggest aim of the modernization project of the Third World countries is to “protect” the Third World against the Soviet threat and to integrate the Third world countries to the western Bloc. Not only as academic studies, but also as governmental policies, modernization theories were applied by the USA governments in the name of world leadership role. The policy implication through modernist understanding, the USA played a guidance role for the “backward and “traditional” Third World. Modernist policies became the main part of American foreign policy including funds and credits to the developing countries. The modernist implications of the American foreign policies played a crucial role for the expansion of the American business and capital through investments; and the USA could keep the Third World countries as her own alliances to maintain her leadership against the Soviet Russia (So, 1990: 36)

The modernization perspective in development adopted both evolutionary and functionalist perspectives. Evolutionist theory was born in the 19<sup>th</sup> century, in the aftermath of the Industrial Revolution and the Revolution. The Industrial Revolution brought new inventions and discoveries in science and technology; and within the application of those inventions in production systems, the productivity rose rapidly and new factory systems improved. The rise of production and the conquest of the world market went on side by side. The French Revolution, on the other hand, constructed the mental and intellectual skeleton of the modernity. The new ideas brought by the French Revolution shaped the societies in terms of the new era in humanity. The French revolution created a whole new political order based on equality,

liberty, freedom, and parliamentary democracy. Beside, The French revolution gave birth to the nation state ideas such as nationhood, patriotism, homogeneity in society in terms of language, culture and social structure. The second theory that shaped modernist school is the functionalist theory which is a sort of adaptation of environmental and biological understanding and theories into the social sciences. Talcott Parsons is one of the main figures of the functionalist theory and he sees the society as a biological organism, including many interdependent parts functioning. The functionalist understanding is a goal attainment understanding and also governments performed functionalist projections. The functionalist understanding focuses on the integration of the interdependent parts and institutions of society and social institutions like religion, education, family and legal institutions are functional to maintain latency in society (So, 1990: 19-21).

Modernization perspective sees the development as equals to modernization; in other words, societies and countries can develop through modernization. To understand development, modernization process must be disputed. Modernization is a phased process, which is different form the previous phases. Through modernization process, societies move to different phase from traditional and primitive one. Modernist understanding distinguishes modernization process and modern stage from the previous one which is traditional and primitive. Modernization is a homogenizing process, in which all modernizing societies are following nearly same stages, therefore modernized societies become more and more resemble one another. Modernization is a sort of Americanization or Europeanization process in which Western European or Northern American countries are defined as target countries for the Third World countries. Modernization is the development process that the Western countries have been experienced. Therefore the rest of the World must follow the same process to achieve modern standards. Modernization is an irreversible process that once it starts, it cannot stop. Any society which starts the process, somehow the society carries on the process. In addition, modernization is progressive, linear, lengthy, systematic, transformative, and immanent process (So, 1990: 33-35). Briefly, development can be explained by the characteristics of modernization process. All the features of modernization process are at the same time features of development process, since development and

modernization coincide each other in modernist understanding. Development projects in modernist understanding are generally prepared by central governments and institutions and applied through the top to bottom process ignoring local community involvement and local conditions, traditions, and needs. Locality is seen as an obstacle in front of the process in modernist perspective.

In classical modernist understanding, development has often been equated with economic growth, growth of production output. In addition, the terms “growth”, “industrialization”, and “development” are often used interchangeably; to extend that developed countries are often called industrialized countries (Kambhampati, 2004: 23). In classical modernist perspective, structural change is a necessary component of development in the context of growth and development. Modernist understanding views structural change as the change in the mode of production and structural change implies a shift from primitive to advanced composition of production and economic activity. For instance, pre-modern societies are agriculture based societies; and structural change shifts agriculture societies to industrial societies; and later service sector based societies. In addition to this broader shift, structural change also implies a shift within the production types and structural changes in industry. Through modernization, societies pass away from labor intensive, raw material processing industry to capital and technology intensive industry; such as from textile, food processing to automobile and electronics industry. In socio-cultural consequences, modernization changes societies from rural, sentimental, and communitarian to much urban, rational, and individualist societies (Kambhampati, 2004: 27-31).

Modernist understanding started to be criticized just after the dissolution of the Eastern Bloc and the emergence of the global economy. Globalization process brought new phase for the world economy and social life. New phase is relatively much more open to localities, local identities, and emergence of traditions. The failure of modernist understanding in some sides brought new understanding as the following of modernist perspective, which is new-modernization theory in development. The modernization perspective, firstly, is an ethnocentric understanding that claims American or European models can be example for the other countries. This understanding

labels the western countries as developed and advanced, on the other hand, labels the other countries which do not have the same characteristics with western societies as primitive and traditional. Modernist understanding basically justifies the superiority and domination of the West. Secondly, modernism in development rejects the possibility of different ways of modernization and unique experiences. That perspective accepts the experience and historical roots of Western societies as the only way to be modernized and developed for the non-Western societies. New-modernization perspective focuses on the East Asian models and experiences of development and modernization to disprove the Western-centric idea of modernism (So, 1990: 54).

New modernization school is, firstly, attempts to show tradition as an additive and beneficial factor of development, instead of an obstacle like modernization school. Secondly, new modernization school tries to escape from drawing typologies and constructing high level abstractions. Instead, it focuses on concrete case studies, and local historical analysis. Under the light of local cases, new modernization tries to prove that there are multidirectional paths of development and modernization, rather than unidirectional path of Western societies. Lastly, new modernization pays much more attention to external factors and class conflict in development process (So, 1990: 62).

New modernization and modernization school argue with each other around East Asian cases. Some modernist arguments claim Asian types of development as anti-modernist and anti-humanist. For instance, Kim Dae Jung claims that new modernist understanding admires the Asian types of development process, although that process includes anti-democratic values and does not care about universal human values. Modernist perspective inquires new modernist understanding especially in terms of universal modern values such as human rights and democracy. According modernist perspective including Kim Dae Jung, Asian development process is based on heavily exploitation of labor excluding labor rights, freedom of thought and speech, and keeping conservative values in regards to family protection, female discrimination, and domestic violence (Kim, 1994: 189-194).

Although it is partly true that Asian development processes that were experienced by Taiwan, Korea, and Japan were based on keeping some anti-

democratic values such as deep obedience instead of freedom, solidarity and homogeneity instead of heterogeneity and colorfulness, and producing, exporting, and earning as much as possible instead of social welfare expenditures; new modernist perspective is right that Asian experience is another path for development than Western path. Samuel Huntington (1996: 78), as new modernist scholar, states that “Modernization, in short, does not necessarily mean Westernization. Non-Western societies can modernize and have modernized without abandoning their own cultures and adopting wholesale Western values, institutions, and practices. In fundamental ways, the world is becoming more modern and less Western.”. Huntington deputed some different cases of modernization and development processes from Africa to Asia and he classifies the cases to group the different paths for development. According to him, some countries followed the Westernization process to achieve development. Those countries rejected modern institutions and practices of developed countries, and they adopted only the Western cultural items and values. Those countries, like some African countries and Egypt, had painful process of cultural Westernization without technical modernization. Second group of countries, which are called as reformist countries by Huntington (1996:75-76), adopted modern techniques and institutions meanwhile keeping their own cultural values. In other words, modernization without westernization, or indigenous path of development was applied by Asian countries like Korea, Japan, and Singapore. The third way in Huntington’s study is “rejectionist” or “Kemalist” way that rejects any indigenous and local cultural circumstances and features; and accepts the Western way of life and culture together with technique. As new modernist, Huntington highlights the way of Asian developed countries. According to him, in indigenous modernization, alienation and identity crisis is limited (1996: 75-76).

Another scholar in sociology of development Kim Kyong Dong (2005:4-5) who examines the Korean development and modernization process claims that modernization is a double sided process. In one side, there are some modern societies who become cases for modernizing countries; on the other side, there are modernizing societies who are receiving modern institutions and techniques from modernized societies. The interaction between modern and modernizing societies is double sided and called as “indigenous adaptation” by Kim. He tries to conduct an alternative to the currently

predominant views of modernization and modernity. According to Kim, modernization is international acculturation due to its expansionist tendency. When the modern western cultures began to spread out to other societies, they came into contact with other cultures. Western cultures affect the other cultures in one way or another. However, that contact between western and non-western culture is seen one-sided or asymmetric in classical modernist understanding in development. Kim, against this idea, claims that the interaction between western culture and non-western receiver culture through the modernization process is double sided; and nonwestern receiver society is not passive. The non-western receiving societies decide how they will meet the challenge of skewed international acculturation and intercultural interaction imposed by the incoming western societies.

Kim (2005: 5-6) argues that modernization process partly depend on the circumstances of the receiver modernizing country as well as the modern society that plays a role of case for the receiving society. He mentions about a term of “political and cultural selectivity”. In this term, Kim states that non-western society makes up her mind and draws the path of her modernizing process. Firstly, the society tries to decide whether or not they should open the door to the outside world to meet the surge acculturation almost imposed upon them by external forces. Secondly, the society tries to understand that if they would open the doors, how they will meet the challenge. When the society opens the doors to accept the incoming culture, how that society will challenge? The society must decide on how much of and what elements of that incoming culture will receive. Also, in what sequence; at what pace and possibly; to the benefit of which sections, elements, or strata of the society the acculturation will occur. The society decides on all those parts of the process, therefore the receiver society is not passive anymore; and there is mutual interaction between the modern and modernizing society. In the selection process, the society is partly independent according to Kim; and his view about international acculturation is similar to the view of global-local nexus approach which gives autonomy to the local.

Another scholar in the issues of modernization and development, Inglehart (2005: 46-47), tries to redefine modernization in his study: Although socioeconomic development tends to transform societies in a

predictable direction, the process is not deterministic. There are many other factors that influence significantly the development process, therefore the predictions derived from socioeconomic development can be probabilistic predictions. Secondly, religion and other aspects of the traditional culture of that society are not disappearing totally with modernization. A society's historical cultural heritage continues to shape the values and behaviors of the people in that society. Although many societies are becoming much richer and more educated through industrialization, the societies are not moving toward a uniform global culture. Cultural convergence is not taking place; and any society's cultural heritage is remarkably enduring. Thirdly, cultural modernization is not irreversible; and the process of cultural change is not linear. Inglehart gives an example from industrial and post industrial society. He compares that in industrial society, bureaucratization, rationalization and secularization became main characteristics of the culture of a typical industrial society; while in post industrial society, individual autonomy, relativity, and spirituality becomes much more important. Like Inglehart's setting, among industrialized societies, there is not a uniform culture. For instance, Asian industrialized countries are much more traditional and communal than Western industrialized countries. Modernization and development is not westernization, as the ethnocentric early version of modernization claims. Inglehart gives East Asian cases; East Asian industrialized countries developed technically and economically, while they kept their traditional social and cultural structures.

New dependency school was born as a supplementary or reactionary to dependency school. Dependency school has some failures to explain developed but at the same time dependent countries; like South Korea, Austria, Belgium, or Canada. New dependency school; different from the classical dependency school; focuses on concrete cases and situations of dependency rather than over generalizing. New dependency school tries to escape from high level abstractions and emphasizes on internal historical and structural processes of dependent nations. For instance, they study the state formations and class conflicts within a dependent society through socio-political phenomenon. On the other hand, classical dependent school highly emphasizes on economic phenomenon of dependency relation. The most important difference for this thesis between classical and new dependency schools is the dependency and development relation. According to the

classical dependency school, dependency and development cannot exist together. Dependency is the main obstacle in front of development and leads only to underdevelopment; therefore dependency and development are mutually exclusive terms in classical dependency understanding. However, new dependency scholars claim that dependency and development can coexist. For instance, Cardoso (1973: 149) propounds a new term “associated-dependent development”, that means development can be achieved through functional mutually useful dependency. In associated dependent development model, dependency and development are not the contradictory terms; and in some context multinational corporations may promote development process in developing countries in the name of their own interests. He states that foreign corporations aim to produce and sell good to domestic market; therefore, they promote, at least in some crucial sectors, development and economic growth to increase the purchasing power of the people. Moreover, to produce cheaper, transnational companies choose developing world to use labor and raw material cheaper. As the result of their direct investments, technology and capital flow occurs to developing countries and economic growth is achieved.

Cardoso (1973) improves his term “associated-dependent development” from the Brazil case. He mentions about the some practical functions of the military regime in Brazil. For instance, old ruling sectors like agrarian sectors in Brazil lost their power and new sectors were born. In addition, the governmental pressure on working class eliminated the strengthening of class movement and attracted foreign capital. In this sense, Cardoso acquires a different character from classical dependent school ideologically. While, classical dependent scholars are feeding themselves from Marxist understanding and they are taking the issue critically, Cardoso in some content admires the exploitation of labor and national economies cheaply by transnational companies. However, Cardoso finds out a limitation in his argument. He points out that the lack of “autonomous technology”, highly developed capital intensive sectors and the improvement of labor saving technology make the economy of developing country much more dependent on international capital. The accumulation, expansion, and self realization of the local capital are highly dependent on the dynamics of the international capital movements. He is totally true in this point that the movement and dynamics of international capital do not give an independent improvement

chance to national economies. For instance, in 1999 Asian economic crisis, South Korean and some other East Asian economies suffered from the sudden escapes of foreign investments and hot money from the national economies. That circumstance later affected Turkish economy, and Turkey experienced 2000 and 2001 economic crisis (Kyung-Sup, 2002: 189-222). Although there are many limitations of the associated dependent development model, it is true that development without any connection to global capital movements, transnational corporations, foreign direct investments, international capital circumstances, and international trade and economic relations is nearly impossible in the globalized capitalist economy. For the development of any developing country is highly dependent on international circumstances and relations. However, dependency is not totally negative obstacle in front of development. Some dependent countries are at the same time developed countries. Moreover, if we look at the historical background of their development process, we see that there were technology transfers, capital flows, and foreign direct investments from the nearest advanced country. For example, Japan moved her previous technology and industry to South Korea, when she moved to much advanced mode of industry, technology, and production system. The steel, textile, automotive and some manufacturing industries in South Korea are Japanese capital industries, while Japanese economy moved to high-tech, computing, electronics and robotics industries (Kohli, 2004: 50-51).

Technology plays a crucial role in development according to modernization and associated dependent development approaches. For instance, modernization school starts development with the Industrial revolution of Britain. The technological improvements and adaptation of innovations in productions systems are the factors that started the Industrial Revolution. Technological improvements are the part of western modernization and non-Western countries must follow the technological development process of the Western societies. In associated dependent development approach, transferred technology from well developed countries to less developed countries plays an accelerator role for economic transformation and development.

## **2. Export Oriented Process of Korean Economic Development**

From the end of the Korean War to the early 1960s, that is the phase of Rhee, it is very difficult to mention about clear-cut and well articulated trade strategy. The main interest of the Rhee administration was maintaining the stability of the country and sustaining the political unity of Koreans in the South. Therefore, the economy relied on import substitution, foreign assistance, and over-valued exchange rates. Later, Korean export expanded rapidly especially after 1963 with the adoption of an export-oriented industrialization as the basic growth strategy. Trade became inseparable from industrialization process (Song, 2003: 109).

In the Park Chung Hee period, Korean economy started a transformation into export oriented economy. While Japan developed much earlier and exported to mainly her poorer neighbors; Korea entered to World market late and exported progressively much more sophisticated products to developed countries. For instance, Japan, in 1957, sold 71 % of exported manufactured products to poorer Asian market. However, the biggest trade partners of Korea were the USA and Japan. Korean export has been much dependent on import of intermediary inputs and capital goods for export oriented industry. On the contrary Japanese economy almost self-sufficient; in 1935, import of machinery was 6.4 % of the total import; while, in 1971, machine import was 29 % of Korean total import. Another case is the lower wages in Korean economy. However as a newly industrialized country, when Korean economy has grown up, the wages have also increased. The lower labor expenditure in Chinese and Indian industries is still competitive for Korean export. Korean industry, therefore, depends on high technological innovation and investments in new economic areas with state subsidies (Amsden, 1989: 62-63).

The companies were motivated to accumulate capital. Government disciplined workers and kept wages lower for capital accumulation of the companies. In addition, the high rates of savings were used for investments in new areas or enlargement of the establishment instead of consuming. Even in the inside of the market, the different industry companies agreed on mutual dependency instead of importing. They, in somehow, shared the market and created their own monopolies (Amsden, 1989: 64-65).

Although Korea has a relatively large market, Korean economy heavily relies on export. For instance, export as a percentage of GNP rose from 5 %

in the 1950s to 35 % in 1980s. First textile industry became the locomotive of the Korean export. For example, the share of export to total demand in textile production was 4.8 % in 1963. However, the percentage rose to 47.2 % in 1973. The importance of export can be understood best in the speech of Park in his “State of the Nation Message” on January 16, 1965: “To go with increased production, the government has set as another major target-increased export... In a country which depends heavily on imported raw materials for its industries, export is the economic life line... For many years, Korea exported only 20 million to 30 million USD worth of goods a years... tungsten. But in the past few years, the government and people awoke from sleep and strove. Exports began to expand rapidly... Last year, our export exceeded the 120 million USD. Although there is still gap in the balance of payments, this much is true: that we have acquired the self-confidence that we, too, can successfully compete with others in the international export race.” The speech of park shows that the government understood the importance of export in the global economy much earlier than the other developing countries; and they started to compete with other countries very earlier. Export was set by the government as a compulsory way rather than a choice. The government even set some targets to achieve for private sector(Amsden, 1989: 68-69).

Export was important to save money for the new investments. In the late 1970s, foreign direct investment was lower than the 0.73 % of GNP. Although, in 1980s the government encouraged foreign direct investment, in 1985, direct foreign investment ratio was 0.65 % of GNP lower than the year of 1965. Therefore, it can be claimed absolutely that Korea has industrialized on the basis of national enterprise and savings (Amsden, 1989: 76-77). Therefore to increase the saving was possible by exporting more and more. To increase the capital accumulation and savings, the industry was protected from foreign companies inside of Korean market by tariffs. The tariff structure and trade barriers in front of import; and hidden obstacles and restrictions in import regime were the main policies to protect marker from foreign companies (Amsden, 1989: 70-77).

### **3. Main Export Promotion Strategies of Korea**

South Korea as a development oriented state promoted export as a main part of growth. Since, South Korea is a poor country about natural resources, the state promoted foreign trade, mainly export of manufacturing products. At the first phases of Korean development, the purchasing power of Koreans was very low; therefore, export was the only choice to sell manufactured products. Korean industrialization is “outward-looking”, means export oriented and foreign market dependent, industrialization. The industrialization meant at the same time export for Korean development process; in other words, export was precondition for industrialization, as a result, export and industrialization coincide and precondition each other in Korean development philosophy. At the top level, industrialization and export became the inseparable part of growth. However, later through development the purchasing power of Koreans increased. The increased purchasing power and increased and complicated demands of Koreans supported the Korean industry. Because of the market protectionism, Korean industry later took the advantage of being monopoly inside Korean market. With the population of over 43 million, Korea has a relatively large market; however, the most important point that Korean industry has not give up focusing on export. They have been continuing to increase their export. It is easy to claim that Korean industry growth relies on export (Song, 2003: 110-112).

Export oriented manufacturing industry is somehow advantageous than the exporting primary sources and raw materials, since the prices of raw materials are not stable and even decreasing in long term. Moreover, there are nowadays too many chemical substitutes of primary commodities like synthetic textile against cotton or jute. Also export oriented (outward-looking) economies are much more advantageous than the inward-looking, means reliance on domestic resources and limiting foreign trade, in terms of taking the advantage of global markets (Chenery, Robinson, and Syrquin, 1986: 91-94). As a result of Korean development philosophy stressing on export as an accelerator for growth, and export was promoted through deviationist and interventionist strategy by excessive export subsidies and tariffs on imports (Krause and Wontack, 1981).

When General Park Chung Hee took power through a military coup, he understood that to establish a strong economy, he needed businessmen; and

he exempted the businessmen from legal punishment and made them fully responsible for the nation-state building. The economic independence is the main part of nation-state building and Park applied such a philosophy “nation building through industrialization, export, growth, and development”. Between 1961 and 1979, nation building, rapid industrialization, and expand of export were seen side by side. While “Suchul ipguk” was the favorite maxim of General Park, “export first” was the favorite expression of the Korean businessmen. Park’s statements remark the philosophy well: “...for such poor people like the Koreans, on the verge of starvation, economics takes precedence over politics in their daily lives and enforcing democracy is meaningless.” (Song, 2003: 117). To escape from poverty and to catch up rapid growth, “growth at any cost” became the main argument of the government and export was forced to expand; export was made compulsory for companies.

There are some main policy instruments applied by the government to promote export(Song, 2003: 122-128):

*Credit Allocation:* The government encouraged businessman and companies to borrow credits from state controlled banks. The officially set real interest rates were kept close too zero or even negative to attract the businessmen. The closed relation between government and companies through credit allocation enabled government to control companies and plan the investments. Such heavy borrowing and huge amounts of credits made the business world dependent on government policies and obligations set by the state.

*Taxes:* The structure of tax system and administration exempted firms from indirect taxes on income earned from export; and also there was 50 % exemption from taxes on personal income from export earnings between 1961 and 1972.

*Administrative support:* The president himself checked the process of export and performance of the companies. Every month, the president recognized the most successful companies name by name and honored them. The congresses and meetings prepared by the government brought business and policy maker world together and the problems of the companies and firms were directly listened. Export promotions conferences were the main

arena to reward the successful companies and understand the reasons for unsuccessful firms.

*Industrial zones and Wage Control:* With the Regional Industrial Development Law in 1969, the government supplied discounted industrial sites and estates to companies in such a country where the land is really limited. Through that law, the government established industrial zones in each province of Korea. In the industrial zones, fees for electricity, water, transportation, communication, and other important facilities were also kept under the real market prices. The government also kept labor unions under pressure to control wage.

*Favorable Exchange Rate:* After 1960s, with the adoption of export oriented economy in Korea, the government unified multi-tier exchange rate system into a single rate system and normalized the highly over-valued exchange rates. The reforms in exchange rates, monetary and fiscal policies enabled the firms to expand their export and earn too much from export. The government kept Won under pressure against USD to increase the income from export.

*Rationalization of Imports:* The lack of raw materials in Korea made the manufacturers dependent on import. Through an export linked system of import privileges, the government allowed exporting firms to freely import their raw materials, capital goods, and the other items necessary for export oriented manufacturing. The import licensing system gave easiness to the firms to import items for production of export.

*General Trading Companies:* The Ministry of trade and Industry established the framework of General Trade Companies in 1975 to increase export. It means that the companies which passed the minimum export limit set by the government were named as General Trade Companies; and they were rewarded by some promotions. In 1985, only nine companies performed as general Trade, and in 1983 the share of big general Trade companies in export was 51.3 %. The nature of General Trade Company structure is a systematic governmental pressure on companies to expand their export. For instance, the government increased the export value criterion from 50 million USD in 1975 to 301 million USD in 1979; as a result, to general Trade Companies Yulsan, and Samwha failed, lost their

accreditation. The successful companies which passed the export limit were rewarded by with some cash subsidies, and some benefits. The Korean General Trade Company structure is the best and most successful application and adaptation of Japanese General Trade Company Structure. The Korean industrialization process, at the beginning point, has been designed in the globalization context. President Park could see the importance of competence and taking advantages of globalization process; therefore, the industrial and trade policies were highly based on global circumstances. As the result of all those policies, Korea, in 2006, achieved 325.9 billion USD exports, which is the 11<sup>th</sup> largest export in the World. ([www.times.hankooki.com](http://www.times.hankooki.com); 01-01-2007)

#### **4. Technology-Science-Innovation Policies in Korean Development**

It is obvious that technological improvement played a crucial role in Korean development process especially beginning in Park phase. To compete in global market for export of manufactured goods, technological improvement, technology transfer and innovation are inseparable part of manufacturing, and production. In other words, technology is a mean of achieving industrial and economic development through export promotion and basic manufacturing. In addition, technology is the key component of transformation from labor intensive basic industry to sophisticated capital intensive and later high technology intensive production.

In General Park period, technology policy was perceived in instrumental base to transform the economy from agrarian based to manufacturing economy. Technology was used to bring the basic industries to the country. Technology transfer implementation and the education and training of the labor to use the new implemented technology were the basic policies of that period. To create a skilled labor to use the new technology, technical training was supported by governmental technology policies. Park administration's technology policies can be divided into two. One is the infrastructural and constructional policies, such as construction of modern transportation lines and urban infrastructures, and technoparks and science towns like Daeduck Science Park. The second one is the organizational and institutional improvements like establishment of Ministry of Science and Technology,

and Korea Institute of Science and Technology (Hahm and Plein, 1997: 64-65).

In the mid 1970s, Korean industrialization shifted from basic manufacturing industries, such as from food processing, clothing, and textile to heavy industries like petrochemicals, steel, and machine building. Park desired to establish heavy and chemical industries to increase capability and competence of Korean economy in the global market, to sustain the industrialization process, and to increase the self-defense capability of the country. Government motivated and promoted businessmen through guaranteed loans. However, technology policies also were arranged according to new phase of industrialization process. For needed technology for heavy and chemical industries, government encouraged companies to import, and assimilate and adopt new technology to their own new factories. To increase the domestic capability for absorbing imported industry, trained technical men were needed. Therefore, government also promoted higher technical training and education institutions (Hahm and Plein, 1997:66-67).

However, after Park phase, the biggest technology transfer from foreign countries occurred between 1980 and 1990. Through the liberalization in Korean economy in 1980s, mostly the USA, and Japanese origin foreign direct investment in flowed to Korean economy.

Table 1 Total Cases of Direct Investments from Japan and the USA in Korea between 1962 and 1993

Period	Japan	USA	Others	Total
1962-1971	246	110	43	399
1972-1981	871	145	102	1118
1982-1991	1061	632	561	2254
1992-1993	80	73	104	257
Total	2258 (56 %)	960 (24 %)	810 (20 %)	4028 (100 %)

Source: Korean Economic Planning Board, "The Current State of Foreign Investment", Seoul, 1993

There is a strong correlation between the amount of foreign direct investment and technology transfer. The new technology flowed to Korea,

especially in 1980s liberalization, through foreign investments. The new technology entered to Korean economy through the investments made by the USA and Japan mainly. Korean industry, later, learnt too much from American and Japanese technology and experiences.

Table 2 Technology Licensing from Japan and the USA between 1962 and 1993

Period	Japan	USA	Others	Total
1962-66	11	13	9	33
1967-71	203	61	21	285
1972-76	280	90	64	434
1977-81	631	302	292	1225
1982-86	1074	515	489	2078
1987-91	1613	1010	848	3471
1992-93	272	188	161	621
Total	4084 (50 %)	2179 (27 %)	1884 (23 %)	8147 (100 %)

Source: Korean Ministry of Finance, "Trends in Technology Inducement", Seoul, 1993: 97-102

However, within 1990s and after 2000s, Korea has taken a place among the top countries that are producing high technology with high R&D budgets. While the ratio of total R&D expenditures to GDP was nearly 0 %, it rose to 2.85 % in 2004, which is higher than the average of the OECD countries, France, Germany, UK, and the USA.

The first sectors in which the R%D expenditure is higher are mainly Radio, TV, and telecommunications, electronic machinery (semi-conductor), and software. If we look at the other main countries' main sectors in which there are high R&D expenditures, the USA specialized in controlling machinery, calculator, electricity; Japan focused on medical technology and precision instrument; and Germany intensified in chemistry and conveying. We can claim that there is somehow such an international division of sectors among the top countries. Korea is now fulfilling some sectors those are not kept by other countries. This division or sharing among the main countries in regards to sectors gives a competitive advantage to Korean economy.

Other than budget, the number and ratio of the researchers in R&D affairs has been increasing annually. The science and technology policies of Korean government are supported by strong education system and supports for higher education institutes. The connection between the industrial firms and universities gives a rich human resource for R&D activities of the Korean industry. In 2004; more than 200,000 researchers were working in R&D departments ([www.most.go.kr](http://www.most.go.kr)).

Small and Medium Sized Enterprises (SMEs) have an important share in Korean economics. The share of SMEs in the number of firms was 98.9 % in 1993; and the share of SMEs in employment in the same year was 68.9 %. Their share in export in 1995 was 39.6 % (Karabiber: 1997: 40). Therefore Korean government acted to promote technological improvements in SMEs. Although the SMEs produce by attaching to big company in Korean economy; they are generally elastic enough according to the rapid changes in demands of global markets. The dynamism of SMEs gives advantage to themselves to transform according to changing market circumstances. However their relatively limited budgets are not enough for technological innovations and R%D expenditures. Therefore, the government supported SMEs about technological improvement, by setting insurance and giving guarantee for risky technology projects; and bringing SMEs under a cooperative umbrella to expend technological projects (Karabiber, 1997: 45).

##### **5. Why did Turkey Fail? Some Differences between Korean and Turkish Development Processes, and Lessons from Korean Experiences**

Modern Turkish Republic was established much earlier than South Korea, in 1923; and started her modernization and development process before South Korea. However, within the process South passed Turkey and Turkey failed in the development competition. In addition, economic liberalization started by famous liberalist prime minister and former president Turgut Özal in 1982 just two years after the military coup of 1980; again earlier than South Korea.

Korea applied her first Five-Year Development Plan in 1962 after the military coup of 1961; and Turkey applied her first Five-Year Development Plan in 1963 after the military coup of 1960. Korea and Turkey started their

planned development processes nearly in the period; however, after 1980, Turkey gave up focusing on development plans and followed such unplanned way (Gönel, 2001).

In terms of the GNP per capita, in Korea it was 70 USD in 1954, while it was 245 USD in Turkey in the same year. Korea could achieve the level of Turkey in 1980; Korean GNP per capita was 1597 USD and Turkish GNP per capita was 1539 USD. However, now Korean GNP is three times higher than the Turkish one <http://fbweb.cityu.edu.hk> and <http://nkg.die.gov.tr>.

In the summary of the study, some reasons for the failure of Turkish process through the differences from Korean experiences are being understood and some lessons for Turkey are being found. First of all, **(1)** it can be understood from the comparison of the Five-Year Development Plans of Korea and Turkey, Turkey could not establish an export oriented economy for a long while; on the other hand, Korea started to development process directly with export promotion policies in Park Chung Hee phase after 1961. However Turkey passed to export oriented economy from import substitute one in 1982 with Turgut Özal's government (KDI, 2006: 24). Turkey, for a long while, did not apply efficient policies to promote export like in the Korean process. In the second Five-Year Development Plan, Korea exported more than Turkey and Turkey has generally lower performance in export. In 2006, Korea exported more than 300 billion USD, while Turkey exported around 75 billion USD. Korean companies and economy is highly competitive compared to Turkish ones. In the global economy, Turkey and Korea have the economies based on export; therefore those countries must apply the policies to promote export.

Secondly, **(2)** in Turkish economy, the share of investments in GNP is lower than Korean economy. Investment, both public and private, is the key factor to achieve economic growth. The share of investment in GNP of Turkish economy was 16 % in the first, 16.1 % in the second, 20.2 % in the third, 19 % in the fourth, 24 % in the fifth, and 21.9 % in the sixth Five – Year Development Plan. On the other hand, in Korean economy, it was 17 %, 26.1 %, 27.1 %, 30.7 %, 30 %, and 34.5 % in the same order. As the result, Turkish economy grew less than in all Five-Year Development Plans. With the lower growth rate performance, Turkey dropped behind Korea in a longer process of development.

Thirdly, **(3)** Korea had relatively stable political environment under the rule of General Park Chung Hee; while, Turkey in the same phase unstable because of the political rebels, ethnic conflicts, religious opposite movements and terror attacks. Turkey could achieve a political stability in the phase of Turgut Özal, that phase continued relatively very short, less than ten years (Ahmad, 1995: 277-363).

Fourthly, **(4)** as it is mentioned above that, experiences from Japanese colonial rule and technology, information, and skilled person inflow to Korea from Japan after the independence have important contribution to Korean development process. Therefore the special case of Korean history is, somehow, an edge over to Turkey; which has not experienced such amount of capital and technology inflow from another developed country.

**(5)** In the Turkish economy, the high amount of military expenditures and debt and debt-interest payments are very high. Total debt is more than 350 billion USD and military expenditure is 11.7 billion USD. The problems with geographical position of Turkey push the country into spending more for military. On the other hand, the USA made a great contribution to Korean economy by taking the defense responsibility of the country (KDI, 2006: 172-196).

**(6)** Investment in education, improvement of human capital, efficient technology policies, and innovation systems development are the important basics of the Korean development process. Compared to Korea, Turkey has paid less attention to those policies. In Turkey the literacy rate is 87.3 % and the total education expenditure is 4.18 % of GNP in 2005. However it was always less than 3 % before 2000. Vocational and technical education is weaker compared to OECD and EU countries; and the level of educational attainment is 16 % for upper secondary education, and 9 % for tertiary education level in 2002. However in Korea, 83.8 % of high school graduates attained universities in 2001, and enrollment trend to high school was 89.9 %, and to tertiary was 54.6 % in 1995. Employment ratio to population and labor force participation in Turkey is very lower than Korean one. In Turkey, there is unproductive and lower quality population. For instance, in 2003, the employment rate to population in Turkey was 45.5 %, while it was 63 % in Korea. Labor force participation rate in Turkey was 51.1 % in Turkey, on the other hand 65.3 % in Korea, in 2003. Unemployment rate is also higher in

turkey than Korea. In the same year, the unemployment rate was 10.8 % in Turkey, while 3.5 % in Korea (KDI, 2006: 172-196).

R&D expenditure is also important for the innovation systems and competitive export oriented production in the globalized capitalism. Therefore there must be a closed connection between education and industry. In Korea, companies generally support universities by donations; and many projects about product improvement are conducted by universities for companies. However, in Turkey, there is a gap between academia, universities and industry or entrepreneurships. The R&D expenditure, and the number of R&D staff are lower than Korea in Turkey. Nearly 95 % of the Turkish export is based on industrial goods export. In the globalized economy and wilder competitive international trade, Turkey must increase the share of high technology in products and R&D expenditures both in public and private institutions, and companies. The export manufacturing goods of Turkey are relatively low value added compared to Korea, therefore Turkey exports cheaper and lower quality products. In Turkey, the combined share of mid-tech and high-tech industry in export is 18.5 % in 1996, while it is 62.3 % in Korean export (KDI, 2006: 120-121).

(7) Although Turkey started export promoted economy after 1980, the market of Turkey has been open earlier than 1980. Turkey joined OECD in 1951, started her relationship with EU in 1959, and signed an agreement in 1963 and a protocol in 1973 with EU. In addition Turkey is a founder member of WTO in 1995. Therefore, Turkey had no chance to protect her market and create big monopolies and strong national companies. However, Korea, for a long period of time until the liberalization process after 1990s, protected her market and gave a great chance to the companies for huge capital accumulation. Korean companies could stay far away from the destructive effects of the harsh competition atmosphere of the global capitalism. The free Trade Agreement (FTA) talks between the USA and Korea are still continuing and somehow, Korea is still resisting keeping her market as close as possible. Now, the international political economy is experiencing totally open market economy named as global economy, within the unlimited competition of national economies and companies. It seems that there is no turn back to national economies era. Turkey can apply

efficient policies about human capital, technology and innovation, export promotion, and education investment like in Korean economy.

**(8)** Korean industrialization process relied on “Economic Discrimination” (ED) that means promoting high potential or advantageous sectors or companies, promoting or rewarding some successful companies by giving bonus, low interest rate loans, tax exemption or rights for establishment of a monopoly in market. Turkey, on the other hand, has chosen balanced development based on both regional and sectoral divisions. It created a weak economy compared to Korean economy. To discourage poor economic performance and to encourage better economic performance is a sort of discrimination by state or market. The discriminator state separates those poor from the better economic performances in terms of sectors or companies through rewards. The nature of market capitalism is discriminative, that highlights the winner and eliminates the loser (KDI, 2006: 33-37). Korean economy has some outstanding sectors in the global economy such as automotives, steel, shipbuilding, cellular phone, and semi conductors. In addition Korean economy has too many world wide scale companies in those competitive and successful sectors. Turkey, on the contrary, can compete in very limited sectors in the global market. There is an international division of manufacturing and industry production among major developed countries. Those countries behave selectively, they focus on their own most competitive sectors; or they create such competitive sectors according global market demands. Turkey has selected balanced development in industrialization process which resulted in a weak economy.

**(9)** In Turkish economy, 99.5 % of the manufacturing establishments are Small and Medium Sized Enterprises, and 61.1 % of the total employment in manufacturing is employed by SMEs. The share of SMEs in added value is 27.3 % ([www.kobinet.org.tr](http://www.kobinet.org.tr)). The structures of SMEs are much more elastic than the big sized enterprises, they can transform easily according to faster changes in demand and global circumstances. The adaptation of new technology is much easier in SMEs. Turkey must support SMEs through technological assisting; marketing strategies and R&D – innovation improvement. The most useful and popular way, nowadays both in developed and developing countries, is to bring SMEs and universities in the spatial organization of technoparks and science parks. Instead of transferring

expensive technology, the information produced at local universities can be directed into SMEs and adopted into production process.

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