

**EXECUTIVE
BOARD
MEETING**

SM/15/162
Correction 1

July 14, 2015

To: Members of the Executive Board

From: The Secretary

Subject: **Singapore—Selected Issues**

Board Action:

The attached corrections to SM/15/162 (6/26/15) have been provided by the staff:

**Factual Errors Not
Affecting the
Presentation of Staff's
Analysis or Views**

Pages 4 and 6

Questions:

Ms. Arbatli, APD (ext. 34814)
Mr. Jauregui, APD (ext. 38216)

domestic value-added share tend to be more price elastic. As highlighted in IMF (2015), this could reflect the dampened impact of exchange rate adjustments on downstream exports due to their high import content. However, the impact of domestic or foreign price changes on export elasticities could be different and would likely reflect the structure of the supply chain and the type of product. Consistent with theory, we find that an increase in the relative price of imports reduces import volumes. We also introduce interactive terms in the regressions to study the behavior of GVC-related imports. We find that the extent to which a product is used as input in exports has a magnifying effect on the price elasticity. This means that an increase in the relative price of imports leads to a larger decline in import volumes if the product is used as input in producing export products. This is counter-intuitive if the relative price change comes about through changes in exchange rates. Exchange rate depreciation makes imports more expensive but would also provide a boost to exports, pushing up demand for export-related imports. If the increase in relative import prices reflects changes in the foreign currency price of imported products, the import price elasticity would depend on the export price elasticity of the products that are being produced. Our results seem to be more consistent with the latter and the fact that we use highly disaggregated product-level data.

We also explore whether the complexity of a product has an effect on price and on demand elasticities. We find that economic complexity is related to export price elasticities: higher economic complexity is associated with lower price elasticity of exports. This relationship is stronger within certain product segments such as the machinery, mechanical appliances and computers as well as the pharmaceuticals segments.² The next section of this paper provides an overview of the structure and composition of Singapore's external trade. The consequent sections discuss the empirical strategy for estimating trade elasticities and results.

B. Structure and Role of Singapore's External Trade

External Trade and Economic Structure. Singapore is a highly export oriented economy. Although net exports have declined from 2630.8 percent of GDP before the global financial crisis to 19.124.4 percent of GDP in 2014, they are still one of the highest in the world. The export orientation of Singapore's economy can also be seen at the industry level. For instance, about 70 percent of all industries which produce 67 percent of Singapore's total output are export-oriented (Figure 1).³ Singapore's output and exports are also highly dependent on imports. Most industries have a significant import input share, with the most import-intensive sector being the petroleum products industry (Figure 2). There is also a clear relationship between export orientation and import intensity at the industry level that becomes more significant for industries with an export share of output

² Other studies have looked at the role of supply constraints in affecting trade elasticities. See Tulin and Raissi (2015) and Anand et al. (2015) for an application to India and South Africa respectively.

³ Industries are classified as export-oriented when exports constituted more than 50 percent of final output. The calculations are based on Singapore's 2010 Input-Output Tables.

that have a low value-added share, reflecting the reliance of the sector on imported petroleum products as input. Singapore's exports of computers and electrical products also have relatively low value-added shares, reflecting Singapore's upstream position in global value chains.

Composition of Trade. Singapore's exports have been dominated by the machinery and mechanical appliances, electrical machinery and equipment and mineral fuels and oils sectors (Figure 6). Over time, the share of organic chemicals, pharmaceuticals, plastics and measuring and checking, precision, medical or surgical instruments sectors have also increased.

Important changes have taken place over time in the share of individual products under machinery and mechanical appliances and electrical machinery. For instance the share of computers in Singapore's gross goods exports declined from 14.1 percent in 2000 to 2.4 percent in 2013. Integrated circuits gained significant share in the 1990s, ~~when they~~ reached about 20 percent of total goods exports ~~in the early 2000s~~, and have remained an important export product since then. On the other hand, the export shares of radio receivers, monitors and projectors and related parts have declined since the 1990s. The composition of imports closely follows that of exports (Figure 7). Singapore's input-output tables confirm that a large share of imports is intermediate goods mainly imported by export-oriented sectors.

Economic Complexity. The notion of complexity of goods and services, originally described in Hidalgo and Hausmann (2009), is helpful in capturing the diversity and sophistication of a country's exports. Product complexity is captured by the fewness of the number of countries that export the product and the diversity of those countries' exports. If a product is produced by a small number of countries and if those countries have a diverse export product mix, the economic complexity of the product is measured to be higher. Economic complexity of Singapore is among the highest in

