# Tracking Changes in Global Merchandise Trade and India's Merchandise Exports between 2005 and 2019

Abhinav Surya L T

Centre for Development Studies

June 11, 2022

**Abstract**

This study analyses the changing patterns in direction and composition of world merchandise exports in the years around global financial crisis (2005-2010) and the decade after that (2011-2019). The study pays particular attention to emerging patterns amongst developing nations. The study also analyses India's merchandise exports and the developments in this sphere, and place these developments in the context of changing global trade scenario. We find that world trade, and especially exports by developing nations, are moving towards trade in High Tech-High Skill commodities. The study also observes that such a transition has been heavily led by the rise of China as an economic superpower in the recent years. In case of India, the study observes that such a shift towards High Tech-High Skill exports has been led by the pharmaceutical sector, which has historically enjoyed trade and intellectual property rights protection. Based on these results, the study then critically analyses the theories on world trade and comparative advantage. The study attempts to draw attention to the fact that policy suggestions towards leveraging India's factor advantage in labour and relaxation of FDI norms must be approached with care, as the experience of growth in exports in the recent period shows that these policies do not entirely serve the long-term interests of the nation.

**Keywords:** World Trade, Exports in Merchandise, Global Value Chains, Foreign Direct Investment

# Contents

# 1 Introduction

In the years leading up to the global financial crisis, world trade was riding a wave of massive expansion in global economy. After the Asian financial crisis, global economy began to expand drastically from around 2003. This period was also characterized by large flows of financial resources (FDI, FPI, FCCB) into developing nations. Along with this, the easing of outsourcing rules in USA resulted in several services being exported by the developing countries. Combined with this, the increased consumption demand also led to a significant rise in merchandise exports. Together, this period caused the world trade to expand at an unprecedented rate of 16.5% between 2003 and 2008 (Nagaraj (2013)).

But the global financial crisis of 2008 created deep dents in world trade, with global exports plummeting in 2009. Although the growth in world trade was kept afloat in the two years that followed, primarily due to the fiscal and monetary expansions in response to the crisis by the world governments, the period after 2011 is characterized by severe slowdown in global exports. Ratio of global trade to output, after reaching a high of 30% in 2008, gradually declined to settle at 25% in 2020 (UNCTAD (2021)). This decline is not just due to the subdued demand during this period, but also due to sluggish growth in global financial flows, especially towards developing nations.

As a result of such a slowdown, merchandise trade, especially from developing nations, have taken a serious hit. The global merchandise export by ∼60 major developing nations (excluding China), which stood at ∼$2.92 trillion in 2005, rapidly rose to ∼$3.71 trillion (rise of ∼62%), in the span of just five years, in 2010. But the value of exports increased to just ∼$4.72 trillion (rise of ∼27%) in the next nine years till 2019. But interestingly, in the same period between 2010 and 2019, China's merchandise exports have increased from ∼$ 1.58 trillion to ∼$2.5 trillion (rise of ∼58%). Rise of China into a global economic superpower has played a significant role in the changing patterns of global merchandise exports in the last decade. In case of India, the country's export scenario significantly benefited from the previous period of expanding global trade. India's merchandise export value increased from

∼$100 billion in 2005 to ∼$301 billion in 2011, a massive rise by ∼200%. But post this period, merchandise export value reached only ∼$323 billion in 2019 (rise of ∼7%) [1].

In this scenario, we try to understand the changing patterns in the world trade in merchandise goods between 2005-2010 period and 2010-2019 period. The study focuses less on the reasons behind the faster or slower pace of growth in global merchandise exports, but more on the changes in direction and composition of merchandise exports, and the possible factors driving these changes, in the current scenario of slow growth in global global merchandise exports. We also place India's exports, and the changes in its composition and direction, in this scenario. Based on the evidences, we try to conclude that the global merchandise trade, and especially exports from developing nations are increasingly moving towards the direction of manufacture of High Tech-High Skill commodities. We also observe that China has been playing a pivotal role in such a shift.

In case of India, during the period of boom in global trade, traditional theories based on leveraging labour factor advantages, increased integration into global value chains (GVCs) (Veeramani *et al.* (2017)), further relaxations in the flow of foreign investments, etc., were proposed as the way forward in enhancing India's position in the global trade network (Veeramani (2012), Anand *et al.* (2015)). Based on the recent evidences, we critically analyse such theoretical understandings and attempt to see if they fit the current scenario and serve India's strategic long-term interests. Based on the overall trends in growth of exports, and also by specifically analyzing industries which are leading this transition, we try to conclude that a mere "export-oriented" approach will only allow India's merchandise exports sector to become vulnerable to the volatility in global economic and trade situations. Therefore, we argue for an approach aimed at developing local capacity and improving technological transfer from foreign investments.

## 2 Data and Methodology

The data for this study comes majorly from the UN Comtrade Database, which comprises of reported data on exports and imports in goods and services between all the countries at a very dis-aggregated level. For this study, we collect data on merchandise trade between world nations during the years 2005, 2010 and 2019 (for analysing India's exports, additionally trade in year 1996 was also taken into account). We collected data for a list of 107 countries (see Appendix Table A.1). These countries were chosen in such a way that these nations' exports constitute at least 98% of world merchandise trade in 2019, while also these countries constituting at least 98% for destinations of India's merchandise exports in 2019. This was done so as to simultaneously perform both the analysis on global and Indian merchandise exports. At a product level, Standard International Trade Classification (SITC) Revision 3 product classification by United Nations Statistical Division was followed [2]. Trade data was collected at a 3-digit product classification level. This provides a total of 261 commodity classifications.

The methodology of this study primarily draws from the work of Lall (1998). The paper analysed the changing patterns of merchandise trade among various regions of the globe based on the technological content of the exported commodities, and then attempts to provide explanations for such patterns. In this study we adopt the same classification of commodities based on technological content[3]. Such a classification and analysis is much more suited to assess the contemporary patters of exports, as technology is beginning to assume the position of primary determinant in global manufacturing and trade. Along with this, for the case of manufactured goods, UNCTAD Trade Development Report (TDR) 2002 classifies commodities based on the degree and skill of manufacturing[4]. This classification has also been incorporated into the analysis. A new set of classification combining these two classifications has been created (see Appendix Table A.2), which is primarily used in this study to analyse composition of exports.

For the reporting countries, UNCTAD follows the M49 standards to classify nations into

various regions and level of development[5]. Based on this, we adopted the classification of countries into various regions (Latin America, South-East Asia, etc.), and classification into Developed and Developing countries[6]. Of the 107 countries, 67 are classified as Developing, and the rest as Developed. Although China is classified under Developing countries, it has emerged as one of the most important center of global trade. Hence, throughout the analysis of this study, we treat China as a separate category, not clubbing it with other developing countries.

After these classifications, we then analyse the patterns in trade of commodities. For the case of both global exports and exports from India, we look at the changes in composition of exported commodities. We also look at the direction of exports for each region and centres of development. Then at a granular level, we also look at the changes in composition of exports from and between various centres of development. This allows us to understand the drivers of these changes. For the case of India's exports, apart from these analyses, we also perform a preliminary analysis of trends in composition and direction at a more granular stage of 3-digit product classification level. This allows us to deeply understand the nature of industries driving the changes in India's exports.

# 3 Trends in Global Merchandise Trade

In modern history, global merchandise exports has been dominated by a handful of nations. The concentration of trade among top nations is provided in Table 1[1]. After sharp increase in concentration between 2005 and 2010, the situation appears to have eased between 2010 and 2019. But still, only 10% of the nations are responsible for more than 53% of the global merchandise exports.

Table 2 provides the share of global merchandise exports contributed by various regions of the world. During the period of boom in world trade, between 2005 and 2010, the share of exports by several regions comprising of developing nations like Central & South Asia, Latin

[1] All tables and figures provided at the end

America, South East Asia, etc., increased tremendously. But after 2010 it declined, settling for a lower share in 2019 (but higher than 2005). The share of Western nations dropped significantly between 2005 and 2010, but remained stable between 2010 and 2019. But the share of East Asia (comprising of China, Hong Kong, Japan, Korea, etc.), though dropping initially, increased to levels higher than in 2005.

This is also corroborated by Table 3, which shows the share of centers of development in exports. Developing countries other than China (hereafter, simply, "developing countries"), after gaining a significant share of exports between 2005 and 2010, lost a portion of the share between 2010 and 2019. The inverse is true for developed nations. But one significant observation is that, China has consistently increased its share from 7.9% in 2005 to 13.9% in 2010 and 14.6% in 2019.

## 3.1 Direction of Global Merchandise Trade

Table 4 provides the share of global exports emanating from one center of development to another. Even in 2019, single largest share of world exports emerge and ends within developed countries. But the share has considerably declined from 2005, with a marginal gain after 2010. Share of exports from developed to developing countries (excl. China) has marginally increased between 2005 to 2019, and from developed nations to China has been consistently increasing from 3% to 3.7% and 4.9% in 2005, 2010 and 2019 respectively.

The most notable trend is the change in exports from developing countries. During the period of boom in world trade, share of trade within developing countries sharply increased between 2005 and 2019 (7.6% to 13.4%). This was also the period hailed for massive rise in South-South trade. But this share in trade considerable fell to 9.1% in 2019. The trend is also similar for exports from developing countries to developed countries, albeit to a lesser extent.

But, interestingly, share of exports of developing countries to China consistently increased and even gained pace after 2010, rising from 2.6% in 2005 to 4.4% in 2019. The same is

the case for exports from China to other developing countries, whose share increased from 3% in 2005 to 7.2% in 2019, while the share of its exports to developed countries has been fluctuating.

Therefore, this data on direction of trade points to the fact of strong gains in South-South trade between 2005 and 2019, and China emerging to play a central role in facilitating the same, especially after 2010.

## 3.2 Composition of Global Merchandise Trade

The changes in composition of exports presents a slightly more complex picture to analyse. Following earlier discussions, Table 5, and Table 6 presents the composition of exports for the world, as well as each center of development, across various technological content of the exports and degree and skill embodied in manufactured exports.

A primary takeaway from the world average is that between 2005 and 2010, Primary (Fuel) and Resource Based exports gained a significant share of global merchandise exports at the expense of High and Medium skill exports. But this trend reversed after 2010, with High and Medium Skill gaining significant shares of global exports. In case of manufactured goods, we can clearly see High and Medium skill commodities gaining prominence. As a result, in the combined classification in Table 7, primary and resource based manufacturing commodities, which gained prominence between 2005 and 2010, have lost out to High Tech-High Skill (hereafter, HT-HS) and Low/Medium Tech-Low/Medium/High Skill (hereafter, LMT-LMHS) manufacturing exports after 2010. A part of this transition is led by the drop in international oil prices since 2014. But the fact that it is the HT-HS and LMT-LMHS sectors which have specifically gained in share during this decade points to the growing prominence of these commodities in global merchandise exports.

At a dis-aggregated level, the most important observation from Table 5 is the rapid shift in composition of exports by developing countries towards High Tech manufacturing commodities, and a significant drop in Primary (fuel) exports. International oil prices alone

cannot account for such a transition. We explore for further reasons in the upcoming analyses. In terms of skill, too, Table 6 shows that High Skill manufacturing commodities' composition has significantly risen and is now the single major constituent of manufacturing exports from developing countries. Medium skill commodities' share is slow to rise. As a result, in Table 7, we see a significant rise in share of HT-HS manufacturing commodities, and a considerable rise in share of LMT-LMHS manufacturing commodities between 2005 and 2019, while the share of other commodities have fallen, especially after 2010.

China's export composition has remained more or less stable throughout the period of study, with non-resource based manufacturing constituting ∼90% of the country's exports. We see a marginal trend of both medium skill and medium tech commodities gaining in share at the cost of labour intensive and low skill commodities. As a result, in Table 7, we see a prominent rise in share of LMT-LMHS manufacturing commodities, while the share of HT-HS manufacturing commodities have remained stable and consistently high.

To further understand these changes, we look at the share of each center of development in the global exports of each commodity category. Table 8 provides this data. This table reminds us that still majority of the manufacturing exports remain with Developed countries, although there is a major drop in share in many categories, compared to 2005.

In case of developing countries, between 2005 and 2010, the share of both resource based manufacturing and HT-HS manufacturing commodities significantly increased. But post 2010, only HT-HS sector maintained its share, while the share of all other commodity categories declined. This shows that this is the only sector which grew keeping pace with global average after 2010. This is the reason behind significant rise in composition of HT-HS manufacturing commodities in developing countries' exports.

China also wrested a significant share of HT-HS exports away from developed countries between 2005 and 2010, which more or less remains consolidated in the next decade as well. But along with this, China has also been able to gain a significant share in exports of LMT-LMHS manufacturing commodities consistently, which is reflected in its export composition

as well.

Overall, we clearly see a trend of shifting of export-based manufacturing of HT-HS manufacturing commodities away from developed countries towards China and other developing countries, while also observing a considerable shift in exports of LMT-LMHS manufacturing as well, especially towards China.

## 3.3 Commodities, Concentration and Destination of Developing Countries' Exports

After having established this trend of rising prominence of HT-HS & LMT-LMHS sectors in the developing world, we delve deeper to understand the drivers of this shift.

### 3.3.1 Commodities

Within developing countries' exports of HT-HS commodities, we look at the share of various individual commodities. Table 10 shows that the rise of HT-HS exports from the developing countries is led by the manufacture of Electrical machinery and appliances (e.g: Televisions). While the share of data processing machines (e.g.: Laptops, Computers) declined between 2005 and 2010, it bounced back in the following decade. Despite the boom in global exports of telecommunication equipment (e.g.: Mobile phones), the share of this industry in developing countries' HT-HS exports has only declined since 2005. A part of the rise of HT-HS exports is also contributed by increase in share of pharmaceutical industry, led by India (we shall discuss this in detail in later sections).

Although HT-HS exports have increased from developing countries, given that it is led by industries like electrical appliances and data processing machines, it is often argued that the complex processes in these commodities remains with developed nations and only the labour intensive processes in assembly of advanced components are performed in developing countries. While there are evidences to support this argument, this alone cannot explain such a massive shift in composition of exports from developing countries. A detailed study

of individual country's policies and initiatives for building domestic capacities, upgrading skill-level and technological capabilities needs to be studied in detail. Such an exercise is beyond the scope of this study.

### 3.3.2 Concentration

Table 11 shows the share of various geographical regions in the exports of HT-HS and LMT-LMHS manufacturing commodities from developing countries.

In case of HT-HS exports, we see a severe concentration of exports in the regions of South East Asia and East Asia (East Asia comprises of only Hong Kong). Several countries in this region have historically held a prominent export-oriented policies towards the manufacture of these commodities, which has allowed them to gain significant leadership in the recent years (Hong Kong's huge share is contributed by its position as being a trading hub). The significant jump in exports from Middle East is due to emergence of UAE as an important trading hub. Exports from Latin America are primarily led by Mexico, whose share has only declined over the years.

In case of LMT-LMHS manufacturing, Latin America still holds a prominent position, led by the strong and diverse industrial bases built in Argentina and Brazil. But here too we see a dominant share lying with South East Asian nations, although there is a steady rise in share of South Asia, led by India's automobile exports (we shall discuss this in detail in later sections).

Table 12 also presents the details of top developing countries responsible for driving the transition of exports towards HT-HS manufacturing commodities. The most striking entrant is Viet Nam, whose share in global exports of HT-HS manufacturing commodities increased from a mere 0.3% in 2010 to 2.7% in 2019.

### 3.3.3 Destination

To understand the shifts in compositions better, we look at the destinations for these exports for HT-HS and LMT-LMHS manufacturing commodities. Table 13 shows the share of exports from each center of development reaching another destination center of development, for these commodity categories.

In case of HT-HS exports, the most significant takeaway from the table is the direction of exports from developing countries. The value share of exports from these countries reaching developed countries has consistently declined between 2005 and 2019. A part of this share has been gained by trade amongst developing countries. But the share of exports going towards the single nation of China, has massively jumped by $\sim$7 percentage points, from 22.8% in 2005 to 29.6% in 2019. This is also true for the case of exports from China. China's share of HT-HS exports to other developing countries increased consistently from 41.5% in 2005 to 49.8% in 2019.

In case of LMT-LMHS exports, the most important observation is again China's share of exports to other developing countries increasing consistently, which should also be understood in consonance with a rise in share of Medium Tech-Medium Skill commodities in China's export composition. After a rise in share of developing countries' LMT-LMHS exports going to other developing countries between 2005 and 2010, the reliance on developed nations once again significantly increased in the decade that followed.

To emphasise the role of China in changing composition of developing countries' exports, we present the trade in HT-HS manufacturing commodities between the top developing countries responsible for driving the transition of exports towards HT-HS manufacturing commodities and China. Table 14 shows that both share of HT-HS exports from these countries reaching China, as well as share of China in the imports of these countries has only increased between 2005 and 2019. China features as the very top trading nation (in HT-HS manufacturing commodities) for all these countries.

### 3.4 Discussion on Trends in Global Merchandise Trade

Based on recent data and trends, we see a pattern of gaining prominence of HT-HS and LMT-LMHS manufacturing commodities in global exports. We also see that, while the share of developed and other developing countries have fluctuated between 2005 and 2019, China's share in global exports has increased consistently.

In terms of direction, we observed that the strong gains in South-South trade has been led by China emerging as a central player. In terms of composition, we clearly see that the exports of developing countries and China strongly shifting towards HT-HS manufacturing commodities, and China strongly gaining in exports of Medium Tech&Skill exports. The shift in export-based manufacturing of HT-HS and LMT-LMHS manufacturing commodities towards developing countries is taking place even as developed countries continue to doming the manufacturing exports scene.

We observed that China has emerged as the most player in facilitating the transition of developing countries' export composition towards HT-HS commodities. China is playing a vital role by emerging both as a supplier and also a large-scale consumer of HT-HS commodities from developing countries.

Lall (1998), while analysing the trends in shifting composition of global trade, pointed to the "low technology" base of China's export structure in 1996. The study attributed it to the very low levels of industry-financed R&D in China, which is not suitable for "sustained upgrading". But since then, China's technology base and export structure have seen tremendous upgradation. China's R&D intensity has increased from 0.56% of GDP in 1996 to 2.14% of GDP in 2018[7], and industry dominates R&D investment with more than 70% share. Since the turn of the century, China has been able to build domestic infrastructure and manufacturing capacities, while also gaining strong advantages in technological capabilities. Due to such a large scale and sustained transition, China has emerged to be capable of leading the changes in direction and composition of South-South trade.

# 4 Trends in India's Merchandise Exports

In this section, we attempt to analyse India's exports and the changes in its composition and direction, in the light of the developments in global merchandise exports.

Figure 1 presents the trend in India's export value over time. The breakpoints were estimated using the Bai-Perron breakpoints analysis method (Bai & Perron (1998)). We see that after a nominal growth between 1996 and 2003, India's merchandise exports started growing at a rapid pace of 18.4%, riding the global boom in trade. But the growth started stagnating after 2010. From 2011 to 2019, there is hardly any growth. The rate of growth of exports has declined to 0.2%. This points to the fact that India's export sector is heavily integrated to and dependent on the global trade scenario. A part of this decline in rate of growth is due to the significant drop in international oil prices (we shall discuss this in detail in the upcoming sections).

## 4.1 Direction of India's Merchandise Exports

Table 15 presents India's top exporting partners. USA continues to be the most important destination for India's merchandise exports. Although India's export share to China has considerably increased since 1996, comparatively, it has not grown at a faster rate. The most important entrant is UAE, which has emerged as one of the top destination for our exports, even overtaking USA for a brief period in 2010. India's strong links with its diaspora in UAE and the emergence of UAE as the trading hub in the Middle East are the probable reasons.

Table 16 presents the region-wise share of India's export destinations. Although the Western world remains the top destination for India's merchandise exports, its relative importance has been continuously declining, albeit with a marginal gain in share after 2010. Share of exports to Central & South Asian neighbors, after stagnating for a long time, significantly increased after 2010. Although East and South East Asian partners enjoy a considerable

share in exports, the share has only declined after 2010. But the most important observation which can be drawn from the table is the consistent and significant rise in share of exports reaching West Asia, North Africa and Sub-Saharan Africa. Especially the share of exports to Sub-Saharan Africa has more than doubled between 1996 and 2019. Share of exports to Latin America too, although low, has considerable risen over the years.

Hence, it is amply evident that India has been able to diversify its export destinations away from the Western countries, towards other regions of the world, during the era of Globalization.

## 4.2 Major Exporting Commodities

Table 17 shows the top commodities exported from India, and their share in total export value. The most apparent development is the extremely high gain in share of exports of refined petroleum products. From a mere 1.4% share in 1996, its share increased to 17% in 2010, and ∼20% in 2013. But post-2014, due to the fall in prices of oil, its share has come down significantly to 13.2% in 2019. In terms of quantity, India's exports of Petroleum oils or bituminous minerals increased from 12 million tonnes in 2003 to 71 million tonnes in 2013. After the price crash in 2014, although the quantity came down to 64 million tonnes in 2016, it once again increased to 72 million tonnes 2019 [8]. Hence, the significant drop in share of this commodity in India's exports is due to the reduction in unit price of exports, which declined from $914 per ton in 2013 to $419 in 2016 and $587 in 2019.

The share of exports of Gems and Jewellery, which used to dominate India's exports, has reduced in the recent years, but still remains high. Other sectors like pharmaceuticals, chemicals and automobiles sectors, where India carefully built its advantage, have also seen a considerable increase in their shares in export value.

But the extreme reliance on a single commodity of refined petroleum exports have had major impact on India's export basket. Hirschman-Herfindahl (HH) Index, which is the sum of squared share of each commodity in the country's exports, measures the diversity in a

country's export basket. Figure 2 plots this index for India, for 261 commodity categories (SITC Rev.3 3-digit level). After 2010, we see a sharp rise in the index until 2014, indicating concentration in exports. Only after the drop in oil prices in 2014, does the index come down. The plot also shows the HH index without considering commodity-code 334, the 3-digit code for this product. We see a more or less steady decline in the index since the beginning of this century, indicating diversification. Hence, this one particular product is heavily responsible for the loss in diversity in India's merchandise exports.

Such a high level of dependence on one commodity, especially a resource based manufacturing commodity such as refined petroleum products, whose value is highly susceptible to the volatility in international prices, has been a prime factor in the stagnation in India's exports.

## 4.3 Composition of Exports

Table 18 provides the share of India's exports at 2-digit level of commodity classification. As discussed earlier, led by the export of refined petroleum products, share of Mineral fuels category has significantly increased. As a result, the share of Food & live animals and Manufactured goods categories have declined (although share of Food & live animals has marginally increased after 2010). We see a steady decline in share of non-fuel primary commodities. Led by the automobile and pharmaceutical industries, the exports of chemical products and Machinery and transport equipments have steadily gained in share since 1996.

To see the overall nature of these changes, Table 19 provides the share of exports by Skill & Tech categories of the commodities. The table also provides the overall composition of exports of developing countries, for comparison (Hong Kong and UAE, being trading hubs, have been excluded, for better comparison).

India's reliance on exports of primary products significantly declined between 1996 and 2005, but remained stagnant thereafter. But this share is still much less than the average of developing countries. But, India's reliance on exports of resourced based manufacturing

commodities has increased, and is very high compared to developing countries' average (we've already discussed the pitfalls of this reliance).

Despite the fall in share of labour intensive manufacturing, it is still higher than developing countries' average. The share of LMT-LMHS manufacturing commodities has been growing, and it is even higher than developing countries' average.

Most importantly, following the trend in other developing countries, India's share of HT-HS manufacturing commodities have consistently risen. But it is rising at a much slower pace. Its share in exports (10.4%) is much lower than the average of developing countries (22.7%) in 2019.

Overall, the share of various types of non-resource based manufactured exports and its growth is comparable to that of the average of developing countries.

To understand these changes, Table 20 shows the rate of growth of exports of each commodity category. We see that, after very high rates of growth prior to 2010, the growth rate of all the categories have come down during 2011-19 period. As discussed earlier, the resource-based manufacturing exports, after a very high growth rate in 2004-10, saw a negative growth rate in 2011-12. Overall, the growth rate of exports of HT-HS and LMT-LMHS manufacturing commodities have been the highest between 2005 and 2019. This is more or less in accordance with the growth pattern of all developing countries (excl. China).

## 4.4 Type of Destination for India's Exports

Table 21 provides the destination for India's exports based on centers of development. Similar to other developing countries, India's overall reliance on exports to developed countries has significantly reduced in the Globalization period. Although share of India's exports to China has increased since 1996, unlike other East & South East Asian countries, India's exports and export patterns are not too centred around China, and remains diversified with other developing countries. Across most commodity categories, after drop in share of exports to developed countries between 1996 and 2010, the share has marginally increased between 2010

and 2019.

Among the fast growing sectors, in case of LMT-LMHS manufacturing exports, India has been successfully able to substitute a significant share of its exports away from developed countries towards developing countries and China (especially more towards China after 2010). But in case of HT-HS manufacturing exports, India is still majorly reliant on developed countries, and the share has not significantly changed since 2005.

## 4.5 High Tech-High Skill Exports: Deep Dive

As one of the fastest growing sectors, we look deeper into the high tech-high skill manufacturing exports from India. Figure 3 shows the share of each industry within the total value of HT-HS expors from India. As it can be clearly seen, the exports are led by the pharmaceutical industry.

During a brief period between 2009 and 2014, the exports of telecommunication equipements gained a high share. But this has reduced once again. A similar trend can be seen with the manufacturing of data processing instruments during the initial years of this century.

Except for these brief interruptions, pharmaceutical industry has clearly played a dominant role in driving India's composition towards HT-HS manufacturing exports, maintaining a share of over 50%. Share of exports of electrical machines have been constantly declining.

## 4.6 Discussion on Trends in India's Merchandise Exports

The period of 2011-19 saw India's export value stagnating, growing at a mere 0.2%. As we saw, this slow growth rate is primarily led by the fall in unit price of exports of refined petroleum products. This experience pointed to the pitfalls of heavy reliance on resource-based manufacturing exports. Especially in case of petroleum products, India is at a further disadvantage, as almost the entire crude oil input for this industry is imported, which not just raises questions on the value added content of the export, but also leaves the export value of this industry vulnerable to international price shocks.

In terms of direction, India's reliance on developed countries for exports has substantially declined. Moreover, deviating from the trends among other East and South East Asian partners, where the export patterns are gradually becoming centered around China, India's export destinations are becoming much more diversified, with the share of exports to regions like Sub-Saharan Africa, North Africa and West Asia making substantial gains.

In terms of composition, India is rightly reducing its dependence on primary commodities. The period of 1996-2010, saw the share of resource based manufacturing increase sharply. But, in the next decade, following the pattern of China and other developing countries, the share of HT-HS and LMT-LMHS manufacturing exports made considerable gains, although the growth is at a comparatively slower pace.

Here, in this scenario, we are forced to re-investigate the policy suggestions for India to ease its Foreign Direct Investment norms and leverage its factor advantage in labour, so as to advance its export prospects. In case of HT-HS exports, we observed the case of Telecommunication equipment export industry. The share of this industry in HT-HS exports sharply rose during 2009-14, and then dropped abruptly. This industry is characterized by large investments via FDI and strong presence of Global Value Chains (GVCs). Here, the investments primarily arrive in India in search of resources for labour-intensive components of the manufacturing process, and exits the space when the conditions are favourable in other regions. In fact, such experiences contribute to the debates on volatility associated with heavy linkage to GVCs during periods of global economic shocks (Broll & Jauer (2014)). Moreover, despite a long period of experience during the liberalization period, India has not been able to build its own capacities and technological capabilities, and "climb up the value chain" through these investments. The narrative is similar in case of exports of data manufacturing equipment as well, during the initial years of 21st century.

But on the other hand, if we look to the area which has led India's transition towards HT-HS exports, it is the pharmaceutical industry, which has a very long history of growth under a protected environment and favourable intellectual property regime (Patents Act,

1970, which allowed process patenting). This allowed the industry to develop wide-reaching domestic capacities, and strong technological capabilities, with some firms even building world-class R&D facilities.

In case of LMT-LMHS manufacturing too, it is the automobile industry that has led the growth in exports. This is also an industry, despite the large FDI inflows, has enjoyed considerable protection, especially in the 1980s and 1990s. The rules on large percentage of "local content requirement" and tariffs on imports meant that the MNCs were forced to make large capital investments, which built domestic capacities. This also allowed the growth of a strong industry for components manufacture. Moreover, the export obligations on the MNCs provided protection for the domestic firms to build their own capacities. Also, collaboration between foreign firms and domestic suppliers led to spillover benefits and allowed Indian firms to build their own technological capabilities (Miglani (2019)).

These experiences show us that it is those industries where the country's policies and practices allowed for the growth of domestic capacities and technological capabilities, that have led the long-term transition in India's exports. Other industries, where investments arrive with the sole aim of utilising India's factor advantage in labour have only contributed to the volatility in this process of transition.

Hence, policy suggestions which are solely aimed at "export-orientation", leveraging India's factor benefits, and allowing unbridled FDI inflows should be approached with caution. Even if India wants to leverage its factor advantage in labour to provide more employment, it is not beneficial to allow this through a more relaxed FDI rules. In fact, this very juncture, when we are seeing a transition towards HT-HS manufacturing commodities in global exports and particularly among developing countries, is the ideal time for India to strengthen its investment policies which are aimed at better technology transfers, building capacities and technological capabilities. This alone will serve the long-term strategic interests of the country.

# 5 Conclusion

This study attempted to understand the changing patterns in exports of merchandise at a global level and in India, by comparing the composition and direction of trade before and after 2010.

The study was able to draw attention to the evidence that the global exports and especially exports by developing countries are shifting towards High Tech-High Skill manufacturing commodities. The study was also able to offer evidence that points to the fact that such a transition is now strongly facilitated by China.

The study was also able to show that India is also following the path of transition of other developing countries, albeit at a slower pace. It was also able to offer evidences suggesting for a careful approach towards policy decisions on leveraging India's comparative advantage in factors and easing FDI rules. The study was able to offer alternative suggestions that would serve India's long-term interests.

In case of global exports, further study on the nature of transition of developing countries towards HT-HS exports, through analysis of the policies of individual countries, might help us better understand the shifting patterns. In case of India, a stronger empirical study on volatility associated with GVCs and "export-oriented" FDI rules might help substantiate the findings of this study.

# Notes

[1]Estimations on value of global and India's exports by the author using UN Comtrade Database

[2]Standard International Trade Classification (SITC) Revision 3 (https://unctadstat.unctad.org/en/Classifications/DimSitcRev3Products_Official_Hierarchy.pdf)

[3]Product by technological categories (https://unctadstat.unctad.org/en/Classifications/DimSitcRev3Products_Ldc_Hierarchy.pdf)

[4]Manufactured goods by degree of manufacturing (https://unctadstat.unctad.org/en/Classifications/DimSitcRev3Products_Tdr_Hierarchy.pdf)

[5]Classification of countries (https://unctadstat.unctad.org/en/Classifications/DimCountries_All_Hierarchy.pdf)

[6]Note: The classification of countries categorizes South Korea as "developed", along with Japan

[7]Source for data on China's R&D intensity: The World Bank Data (https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?locations=CN)

[8]Estimations on unit price of exports of refined petroleum products by the author using UN Comtrade Database

# References


Anand, Rahul, Kochhar, Kalpana, & Mishra, Saurabh. 2015. *Make in India: which exports can drive the next wave of growth?* International Monetary Fund.

Bai, Jushan, & Perron, Pierre. 1998. Estimating and Testing Linear Models with Multiple Structural Changes. *Econometrica*, **66**(1), 47–78.

Broll, Udo, & Jauer, Julia. 2014. *How international trade is affected by the financial crisis: The gravity trade equation.* Dresden Discussion Paper Series in Economics 03/14. Dresden. urn:nbn:de:bsz:14-qucosa-150478.

Lall, Sanjaya. 1998. Exports of manufactures by developing countries: emerging patterns of trade and location. *Oxford Review of Economic Policy*, **14**(2), 54–73.

Miglani, Smita. 2019. The growth of the Indian automobile industry: Analysis of the roles of government policy and other enabling factors. *Pages 439–463 of: Innovation, economic development, and intellectual property in India and China*. Springer, Singapore.

Nagaraj, Rayaprolu. 2013. India's dream run, 2003-08: Understanding the boom and Its aftermath. *Economic and Political Weekly*, 39–51.

UNCTAD. 2021. *Key Statistics and Trends in International Trade 2020*. 2020 edn. United Nations.

Veeramani, C. 2012. Anatomy of India's Merchandise Export Growth, 1993-94 to 2010-11. *Economic and Political Weekly*, **47**(1), 94–104.

Veeramani, C, Dhir, Garima, *et al.* 2017. *Domestic value added content of India's exports: Estimates for 112 sectors, 1999-2000 to 2012-13*. Indira Gandhi Institute of Development Research Mumbai.

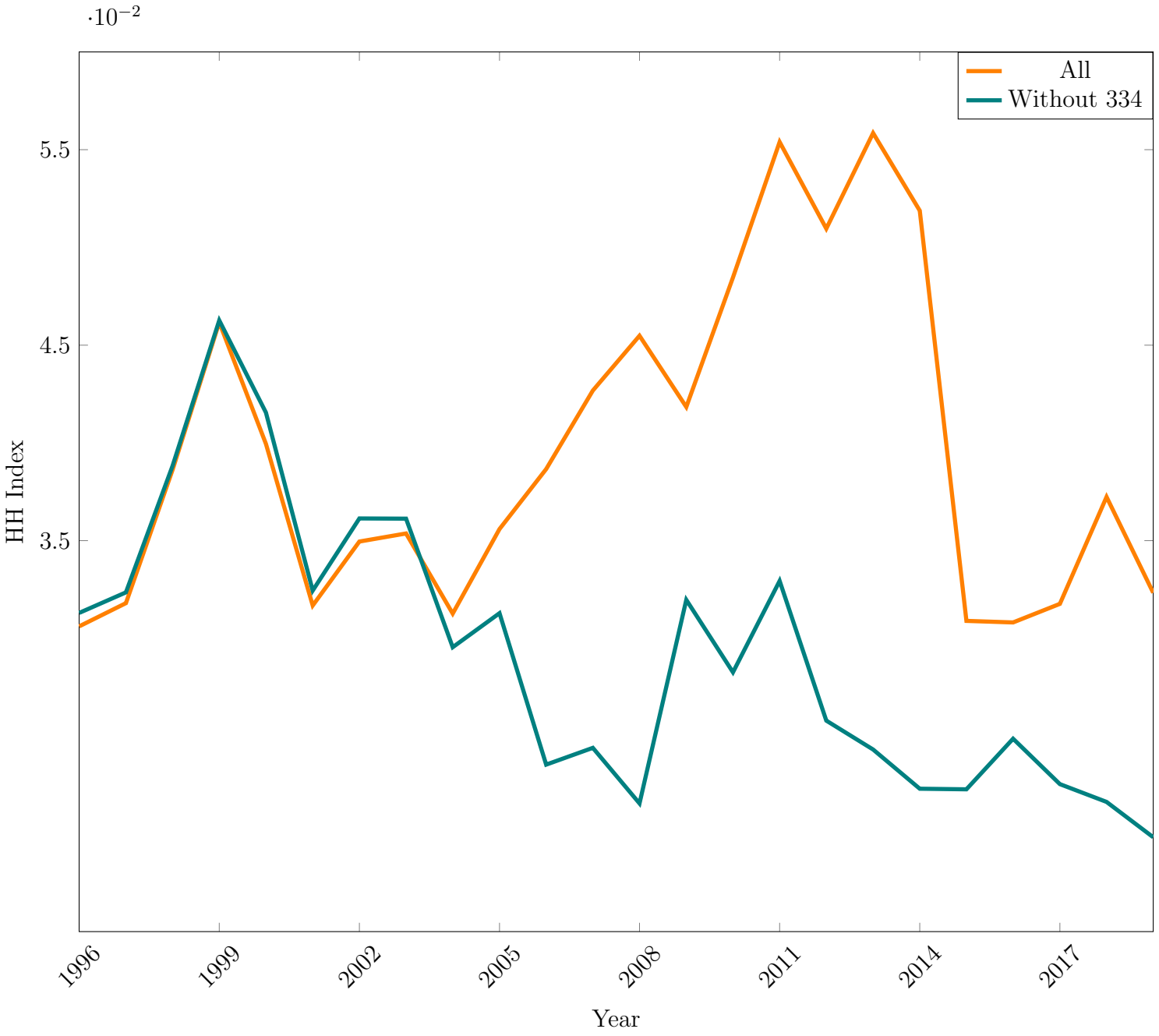
# 6 Tables and Figures

Figure 1: Semi-Log plot of India's Value of Exports (w/ Growth Rate in Each Period)


*Note*: Growth Rate Calculated by regressing $log(Y_{export}) \sim \alpha + \beta t$, where $\beta = log(1 + r)$, $r$ being the rate of growth.

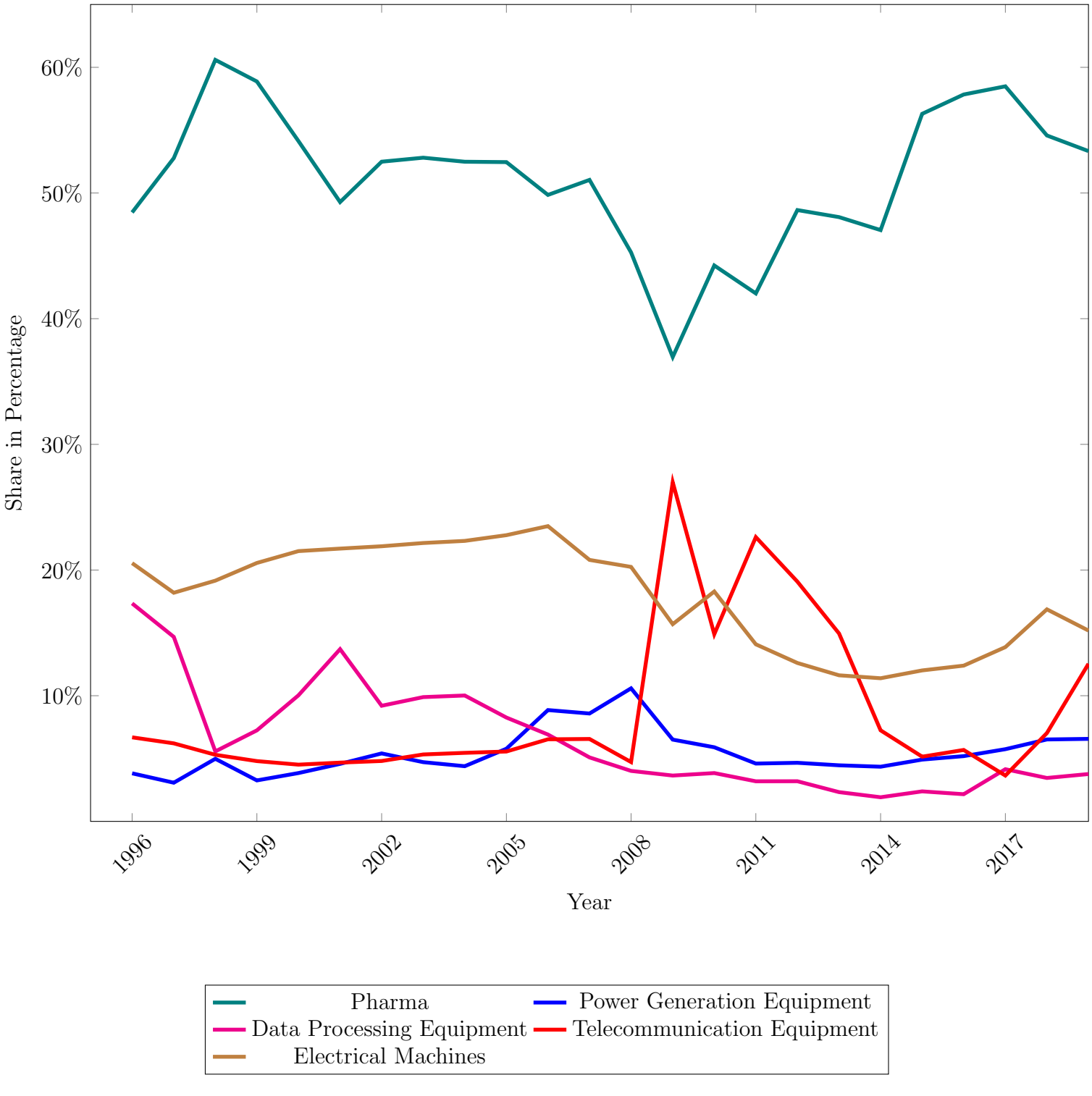
*Source*: Author's estimation using UN Comtrade Database

Figure 2: Hirschman-Herfindahl Index for India's Exports




*Source*: Author's estimation using UN Comtrade Database

Figure 3: Within India's HT-HS exports, share of various industries




*Source*: Author's estimation using UN Comtrade Database

Table 1: Percentage of World Exports Contributed by Top Trading Nations

| | Percentage of World Exports | | |
|---|---|---|---|
| Percentile | 2005 | 2010 | 2019 |
| 1% | 17.9% | 23.6% | 22.4% |
| 5% | 38.7% | 45.5% | 40.5% |
| 10% | 54.7% | 58.6% | 53.7% |

*Source*: Author's estimation using UN Comtrade Database

Table 2: Share of World Exports by Each Region

| Region | 2005 | 2010 | 2019 |
|---|---|---|---|
| Central & South Asia | 2.2% | 3.5% | 2.4% |
| East Asia | 19.7% | 17.3% | 24.1% |
| Eastern & Southern Europe | 12.2% | 11.5% | 12.8% |
| Latin America | 4.1% | 6.8% | 4.0% |
| NA, W&N Europe, Australia & NZ | 47.3% | 39.3% | 39.3% |
| South East Asia | 8.5% | 11.2% | 9.8% |
| Sub-Saharan Africa | 0.7% | 1.9% | 1.3% |
| West Asia and Northern Africa | 5.2% | 8.4% | 6.3% |

*Note*: NA, W&N Europe, Australia & NZ - North America, Western & Northern Europe, Australia & New Zealand

*Source*: Author's estimation using UN Comtrade Database

Table 3: Share of World Exports by Nations' Developmental Category

| Developmental Stage | 2005 | 2010 | 2019 |
|---|---|---|---|
| Developed | 70.1% | 56.6% | 60.9% |
| Developing (Excl. China) | 22.0% | 29.5% | 24.5% |
| China (Developing) | 7.9% | 13.9% | 14.6% |

*Source*: Author's estimation using UN Comtrade Database

Table 4: Share of World Exports between Nations' Developmental Category

| | Destination Nation Development | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Developed | | | Developing (Excl. China) | | | China (Developing) | | |
| Exporting Nation Development | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 |
| Developed | 54.2% | 40.9% | 42.8% | 12.9% | 12.0% | 13.2% | 3.0% | 3.7% | 4.9% |
| Developing (Excl. China) | 11.7% | 13.2% | 11.0% | 7.6% | 13.4% | 9.1% | 2.6% | 2.9% | 4.4% |
| China (Developing) | 4.9% | 7.8% | 7.4% | 3.0% | 6.1% | 7.2% | | | |

*Note*: To read the table: In 2005, 54.2% of total global exports started from developed nations and ended at developed nations

*Source*: Author's estimation using UN Comtrade Database

Table 5: Composition of World's and Each Region's Exports by Commodities' Technology Categories

| | World | | |
|---|---|---|---|
| Commodity Technological Category | 2005 | 2010 | 2019 |
| High Tech Manufacturing | 21.2% | 20.5% | 22.9% |
| Low Tech Manufacturing | 14.3% | 13.9% | 13.9% |
| Medium Tech Manufacturing | 31.7% | 27.4% | 30.8% |
| Primary (Fuel) | 7.3% | 9.0% | 4.6% |
| Primary (Non-Fuel) | 6.0% | 6.5% | 7.1% |
| Resource Based Manufacturing | 14.7% | 17.8% | 15.5% |
| Unclassified | 4.7% | 4.9% | 5.2% |
| Total | 100% | 100% | 100% |

| | Exporting Nation's Development | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Developed | | | Developing (Excl. China) | | | China (Developing) | | |
| Commodity Technological Category | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 |
| High Tech Manufacturing | 19.3% | 16.7% | 17.9% | 21.9% | 21.0% | 28.0% | 35.2% | 35.0% | 34.7% |
| Low Tech Manufacturing | 12.4% | 11.4% | 11.0% | 14.7% | 11.6% | 12.8% | 30.4% | 29.6% | 27.5% |
| Medium Tech Manufacturing | 37.0% | 32.3% | 35.4% | 18.9% | 19.5% | 22.4% | 22.9% | 24.0% | 26.1% |
| Primary (Fuel) | 4.6% | 6.4% | 4.9% | 18.0% | 18.0% | 6.7% | 0.4% | 0.3% | 0.1% |
| Primary (Non-Fuel) | 5.7% | 6.8% | 6.8% | 8.0% | 7.7% | 10.3% | 3.2% | 2.7% | 2.7% |
| Resource Based Manufacturing | 16.1% | 19.9% | 17.1% | 13.0% | 18.4% | 15.9% | 7.4% | 8.0% | 8.1% |
| Unclassified | 5.0% | 6.6% | 6.8% | 5.5% | 3.9% | 3.9% | 0.5% | 0.4% | 0.8% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

*Source*: Author's estimation using UN Comtrade Database

Table 6: Composition of World's and Each Region's Exports by Commodities' Technology Categories

| | World | | |
|---|---|---|---|
| Commodity Skill Category | 2005 | 2010 | 2019 |
| High Skill | 29.9% | 29.8% | 31.2% |
| Labor Intensive | 10.0% | 9.1% | 8.9% |
| Low Skill | 7.3% | 7.0% | 6.6% |
| Medium Skill | 26.3% | 21.9% | 26.4% |
| Others/Unskilled | 26.5% | 32.3% | 26.8% |
| Total | 100% | 100% | 100% |

| | Exporting Nation's Development | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Developed | | | Developing (Excl. China) | | | China (Developing) | | |
| Commodity Skill Category | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 |
| High Skill | 29.7% | 28.2% | 28.1% | 27.4% | 28.5% | 35.7% | 39.0% | 38.9% | 36.9% |
| Labor Intensive | 8.2% | 6.6% | 6.8% | 11.1% | 8.0% | 8.9% | 22.1% | 21.9% | 17.8% |
| Low Skill | 7.8% | 7.3% | 6.5% | 4.8% | 4.7% | 4.6% | 10.2% | 10.9% | 10.3% |
| Medium Skill | 30.5% | 25.4% | 29.5% | 15.3% | 14.9% | 17.8% | 20.9% | 22.0% | 28.1% |
| Others | 23.8% | 32.5% | 29.1% | 41.4% | 43.9% | 33.0% | 7.7% | 6.2% | 6.9% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

*Source*: Author's estimation using UN Comtrade Database

Table 7: Composition of World's and Each Region's Exports by Commodities' Technology Categories

| | World | | |
|---|---|---|---|
| Commodity Category | 2005 | 2010 | 2019 |
| Unclassified/Non-Manufacturing | 4.1% | 4.5% | 4.7% |
| Primary | 13.4% | 15.5% | 11.7% |
| Resource Based Manufacturing | 8.9% | 12.3% | 10.3% |
| Labor Intensive Manufacturing | 10.0% | 9.1% | 8.9% |
| HT-HS Manufacturing | 21.2% | 20.5% | 22.9% |
| LMT-LMHS Manufacturing | 42.4% | 38.2% | 41.5% |
| Total | 100% | 100% | 100% |

| | Exporting Nation's Development | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Developed | | | Developing (Excl. China) | | | China (Developing) | | |
| Commodity Category | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 |
| Unclassified/Non-Manufacturing | 4.3% | 6.0% | 6.2% | 5.1% | 3.5% | 3.6% | 0.3% | 0.2% | 0.6% |
| Primary | 10.3% | 13.2% | 11.7% | 26.0% | 25.7% | 17.0% | 3.6% | 3.0% | 2.8% |
| Resource Based Manufacturing | 9.1% | 13.3% | 11.2% | 10.1% | 14.6% | 12.4% | 3.8% | 3.0% | 3.5% |
| Labor Intensive Manufacturing | 8.2% | 6.6% | 6.8% | 11.1% | 8.0% | 8.9% | 22.1% | 21.9% | 17.8% |
| HT-HS Manufacturing | 19.3% | 16.7% | 17.9% | 21.9% | 21.0% | 28.0% | 35.2% | 35.0% | 34.7% |
| LMT-LMHS Manufacturing | 48.8% | 44.3% | 46.3% | 25.7% | 27.2% | 30.2% | 34.9% | 36.9% | 40.6% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

*Note*: HT-HS : High Tech-High Skill ; LMT-LMHS : Low/Medium Tech-Low/Medium/High Skill

*Source*: Author's estimation using UN Comtrade Database

Table 8: Share of each developmental center in Global Exports by Commodity Categories

| Commodity Category | Developing (Excl. China) 2005 | 2010 | 2019 |
|---|---|---|---|
| Unclassified/Non-Manufacturing | 28.3% | 23.1% | 18.6% |
| Primary | 44.6% | 48.8% | 35.7% |
| Resource Based Manufacturing | 25.9% | 35.0% | 29.5% |
| Labor Intensive Manufacturing | 25.4% | 25.9% | 24.5% |
| HT-HS Manufacturing | 23.8% | 30.1% | 30.2% |
| LMT-LMHS Manufacturing | 13.9% | 20.9% | 17.9% |

| Commodity Category | China (Developing) 2005 | 2010 | 2019 |
|---|---|---|---|
| Unclassified/Non-Manufacturing | 0.6% | 0.5% | 1.9% |
| Primary | 2.2% | 2.7% | 3.5% |
| Resource Based Manufacturing | 3.4% | 3.3% | 5.1% |
| Labor Intensive Manufacturing | 17.7% | 33.1% | 29.5% |
| HT-HS Manufacturing | 13.3% | 23.4% | 22.4% |
| LMT-LMHS Manufacturing | 6.6% | 13.2% | 14.4% |

| Commodity Category | Developed 2005 | 2010 | 2019 |
|---|---|---|---|
| Unclassified/Non-Manufacturing | 71.0% | 76.3% | 79.5% |
| Primary | 53.2% | 48.5% | 60.8% |
| Resource Based Manufacturing | 70.7% | 61.6% | 65.5% |
| Labor Intensive Manufacturing | 56.9% | 41.1% | 46.0% |
| HT-HS Manufacturing | 63.0% | 46.5% | 47.5% |
| LMT-LMHS Manufacturing | 79.6% | 65.9% | 67.7% |

*Note*: To read the table: Developing Countries' Share in Global Exports of Primary Commodities was 44.6% in 2005

*Source*: Author's estimation using UN Comtrade Database

Table 9: Within Developing Nations (Excl. China), Within HT-HS category, composition of various industries

| | Within HT-HS export | | |
|---|---|---|---|
| Industry | 2005 | 2010 | 2019 |
| Electrical machinery, apparatus and appliances, n.e.s. | 37.8% | 47.5% | 49.6% |
| Office machines and automatic data processing machines | 27.9% | 17.9% | 22.7% |
| Telecommunication and sound recording apparatus | 22.8% | 21.7% | 17.3% |
| Professional and scientific instruments, n.e.s. | 4.9% | 5.1% | 3.4% |
| Medicinal and pharmaceutical products | 1.9% | 3.0% | 3.3% |
| Other transport equipment | 1.7% | 2.5% | 1.7% |
| Power generating machinery and equipment | 2.3% | 1.7% | 1.6% |
| Photo apparatus, optical goods, watches and clocks | 0.8% | 0.3% | 0.2% |
| Inorganic chemicals | 0.1% | 0.3% | 0.2% |
| Total | 100.0% | 100.0% | 100.0% |

*Source*: Author's Calculation Using Comtrade-WITS database

Table 10: Within Developing Nations (Excl. China), Within HT-HS category, composition of various industries

| | Within HT-HS export | | |
|---|---|---|---|
| Industry | 2005 | 2010 | 2019 |
| Electrical machinery, apparatus and appliances, n.e.s. | 37.8% | 47.5% | 49.6% |
| Office machines and automatic data processing machines | 27.9% | 17.9% | 22.7% |
| Telecommunication and sound recording apparatus | 22.8% | 21.7% | 17.3% |
| Professional and scientific instruments, n.e.s. | 4.9% | 5.1% | 3.4% |
| Medicinal and pharmaceutical products | 1.9% | 3.0% | 3.3% |
| Other transport equipment | 1.7% | 2.5% | 1.7% |
| Power generating machinery and equipment | 2.3% | 1.7% | 1.6% |
| Photo apparatus, optical goods, watches and clocks | 0.8% | 0.3% | 0.2% |
| Inorganic chemicals | 0.1% | 0.3% | 0.2% |
| Total | 100.0% | 100.0% | 100.0% |

*Source*: Author's Calculation Using Comtrade-WITS database

Table 11: Within Developing Nations (Excl. China), Within HT-HS category, composition of various industries

| | Within HT-HS export | | |
|---|---|---|---|
| Region | 2005 | 2010 | 2019 |
| Central & South Asia | 1.3% | 2.7% | 3.3% |
| East Asia | 26.9% | 27.0% | 30.0% |
| Latin America | 13.7% | 12.1% | 9.2% |
| South East Asia | 55.0% | 55.1% | 52.7% |
| Sub-Saharan Africa | 0.5% | 0.5% | 0.3% |
| West Asia & Northern Africa | 2.6% | 2.6% | 4.6% |
| Total | 100.0% | 100.0% | 100.0% |

| | Within LMT-LMHS export | | |
|---|---|---|---|
| Region | 2005 | 2010 | 2019 |
| Central & South Asia | 7.6% | 9.1% | 11.3% |
| East Asia | 17.2% | 11.0% | 9.0% |
| Latin America | 23.4% | 19.7% | 20.9% |
| South East Asia | 36.0% | 40.8% | 36.4% |
| Sub-Saharan Africa | 4.1% | 4.4% | 3.5% |
| West Asia & Northern Africa | 11.7% | 14.9% | 18.8% |
| Total | 100.0% | 100.0% | 100.0% |

*Source*: Author's estimation using UN Comtrade Database

Table 12: Top Developing Nations (Excl. China) responsible for increase in HT-HS exports (Within HT-HS export share of each country as a % of Global Exports)

| | Within HT-HS export | | |
|---|---|---|---|
| Country | 2005 | 2010 | 2019 |
| China, Hong Kong SAR | 6.4% | 8.1% | 9.1% |
| Singapore | 2.5% | 5.2% | 4.0% |
| Viet Nam | 0.1% | 0.3% | 2.7% |
| United Arab Emirates | 0.3% | 0.3% | 1.0% |
| India | 0.3% | 0.7% | 0.9% |

*Source*: Author's estimation using UN Comtrade Database

Table 13: Share of Exports of each export nation category going to each destination nation category

| | Within HT-HS Export | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Destination Nation Development | | | | | | | | |
| | Developed | | | Developing (Excl. China) | | | China (Developing) | | |
| Exporting Nation Development | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 |
| Developed | 71.4% | 72.1% | 67.0% | 22.8% | 21.7% | 23.0% | 5.9% | 6.2% | 10.0% |
| Developing (Excl. China) | 48.4% | 39.6% | 36.8% | 28.9% | 31.7% | 33.6% | 22.8% | 28.7% | 29.6% |
| China (Developing) | 58.5% | 56.0% | 50.2% | 41.5% | 44.0% | 49.8% | | | |

| | Within LMT-LMHS Export | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Destination Nation Development | | | | | | | | |
| | Developed | | | Developing (Excl. China) | | | China (Developing) | | |
| Exporting Nation Development | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 | 2005 | 2010 | 2019 |
| Developed | 76.3% | 71.6% | 71.3% | 19.5% | 22.1% | 21.5% | 4.2% | 6.3% | 7.2% |
| Developing (Excl. China) | 51.4% | 43.3% | 49.7% | 36.1% | 43.8% | 38.4% | 12.5% | 12.9% | 11.9% |
| China (Developing) | 63.5% | 53.4% | 50.8% | 36.5% | 46.6% | 49.2% | | | |

*Note*: To read the table: In 2005, of all the HT-HS exports by developed nations, 71.4% were imported by other developed nations

*Source*: Author's estimation using UN Comtrade Database

Table 14: Share of China in the country's global export/import in HT-HS commodities

| | Export | | Import | | |
|---|---|---|---|---|---|
| Country | 2005 | 2019 | 2005 | 2019 | Remark on China |
| China, Hong Kong SAR | 58.4% | 63.6% | 47.4% | 53.3% | Top import source and export destination |
| Singapore | 7.9% | 12.6% | 13.8% | 22.1% | Top import source; 2nd export destination |
| Viet Nam | 5.5% | 19.7% | 13.6% | 37.0% | Top import source and export destination |
| United Arab Emirates | 0.1% | 8.8% | 8.6% | 25.5% | Top import source |
| India | 2.4% | 3.1% | 19.0% | 39.2% | Top import source; 4th export destination |

*Source*: Author's estimation using UN Comtrade Database

Table 15: India's Top Export Partners and their share in India's Total Exports

| Country | 1996 | 2005 | 2010 | 2019 |
|---|---|---|---|---|
| USA | 20.7% | 16.5% | 11.1% | 16.9% |
| United Arab Emirates | 4.6% | 8.4% | 12.6% | 9.2% |
| China | 1.7% | 7.2% | 6.5% | 5.4% |
| China, Hong Kong SAR | 6.1% | 4.4% | 4.5% | 3.6% |
| Singapore | 3.2% | 5.4% | 4.3% | 3.3% |
| Netherlands | 2.5% | 2.4% | 3.1% | 2.8% |

*Source*: Author's estimation using UN Comtrade Database

Table 16: Share of each region in India's Total Exports

| Region | 1996 | 2005 | 2010 | 2019 |
|---|---|---|---|---|
| Central & South Asia | 6.3% | 6.6% | 6.5% | 8.4% |
| East Asia | 15.1% | 15.6% | 15.2% | 11.9% |
| Eastern & Southern Europe | 7.2% | 6.6% | 6.0% | 6.1% |
| Latin America | 1.4% | 2.8% | 4.4% | 4.3% |
| NA, W&N Europe, Australia & NZ | 45.6% | 36.1% | 27.8% | 32.2% |
| Oceania | 0.0% | 0.1% | 0.0% | 0.1% |
| South East Asia | 10.8% | 10.9% | 11.9% | 11.2% |
| Sub-Saharan Africa | 3.1% | 5.2% | 6.6% | 7.4% |
| West Asia & Northern Africa | 10.5% | 16.1% | 21.7% | 18.5% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% |

*Note*: NA, W&N Europe, Australia & NZ - North America, Western & Northern Europe, Australia & New Zealand

*Source*: Author's estimation using UN Comtrade Database

Table 17: India's Top Export Commodities and their share in India's Total Exports

| Commodities | 1996 | 2005 | 2010 | 2019 |
|---|---|---|---|---|
| Petroleum oils or bituminous minerals | 1.44% | 10.17% | 17.03% | 13.19% |
| Pearls, precious & semi-precious stones | 12.57% | 12.40% | 10.50% | 7.04% |
| Medicaments | 1.91% | 2.24% | 2.68% | 4.70% |
| Jewellery & articles of precious materials | 1.65% | 3.80% | 4.25% | 4.28% |
| Motor vehicles for the transport of persons | 0.72% | 0.96% | 2.10% | 2.17% |
| Rice | 2.67% | 1.65% | 1.07% | 2.11% |
| Articles of apparel, of textile fabrics | 1.58% | 1.77% | 1.29% | 1.85% |
| Ships, boats & floating structures | 0.12% | 0.65% | 1.96% | 1.80% |
| Parts & accessories of vehicles | 0.83% | 1.16% | 0.97% | 1.68% |
| Crustaceans, mollusks & aquatic invertebrates | 2.59% | 1.18% | 0.66% | 1.64% |

*Source*: Author's estimation using UN Comtrade Database

Table 18: Composition of India's Exports : Commodity Type-wise

| Commodity Type | 1996 | 2005 | 2010 | 2019 |
|---|---|---|---|---|
| Food and live animals | 16.5% | 8.0% | 7.3% | 9.3% |
| Beverages and tobacco | 0.8% | 0.3% | 0.5% | 0.4% |
| Crude materials, inedible, except fuels | 5.2% | 7.5% | 7.3% | 3.3% |
| Mineral fuels, lubricants and related materials | 0.1% | 10.4% | 17.7% | 13.2% |
| Animal and vegetable oils, fats and waxes | 0.7% | 0.3% | 0.4% | 0.4% |
| Chemicals and related products, n.e.s. | 9.3% | 11.4% | 11.1% | 16.6% |
| Manufactured goods | 38.8% | 33.6% | 26.9% | 23.8% |
| Machinery and transport equipment | 7.9% | 10.5% | 15.0% | 19.2% |
| Miscellaneous manufactured articles | 18.7% | 16.8% | 12.8% | 13.8% |
| Commodities and transactions, n.e.s. | 2.0% | 1.1% | 1.1% | 0.0% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% |

*Source*: Author's estimation using UN Comtrade Database

Table 19: Composition of India's Exports : Commodity Skill & Tech-wise (In Comparison to Developing Nations (Excl. China, Hong Kong & UAE)

| | India | | | |
|---|---|---|---|---|
| Commodity Category | 1996 | 2005 | 2010 | 2019 |
| Unclassified/Non-Manufacturing | 2.0% | 1.1% | 1.1% | 0.2% |
| Primary | 20.2% | 11.5% | 10.5% | 11.5% |
| Resource Based Manufacturing | 18.1% | 28.9% | 34.0% | 23.6% |
| Labor Intensive Manufacturing | 32.1% | 21.3% | 14.4% | 14.9% |
| HT-HS Skill Manufacturing | 4.9% | 5.3% | 7.6% | 10.4% |
| LMT-LMHS Manufacturing | 22.7% | 32.0% | 32.5% | 39.3% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% |

| | Developing (Excl. China,HK,UAE) | | |
|---|---|---|---|
| Commodity Category | 2005 | 2010 | 2019 |
| Unclassified/Non-Manufacturing | 5.8% | 3.3% | 3.0% |
| Primary | 28.8% | 27.4% | 20.0% |
| Resource Based Manufacturing | 11.5% | 15.9% | 13.4% |
| Labor Intensive Manufacturing | 9.7% | 9.0% | 9.6% |
| HT-HS Skill Manufacturing | 19.1% | 17.4% | 22.7% |
| LMT-LMHS Manufacturing | 25.1% | 27.1% | 31.4% |
| Total | 100.0% | 100.0% | 100.0% |

*Source*: Author's estimation using UN Comtrade Database

Table 20: Rate of Growth of Exports from India across Commodity Skill & Technology Categories

| Commodity Category | 1996-2003 | 2004-2010 | 2005-2019 | 2011-2019 |
|---|---|---|---|---|
| Unclassified-Non Manufacturing | 8.8% | 41.0% | -1.5% | -25.7% |
| Primary | 1.4% | 16.0% | 9.5% | -0.1% |
| Resource Based Manufacturing | 13.9% | 22.0% | 5.5% | -4.2% |
| Labor Intensive Manufacturing | 5.3% | 8.2% | 6.3% | 4.8% |
| HT-HS Manufacturing | 12.8% | 16.2% | 16.2% | 3.3% |
| LMT-LMHS Manufacturing | 12.2% | 13.5% | 10.9% | 3.4% |
| Overall | 8.4% | 18.4% | 7.8% | 0.2% |

*Note*: Growth Rate Calculated by regressing $log(Y_{export}) \sim \alpha + \beta t$, where $\beta = log(1 + r)$, $r$ being the rate of growth. *Source*: Author's estimation using UN Comtrade Database

Table 21: Share of each development region as destination for India's exports, for each Commodity Skill & Technology category

| | 1996 | | | 2005 | | |
|---|---|---|---|---|---|---|
| Commodity Category | (1) | (2) | (3) | (1) | (2) | (3) |
| All Commodities | 60.7% | 37.6% | 1.7% | 47.8% | 45.0% | 7.2% |
| Unclassified/Non-Manufacturing | 82.4% | 17.6% | 0.0% | 30.9% | 67.4% | 1.6% |
| Primary | 47.6% | 48.6% | 3.8% | 36.8% | 56.8% | 6.4% |
| Resource Based Manufacturing | 63.3% | 35.3% | 1.5% | 36.7% | 48.3% | 15.0% |
| Labor Intensive Manufacturing | 73.3% | 26.1% | 0.6% | 71.6% | 27.6% | 0.8% |
| HT-HS | 55.9% | 43.2% | 1.0% | 52.5% | 45.2% | 2.4% |
| LMT-LMHS Manufacturing | 51.9% | 46.4% | 1.7% | 45.7% | 48.6% | 5.6% |

| | 2010 | | | 2019 | | |
|---|---|---|---|---|---|---|
| Commodity Category | (1) | (2) | (3) | (1) | (2) | (3) |
| All Commodities | 39.1% | 54.4% | 6.5% | 42.4% | 52.2% | 5.4% |
| Unclassified/Non-Manufacturing | 25.3% | 73.9% | 0.8% | 10.4% | 89.6% | 0.1% |
| Primary | 28.1% | 58.8% | 13.1% | 32.4% | 58.6% | 9.0% |
| Resource Based Manufacturing | 30.8% | 59.2% | 10.0% | 38.0% | 55.3% | 6.7% |
| Labor Intensive Manufacturing | 60.5% | 37.2% | 2.3% | 58.5% | 38.9% | 2.6% |
| HT-HS | 53.8% | 44.1% | 2.1% | 52.8% | 44.1% | 3.1% |
| LMT-LMHS Manufacturing | 38.8% | 57.3% | 3.8% | 39.2% | 55.6% | 5.2% |

*Note*: (1) - Developed ; (2) - Developing (Excl. China) ; (3) - China (Developing)
*Source*: Author's estimation using UN Comtrade Database

# Appendix

Table A.1: List of Countries considered as "reporting country" while downloading data from UN Comtrade Dataset

| List of Countries in the Analysis | | |
|---|---|---|
| Afghanistan | Ethiopia | Pakistan |
| Algeria | Finland | Peru |
| Angola | France | Philippines |
| Argentina | Germany | Poland |
| Australia | Ghana | Portugal |
| Austria | Greece | Qatar |
| Azerbaijan | Guinea | Rep. of Korea |
| Bahrain | Hungary | Romania |
| Bangladesh | India | Russian Federation |
| Belarus | Indonesia | Saudi Arabia |
| Belgium | Iran | Senegal |
| Benin | Iraq | Serbia |
| Bhutan | Ireland | Singapore |
| Bolivia (Plurinational State of) | Israel | Slovakia |
| Botswana | Italy | Slovenia |
| Brazil | Japan | South Africa |
| Brunei Darussalam | Jordan | Spain |
| Bulgaria | Kazakhstan | Sri Lanka |
| Burkina Faso | Kenya | Sweden |
| Cote d'Ivoire | Kuwait | Switzerland |
| Cambodia | Latvia | Thailand |
| Cameroon | Lithuania | Togo |
| Canada | Luxembourg | Tunisia |
| Chile | Malaysia | Turkey |
| China | Mauritius | Uganda |
| China, Hong Kong SAR | Mexico | Ukraine |
| Colombia | Morocco | United Arab Emirates |
| Congo | Mozambique | United Kingdom |
| Croatia | Myanmar | United Rep. of Tanzania |
| Cyprus | Nepal | USA |
| Czechia | Netherlands | Uzbekistan |
| Denmark | New Zealand | Venezuela |
| Dominican Rep. | Nigeria | Viet Nam |
| Ecuador | Norway | Yemen |
| Egypt | Oman | Zambia |
| Estonia | Other Asia, nes | |

Table A.2: Commodities Classification

| Tech Level | Skill Level | Commodity Category |
|---|---|---|
| High | High | HT-HS Manufacturing |
| Medium | Medium | |
| Primary (Non-Fuel) | Others | Primary |
| Primary (Fuel) | Others | |
| Resource Based | Others | Resource Based Manufacturing |
| Low | Labor Intensive | Labor Intensive Manufacturing |
| Medium | Labor Intensive | |
| Resource Based | Labor Intensive | |
| Low | High | LMT-LMHS Manufacturing |
| Medium | High | |
| Resource Based | High | |
| Low | Low | |
| Medium | Low | |
| Low | Medium | |
| Medium | Medium | |
| Resource Based | Medium | |
| Medium | Others | |
| Unclassified | High | |
| Unclassified | Others | Unclassified/Non-Manufacturing |

*Note*: HT-HS : High Tech-High Skill ; LMT-LMHS : Low/Medium Tech-Low/Medium/High Skill