**Original Research Article**

# Product and Geographical Concentrations of Exports: Some Evidence for Selected Asian Countries

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**Abstract:** Diversification of exports involving products and trading partners is an important issue for all countries including developing countries. Over-concentration of exports in a few products and to a few destination countries poses higher risks. The main objective of this paper is to quantify the degree of product and geographical concentrations of exports for selected Asian countries: Bangladesh, Pakistan, India, Sri Lanka, China, Cambodia, and Vietnam. The paper uses the Herfindahl-Hirschman Index to measure product and geographical concentrations of exports. The paper finds that product concentration of exports is highest for Bangladesh and lowest for China. The paper highlights that geographical concentration is highest for Cambodia and lowest for China. The paper observes that all the seven countries have a trade surplus with the USA. Furthermore, Cambodia and Vietnam are more dependent on the US market compared to the other countries. Finally, the paper highlights that exports of Bangladesh and Sri Lanka to the USA are dominated by knitted and non-knitted apparel.

**Keywords:** Product concentration, geographical concentration, Herfindahl-Hirschman Index, diversification, factor endowments.

## INTRODUCTION

Traditional trade theory, for example, the Ricardian theory of trade, calls for specialization or concentration on exports based on comparative advantage. The Hecksher-Ohlin model calls for specialization or concentration on products based on factor endowments of a country. In reality, the export basket of a country is determined not only by factor endowments but also by trade policies of a country and its trading partners, and externalities. There is also a large literature on the rationale for product and geographical diversification of exports in the context of developing countries. According to some studies, in the presence of pervasive market imperfections, externalities, and external shocks, diversification of exports is justified (Cadot, Carrere, and Strauss-Kahn, 2011). Recent erratic protectionist trade policies of the United States have rekindled the discussion on the need for geographical diversification of trade.

Product and geographical concentrations of exports are likely to vary across countries because of differences in factor endowments, size of the economy, and stage of development. Imbs and Wacziarg (2003) find a non-linear relationship between concentration and per capita income in production: As per capita income of a country increases concentration first decreases but increases at higher levels of per capita income. In other words, diversification rises and falls as per capita income rises-depicting an inverted U-shaped curve. In their study, Cadot, Carrere, and Strauss-Kahn (2011) also find that concentration of exports first decreases and then increases as per capita income rises.

The main objectives of this paper are: 1) to quantify the degree of product and geographical concentration of exports for selected Asian countries such as Bangladesh, India, Pakistan, Sri Lanka, China, Cambodia, and Vietnam; 2) to highlight the dependence of these countries on the United States for exports.

## DATA AND METHODOLOGY

This paper uses data on exports at the six-digit level of the Harmonized System (HS6). The data are obtained from several sources such as the International Trade Centre, USA trade online data, and the Observatory of Economic Complexity.

The paper computes the degree of product and geographical concentrations of exports based on the Herfindahl-Hirschman Index (HHI) as in Islam (2001).

The $HHI_P$ index for product concentration is defined as follows:
$$HHI_P = [(\Sigma s_i^2)^{1/2} - (1/n)^{1/2}]/[1 - (1/n)^{1/2}] \quad (1)$$

Where s is the share ith export item in total exports and n is the number of products of exports for the relevant country. In this paper the $HHI_P$ is calculated at the six-digit level of the Harmonized System (HS6). The $HHI_P$ can vary from 0 to one, the latter indicates the highest value when the relevant country exports only one product.

The $HHI_G$ is analogously defined to measure geographical concentration of exports.
$$HHI_G = [(\Sigma s_i^2)^{1/2} - (1/n)^{1/2}]/[1 - (1/n)^{1/2}] \quad (2)$$

Where s is the share of ith destination country in the relevant country's exports and n is the number of trading partner countries. The value of $HHI_D$ varies from zero to one, the latter implying the maximum degree of concentration when the relevant country exports to only one country.

## EMPIRICAL FINDINGS AND DISCUSSION

Table 1 reports the number of export items at the HS level and the degree of product concentration of exports ($HHI_P$). It is evident that the export basket varies across the selected countries: China's export basket consists of 4,649 products while the export basket of Bangladesh includes only 703 products. The export basket of India, a large country, consists of 4,010 products. Table 1 also shows that the product concentration of exports is highest for Bangladesh (0.2059) and lowest for China (0.1260). Vietnam's product concentration of exports (0.1422) is less than India's (0.1642).

Table 2 displays geographical concentration of exports of the selected countries. It is evident that the number of trading partners is highest for China (224) and lowest for Vietnam (97). The number of trading partners of India for exports (220) is higher than for Bangladesh, Pakistan, Sri Lanka, Cambodia, and Vietnam. The geographical concentration of exports is highest for Cambodia (0.3566) and lowest for China (0.1558). Vietnam has the second highest degree of geographical concentration (0.2725).

The findings from Table 1 and Table 2 indicate that China's product and geographical concentrations are lower compared to other selected Asian countries. In other words, China's exports are more diversified in terms of products and trading partners. In contrast, the geographical concentrations of exports are higher for Cambodia and Vietnam compared to the other countries.

**Table 1: Product Concentration of Exports (HS6), 2023**

| Country | Number of Products (HS6) | HHI_P (Product Concentration) |
|---|---|---|
| Bangladesh | 703 | 0.2059 |
| Pakistan | 1222 | 0.1694 |
| India | 4010 | 0.1642 |
| Sri Lanka | 763 | 0.1267 |
| Cambodia | 855 | 0.1695 |
| China | 4649 | 0.1260 |
| Vietnam | 2725 | 0.1422 |

**Source of data:** International Trade Centre

**Table 2: Geographical Concentration of Exports**

| Country | Number of Destination Countries | HHI_G (Geographical Concentration) |
|---|---|---|
| Bangladesh | 151 | 0.1976 |
| Pakistan | 202 | 0.1901 |

| India | 220 | 0.1683 |
| Sri Lanka | 193 | 0.2275 |
| Cambodia | 162 | 0.3566 |
| China | 224 | 0.1558 |
| Vietnam | 97 | 0.2725 |

**Source of data:** International Trade Centre

Recent trade and tariff policies of the United States have alarmed many countries including Asian countries. Accordingly, it is instructive to highlight some stylized facts concerning trade relations involving the United States and the selected seven Asian countries.

Table 3 reports some data on trade relations between the USA and these countries. It is observed that although China is a major trading partner of the United States, in 2023, only 12.7% of China's exports were destined to the US market. In contrast, the relevant figures for Cambodia and Vietnam were 35.6% and 27.8% , respectively. One notable point from Table 3 is that all the seven Asian countries have trade surpluses with the United States. China's trade surplus amounts to US$295.4 billion, while the relevant figure for Vietnam is US$ 123.46 billion. The trade surpluses of Pakistan and Sri Lanka are relatively low.

Apparel products, being labour intensive, constitute significant export items for several Asian labour-abundant countries. It can be observed from Table 3 that for Bangladesh, the United States is a major market for knitted- and non-knitted apparel products: non-knitted apparel products comprise 54.5% of total exports from Bangladesh to the United States; the relevant figure for knitted apparel products is 29.9%. It is also evident that although China remains a major exporter of apparel products, the relative weights of knitted- and non-knitted apparel products in China's export basket to the USA are lower compared to other countries. For countries such as Pakistan, Sri Lanka, and Cambodia, the weights of apparel products are relatively higher. It appears that China, India, and Vietnam have managed to shift away from apparel products to other manufactured products.

**Table 3: Trade Relations with USA**

| Country | Exports to US as % of a Country's total Exports, 2023 | Trade Balance with USA (US$) billion, 2024 | Share of knitted apparel (HS 61) in total exports to USA, 2024 | Share of non-knitted apparel (HS 62) in total exports to USA, 2024 |
|---|---|---|---|---|
| Bangladesh | 15.8 | 6.15 | 29.9 | 54.5 |
| Pakistan | 14.5 | 2.99 | 23.3 | 19.5 |
| India | 19.4 | 45.66 | 2.6 | 2.8 |
| Sri Lanka | 21.6 | 2.65 | 33.2 | 23.6 |
| Cambodia | 35.6 | 12.34 | 21.3 | 9.2 |
| China | 12.7 | 295.4 | 2.3 | 1.7 |
| Vietnam | 27.8 | 123.46 | 6.0 | 4.8 |

**Source of data:** The Observatory of Economic Complexity, USA Trade Data Online.

# CONCLUSION

Product and geographical concentrations of exports depend on factor endowments, size of the economy, stage of development, and trade policy regimes of exporting and importing countries. The empirical results show that large economies such as China and India have lower product and geographical concentrations of exports. Not surprisingly, these countries export wide varieties of products to large number of trading partners. Indeed, China has the lowest product and geographical concentrations of exports. In contrast, the export basket of Bangladesh is relatively more concentrated. For Cambodia and Vietnam, the geographical concentrations of exports are relatively higher. These two countries are relatively more dependent on the US market for their exports. The export basket of Bangladesh to the US market is heavily dominated by apparel products.

The empirical findings seem to suggest that China can cope better with tariff wars being initiated by the United States, compared to the other Asian countries.

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