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# Followers VS. Market-Makers: Where are we standing at global integration?

Despite being more expensive, air transportation enables exporting to more distant markets. However, the cost of transporting goods by air is exceptionally high for goods which are cheap and heavy. On the other hand, air freight costs are lower for high-technology products that are expensive and light-weight. Countries that employ air transportation effectively can reach a broader export market and enjoy a greater share of high-unit-value and low-weight high-technology products in their overall exports. This study compares the technological classification of overall exports and unit-value of high-tech exports of developed countries which succeed in exporting to more markets and developing countries which export to fewer markets. The results show that developed countries are more integrated into the global production chains as market-makers, whereas developing countries are integrated into regional supply chains without effecting prices.

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There are three main freight methods for exporting goods: ground (including railways), water and air. In countries specializing in traditional exports, ground and water are frequently employed methods of freight; whereas it is evident that countries exporting more of high unit-value and low-weight goods will employ air-based freight despite higher costs associated with it. The key benefits of using airways are that it is faster and enables secure transportation for fragile goods<sup>3</sup>. On the other hand, the biggest disadvantage associated with air transportation is its high cost relative to other modes of transportation. Because of the low unit weight of high-tech products (such as biotechnology products, microchips, medicine, and plane components), the transportation cost per unit decreases with the use of the otherwise more expensive air cargo. Consequently, air transport emerges as the preferred shipping method for such products.



Source: Turkish Statistical Institute, US Department of Transportation, TEPAV Calculations

Graph 1 and Graph 2 show the shares of transportation modes used for exports in the USA and Turkey, respectively. Upon examination of the methods used for transportation, it is seen that the share of water-freight is analogous in volume and value among both countries. The share of ground freight in Turkey is almost 50% in value and almost 25% in volume; compared to a fourth of the value and a fifth of the volume of exports in the USA.

The most apparent difference between the two countries' transportation modes is the use of air- transport. In the USA, air cargo constitutes 0.4% of the volume and a fourth of the total value of exported goods. In comparison, Turkey transports only 1% of its export volume and 3.9% of its export value by air.

Air-transport facilitates firms' access to distant markets and broadens the export range of a country. Table 1 shows the export range of some developed countries, Turkey, and two of

<sup>&</sup>lt;sup>3</sup> "Transport and Distribution for International Trade", UK Department for Business, Innovation and Skills, <u>http://bit.ly/JM9zis</u>, Accessed on: 19.12.2013

its neighbors. According to Table 1, the United States – which uses air-transport more effectively than Turkey – has 2.5 times the export range of Turkey. The US, which is geographically distant from many major markets, is not alone in the breadth of its export range. Israel's export range is 2.3 times that of Turkey's, despite being in the same geography.

Total Exports
7506.017
6835.741
6137.031
5731.060
3054.544
5405.212
3700.734
2989.844

## Table 1: Total Export Range<sup>4</sup> (km)

Source: BACI, GeoDist, TEPAV Calculations

Based on the example of the USA, it is possible to conclude that countries that use their airways effectively have broader export ranges relative to other countries. The high cost associated with air shipping is of diminishing importance when transporting goods which are both high-priced and light-weight. Generally, such goods are classified as high-tech goods. Upon studying the technological classification of exported goods by the countries listed in Table 1, it is observed that developed countries are more successful at exporting high-tech goods and that these products constitute more than 20% of their total exports (Table 2).

<sup>&</sup>lt;sup>4</sup> Average export range is calculated by weighing the distance between each reporter and partner country by the bilateral export value.

	Primary Products <sup>6</sup>	Low Tech	Medium Tech	High Tech
South Korea	21.06%	11.46%	39.46%	28.02%
Israel	45.78%	7.41%	22.39%	24.42%
Japan	12.70%	10.70%	55.56%	21.04%
USA	34.58%	10.44%	34.45%	20.52%
Germany	19.03%	14.47%	47.62%	18.88%
Armenia	71.89%	4.85%	15.50%	7.76%
Turkey	26.86%	37.31%	31.38%	4.44%
Iran	91.59%	3.53%	4.72%	0.16%

#### Table 2: Technologic Distribution of Export<sup>5</sup> (2012)

Source: UN Comtrade Database, TEPAV Calculations

When medium-tech products (such as automotive, chemical and industrial capital) are included, medium- and high-tech goods constitute 60% of developed countries' total exports, compared to 4.4% in Turkey as of 2012. While Iran and Armenia have a low share of high-tech exports due to their reliance on primary goods, Turkey focuses on exporting mostly low-tech goods such as textile, furniture, and plastic goods.

## Table 3: Total High-Tech Export and Export Range (km)

	High Tech Products	Total Exports
USA	7723.231	7506.017
Israel	7123.159	6835.741
Japan	6793.623	6137.031
South Korea	6821.697	5731.060
Germany	3621.004	3054.544
Iran	1880.784	5405.212
Armenia	2985.204	3700.734
Turkey	2939.862	2989.844

Source: BACI, GeoDist, Hanson, TEPAV Calculations

Alongside the average export range, Table 3 also shows the export range for high-tech goods. Export strategies relying on low-tech and primary goods beget a lower export range. In contrast, countries that are able to export more of high-tech goods are able to

<sup>&</sup>lt;sup>5</sup> On export classification, we used LALL's export classification which is also used by United Nations. (For detailed information please see: Lall, Sanjaya. "The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-1998", QEH Working Papers, No:44, 2000)

<sup>&</sup>lt;sup>6</sup> Primary goods are those that are immediately used upon extraction from nature. Agriculture, livestock, mining, and oil extraction fall under this category.

increase their average export range as well as increasing their export range for high-tech goods more than their overall export range.

	Unit Value (\$/kg)
Japan	68.4
South Korea	53.0
USA	52.9
Germany	52.5
Armenia	16.2
Turkey	12.2
Iran	10.2

## Table 4: Average Unit Value of High Tech Export, \$/kg (2012)

Source: UN Comtrade Database, Lall (2000), TEPAV Calculations

Table 4 shows the average price per unit of exported high-tech goods. While Japan, with the highest price per unit, exports 1 kilogram of high tech good for over US\$ 68, the number is closer to only US\$ 12.2 for Turkey. In economic literature, it is frequently mentioned that price is an indicator of quality and that goods with higher prices are perceived to be having higher quality than cheaper but comparable goods<sup>7</sup>. Based on this, Japan can be assumed to forestall Turkey in the high-tech export competition as the producer of higher-quality products. Studies show that, until recently, there has been a rooted perception that high-tech goods of Japanese origin are of a higher quality<sup>8</sup>. If we take into account the unit-prices of high-tech products exported by developed counties and Turkey, Turkey either sells high-tech goods at a cheaper price than its developed competitors or it produces lower-quality goods than its competitors within the same product group.

Considering the higher unit prices of high-tech products, export ranges, and share of hightech goods in overall exports of developed countries, it can be concluded that these countries are global market makers; whereas, developing countries or transitional countries like Turkey generally cater to local supply chains upon request and that they face price pressure.

<sup>&</sup>lt;sup>7</sup> Steven M. Shugan. "Price-Quality Relationships", iAdvances in Consumer Research Volume 11, eds. Thomas C. Kinnear, Provo, UT: Association for Consumer Research, Pages: 627-632, 1984.

<sup>&</sup>lt;sup>8</sup> Steven K. Vogel. "What Ever Happened to Japanese Electronics?: A World Economy Perspective", The Asia-Pacific Journal, Vol. 11, Issue 45, No. 2, 2013.