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CAN TECHNOLOGY BE DEVELOPED WITHOUT GOVERNMENT ASSISTANCE?

KOREAN AUTOMOBILE CASE STUDY

South Korea is the world's 5th biggest automobile producer and the 6th biggest exporter. At the beginning of the 1980s, when Korea was 30th largest exporter, Turkey was right behind it, in 31st place. In 30 years, Korea rapidly rose first to 28th then to 10th, and established itself as the 6th largest producer in the early 2000s, while Turkey has only risen from 30th to 15th in the time period up to 2011.²

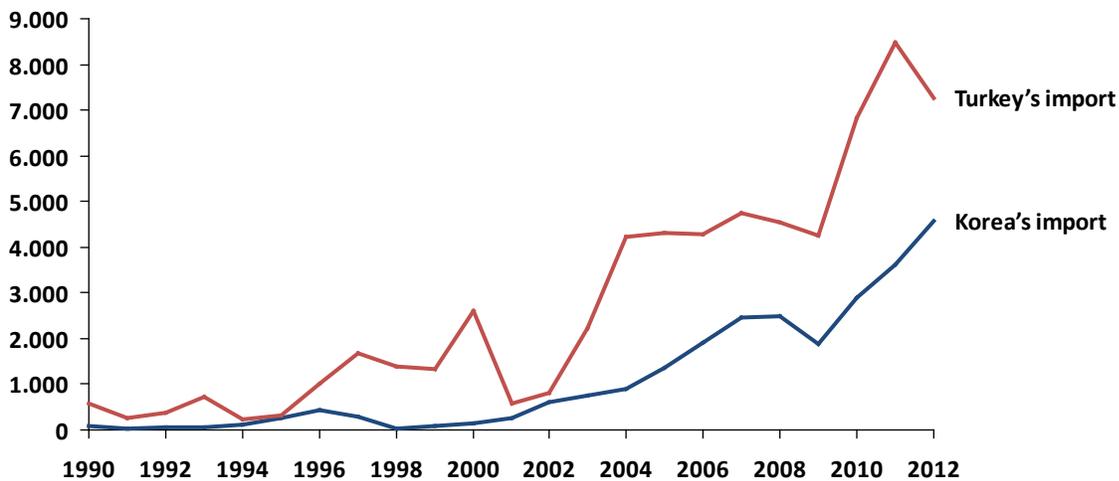
¹ <http://www.tepav.org.tr/en/ekibimiz/s/1300/irem+kizilca>

² OICA (International Organization of Motor Vehicle Manufacturers), production statistics

Industrial policies that increase competition incentivize innovation while simultaneously increasing growth and development (Aghion et al. 2012)³. Used appropriately, sectoral government support and investment incentives protect infant industries and accelerate innovation. The South Korean government provides the best demonstration of the functionality of sectoral industrial policy with its automotive policy in place since the 80s, which propelled Korea to the ranks of elite automobile exporters. The success of Korea’s industrial policy has been discussed at length in TEPAV and academic work. Korea’s policy can be split into three stages: imitation (1960s and 1970s), transformation (1980s) and innovation (1990s and beyond)⁴. As other works have done, this comparison stresses that the biggest difference between Turkey and South Korea is the former’s lack of industrial policy. However, the most important factors that enabled South Korea to develop its automotive industry and its brand abroad were policies aimed at fostering the domestic market and supporting domestic producers.

Looking at the 2-stage sector export statistics, Turkey’s largest export is “Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof”⁵. The same sector is South Korea’s third largest, following the electronics and nuclear energy sectors. However, in this sector, South Korea is the world’s 6th largest producer while Turkey is 17th. Looking more specifically into the passenger vehicles classification, Turkey and South Korea’s total imports and exports are in the graphs below.

Figure 1: Turkey and Korea’s Automobile Imports (1990-2012, million USD)



Source: Comtrade, TEPAV Calculations (Hs6 8703)

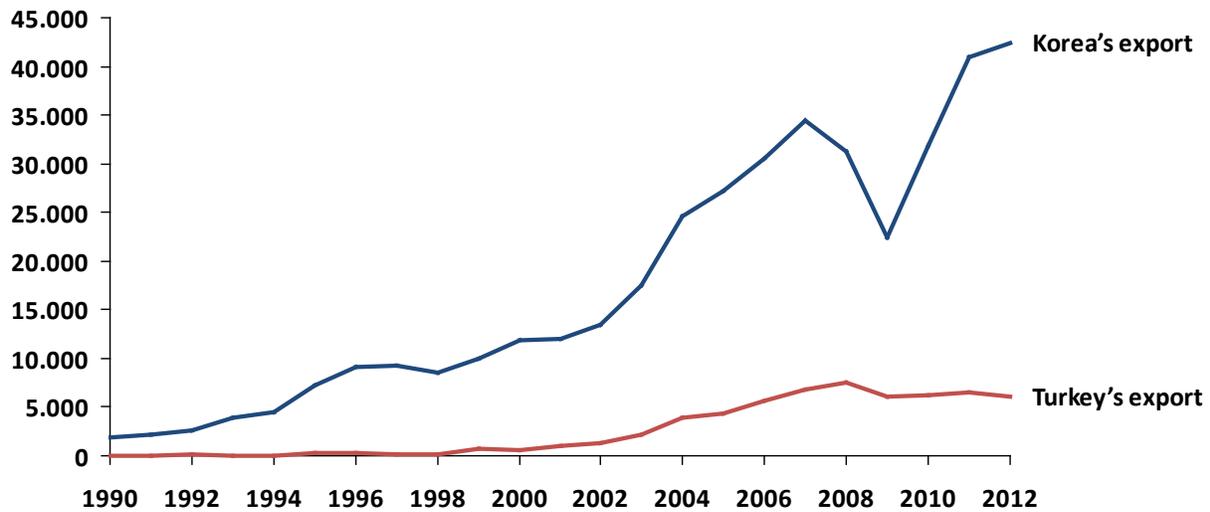
Figure 2: Turkey and Korea’s Automobile Exports (1990-2012, million USD)

³ Aghion, P., M. Dewatripont, L. Du, A. Harrison ve P. Legros (2012). "Industrial Policy and Competition". NBER Working Paper, No. 18048.

⁴ Arslanhan, S. ve Y. Kurtosal (2010). " To what South Korea Owes Success in Innovations?", Tepav Policy Note [http://www.tepav.org.tr/upload/files/1291301530-2.To what South Korea Owes Success in Innovations.pdf](http://www.tepav.org.tr/upload/files/1291301530-2.To%20what%20South%20Korea%20Owes%20Success%20in%20Innovations.pdf)

⁵ Harmonized System (HS)- 2 Classification (Chapter 87)

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Source: Comtrade, TEPAV Calculations (Hs6 8703)

As can be seen, while Turkey has consistently been dependent on imports since the 1990, Korea's automotive industry had a small volume of imports until 2003. Relative to its exports, Korea's automotive imports are close to zero.

In 2010, 1.4 million of 4.5 million cars produced in South Korea were sold in the domestic market. In 2012, Korea's imports equaled only 3% of its production capacity. Alongside increases in its production capacity, domestic demand continues to increase despite the elimination of incentive packages. Moreover, the government reduced taxes by 30% and introduced scrap discounts in 2009 to reduce the effects of the crisis, which resulted in a 5% growth in the domestic market.

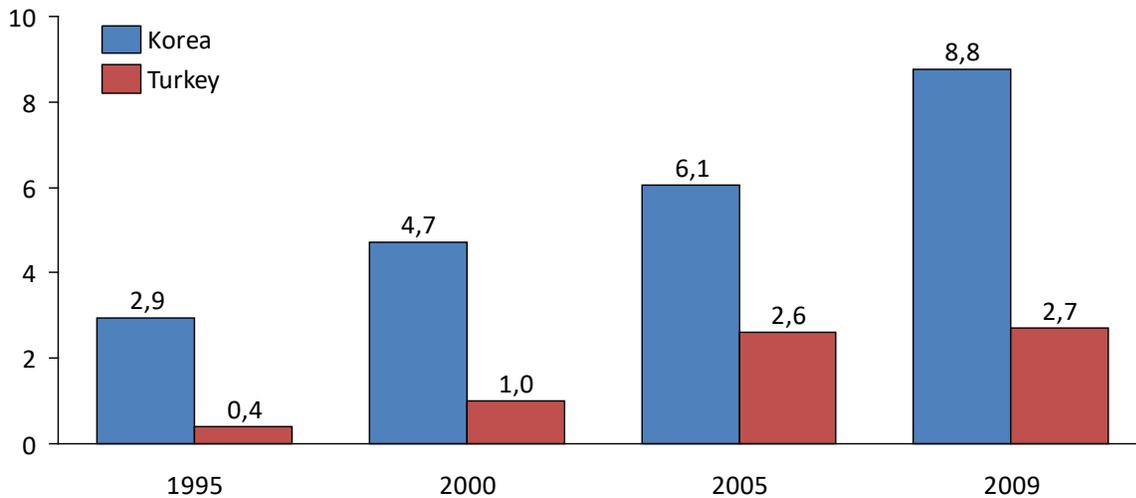
Table 1: South Korea Automobile Manufacturing and Trade (2003-2012)

Thousand	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
production	3.178	3.469	3.699	3.840	4.086	3.827	3.513	4.272	4.657	4.562
domestic market	1.318	1.094	1.143	1.164	1.219	1.154	1.394	1.465	1.475	1.411
export	1.815	2.380	2.586	2.648	2.847	2.684	2.149	2.772	3.152	3.171
import	30	34	45	55	73	81	69	105	112	135

Source: KAMA (Korea Automobile Manufacturers' Association) Annual Report - 2013

Figure 3: Turkey and Korea's Automobile Exports (1990-2012, million USD)

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Source: OECD, WTO statistical database

In addition to South Korea's growing automotive exports, value added on exports is also increasing. In 1995, automobile's value added contributed 2.9% to GDP; the share rose to 8.8% in 2009. The same share rose only from 0.4% in the mid-90s to 2.7% in 2009 in Turkey.

How South Korea's Domestic Market Developed

The story of South Korea's automotive sector began in 1955, when the Korean businessman Choi Mu-Seong and his two brothers modified a US military jeep. In 1960, the three brothers founded "Sinjin", Korea's first domestic car company. In 1962, the South Korean government announced its "Automobile Industry Incentive Policy", which aimed to protect its infant industries and prohibited sales by foreign producers, except those with joint ventures or production in the country. Firms founded before the end of the 70s acquired the capacity to produce parts, an export sector.

In 1970, Toyota terminated its agreement with Sinjin and partnered with General Motors. South Korea's first car, "Pony", was produced in 1975 by Hyundai Motors. Although a large part of the car was produced using imported products, between 1972 and 1982, the first car to be assembled in Korea was exported to South American countries, such as Columbia, Venezuela and Ecuador.⁶

Reeling from the 1979 energy crisis, South Korea implemented the "Automobile Industry Rationalization Policy" aimed at alleviating the automotive industry's stagnation. The policy targeted at reducing competition among the country's four large producers: Hyundai, KIA, General Motors, and Asia Motors. In addition, the government also suspended its loosening of import restrictions.

⁶ Daechang, Lee (2002) Korean Automotiv Industry in Transition. Kia Economic Research Institute.

Eleven years after the entry of "Pony" into South American markets, South Korea took a first step towards entering the US market with its "Excell" model. Thanks to its low price, the model took off. At the beginning of the 1990s, Korea's exports to the US of the "Excell" surpassed one million dollars; however, it took a few steps back as a consequence of technical issues.

Instead of pulling out of the world's biggest market, South Korea accelerated work on branding, production and long-term R&D. In 1998, it began selling cars with a 10-year, 100 000 mile warranty and drew attention to its improved quality. Towards the end of the 90s, South Korea manufactured cars boasting not only improved quality, but also fuel economy, environmental impact, and comfort.

The most interesting factor during the development of the Korean automotive sector is the government policies implemented prior to the export – that is to say, "transformation" – stage. Government initiatives focused on both incentivizing growth in infant industries and ensuring that the domestic market demand was met by domestic supply. High tariffs implemented until the end of the transformation process caused low import figures.

Table 2: South Korea Imported Car Tariff Rates

South Korea Imported Car Tariff Rates										
Rate (%)	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
	60	50	30	25	20	20	17	15	10	8

As the table above shows, normalization of tariff rates coincides with the increasing value and visibility of the Korean brand in international markets. Sub-5% growth in domestic markets and high competition caused the government to put pressure on the domestic automotive industry in the late 90s. In response, increasingly aggressive automobile manufacturers began producing a greater variety of cars to meet different needs. The government's domestic policy supported Korean manufacturers' investment and cooperation abroad.

Domestic cars constitute 90% of South Korea's automotive market and 30% of production is intended for domestic consumption. Two factors play a role in the success of South Korean manufacturers in the domestic market. First, by closely observing consumer needs, manufacturers have designed product lines meant to meet these needs. Second, protectionism prevented predatory behavior from international competitors. Thus, the innovative process towards developing more durable and useful product lines accelerated. South Korea transferred the experience it gained in domestic markets, which consume one-third of its production, towards becoming one of the largest automobile producers in the world.

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