Why India Should Not Abandon Export-Led Growth in a Post-Pandemic World

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Abstract

This paper addresses the question of whether the export-led growth model remains valid for India in the wake of the pandemic. In answering the question in the affirmative, it begins by offering the conceptual case based on comparative advantage, economies of scale, and access to cost-reducing technologies. It then goes on to counter the key arguments of the opponents based on the claims that the developing countries as a group have grown faster under import substitution than outward orientation, the industrial policy has been at the heart of the success of countries such as South Korea and Taiwan, and infant industry protection has been a success. The paper also considers the implications of the recent decline in transport and telecommunications costs as well as the emergence of increasingly complex products with a substantial design component for the export-led growth strategy. It finally turns to the issues of whether the change in lifestyle in the post-pandemic era, the rising tide of protection, and prospects of automation make the import substitution model more salient.

Keywords: Indian economy, economic growth, import substitution, export-led growth, post-pandemic world, globalization, free trade

Por qué la India no debería abandonar el crecimiento impulsado por las exportaciones en un mundo pospandémico

Resumen

Este artículo aborda la cuestión de si el modelo de crecimiento impulsado por las exportaciones sigue siendo válido para la India tras la pandemia. Para responder afirmativamente a la pregunta, co-

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mienza ofreciendo el caso conceptual basado en la ventaja comparativa, las economías de escala y el acceso a tecnologías que reducen costos. Luego continúa contrarrestando los argumentos clave de los oponentes basados en las afirmaciones de que los países en desarrollo como grupo han crecido más rápido con la sustitución de importaciones que con la orientación hacia el exterior, y que la política industrial ha estado en el centro del éxito de países como Corea del Sur. y Taiwán, y la protección de la industria naciente ha sido un éxito. El documento también considera las implicaciones de la reciente disminución de los costos de transporte y telecomunicaciones, así como la aparición de productos cada vez más complejos con un impacto sustancial componente de diseño de la estrategia de crecimiento impulsado por las exportaciones. Finalmente, se aborda la cuestión de si el cambio en el estilo de vida en la era pospandémica, la creciente ola de protección y las perspectivas de automatización hacen que el modelo de sustitución de importaciones más destacado.

Palabras clave: economía india, crecimiento económico, sustitución de importaciones, crecimiento impulsado por las exportaciones, mundo pospandemia, globalización, libre comercio

为何印度不应在后疫情世界放弃出口导向型增长

摘要

本文探究了大流行之后出口导向型增长模式对印度是否仍然有效这一问题。在对该问题作出肯定回答时，本文首先提供了一个基于比较优势、规模经济和降低成本的技术获取的概念案例。本文随后继续反驳反对者的主要论点，即发展中国家作为一个整体在进口替代下的增长速度快于出口替代，产业政策一直是韩国和台湾等国家取得成功的核心，并且幼稚产业保护已经取得了成功。本文还考虑了“近期运输和电信成本下降以及日益复杂的产品的出现”所产生的影响，这些产品的一个重要设计成分源于出口导向型增长战略。最后，本文转向后疫情时代生活方式的改变、保护浪潮的兴起、以及自动化的前景是否让进口替代模式变得更为突出。

关键词：印度经济，经济增长，进口替代，出口拉动型增长，后疫情世界，全球化，自由贸易

Does export-led growth remain relevant in the post-COVID era for India, or have the rising sentiment against imports worldwide and technological advances that may be pushing toward reshoring production largely closed this avenue? This is the key question addressed in the present paper.[1] But since the wisdom of export-oriented policies under *every* era has been viewed with a great deal of skepticism—and this is especially true in the Indian sub-continent—I will also devote a significant part of the paper to clarifying why the critics have always been wrong on this score. Towards the end of the paper, I will widen the discussion to the development of which growth is only a component, albeit the most important one.

What is Special About Exports?[2]

Let us begin by asking the fundamental question: Why is specialization in exportable products a more effective engine of growth than in import-competing products? There are at least four reasons for it. First and foremost, the very fact that the country is able to outcompete other countries in these products means that the country has a cost advantage over the latter in them. Specialization in exportable products effectively allows the country to exploit this cost advantage. Symmetrically, the country's own production costs in products it imports are higher than those of its foreign counterparts. In effect, the reliance on exports as the engine of growth allows the country to exploit its comparative advantage.

Second, when economies of scale are present, the domestic market of a developing country often proves too small to allow their full exploitation. This is especially the case at the early stages of development when even countries with large populations, such as India and China, can end up with relatively small domestic market due to a low per-capita income. The experience of China during the past two decades shows that in many industries it takes a very large scale before scale economies are fully exploited. When countries try to promote industries subject to scale economies through import substitution using protective custom duties and production subsidies as policy instruments, the outcome is often an unhappy one. Attracted by the subsidies and high prices resulting from the custom duties, too many small producers enter the market with none large enough to successfully compete against large-scale, globally competitive manufacturers. And once these inefficient producers become entrenched, the removal of customs duties becomes politically challenging since it inevitably carries the threat of job losses.

Third, the free-trade or near-free-trade regime required to implement an export-led-growth strategy demands that producers of exportable as well as import-competing products compete against the best of in the world in their respective industries. Such competition keeps entrepreneurs continuously on their toes and forces high levels of discipline, hard work, and efficiency for survival. It also offers them the opportunity to learn from

their peers. This is not unlike the game of cricket, in which international competition in test matches, ODIs and T20I helps produce more and more world-class players who learn from each other's techniques and hone their skills to outcompete the other side.

Finally, the free flow of exports and imports diffuses product innovation and production technology. Sometimes, technology is embodied in machines that must be imported. At other times, it may be embodied in imported products and can be accessed by reverse engineering. With new technologies developed continuously by countries around the world, engaging in trade freely offers the best avenue to accessing them.

Imports are the Heart of Export-led Growth

The term "export-led growth" invites speculation that what matters for rapid growth is exports, with imports being incidental at best and undesirable at worst. Nothing could be further from the truth—the primary reason for a country to export is to be able to exchange them for imports, which it cannot produce at home or produces at a higher cost than the price it pays for them to foreigners.

To appreciate why exports by themselves are of no value, think about what would happen if a nation exported its entire GDP on a set of ships, which then ended up sinking in the middle of the ocean on their way to destination countries. Going by port records, the nation's external account would show an export-to-GDP ratio of 100 percent and a current account surplus equaling GDP. But this will be no cause for celebration since the nation's citizens will be left with nothing to consume.[3] Evidently, you want imports in return for exports, and the more of them you can get for what you export, the better. It is folly to think that exports are good and imports are bad. On the contrary, imports are the ultimate goal behind exports.

Export Orientation and Import Substitution are Fundamentally in Conflict

It is common for policymakers in developing countries to think they can pursue a successful export-led growth strategy simultaneously with import-substitution industrialization. Indeed, some think of import substitution as a means to export-led growth. While import substitution in one or two sectors may do only a small damage when the country is otherwise relatively open to imports, its wholesale pursuit is incompatible with an export-led growth strategy. Restrictions on imports necessarily serve as restrictions on exports. At a technical level, this point goes back to the famous Lerner Symmetry theorem of international trade theory, which says that a 10 percent tariff on all imports is identical to a 10 percent tax on all exports in all respects. Intuitively, discrimination in favor of one set of industries amounts to discrimination against the remaining set of industries. By raising the prices of importable products, tariffs encourage consumers to shift expenditure towards exportable products and producers to shift resources away from

those products. Both changes contribute to less of these products being left for export.

Conversely, import liberalization, which expands imports, also expands exports. Foreigners are not in the business of giving away their products for free. They must be paid in foreign exchange, and to earn foreign exchange, the country must export. There are only two other alternatives: the country either receives foreign aid or incurs debt abroad to pay for the extra imports not paid for by exports. But neither of these options can be exercised beyond a relatively tight limit. Once these limits are exhausted, the country MUST increase exports on a sustained basis. Conversely, sustained exports also require sustained imports. There is no export-led growth without the near-free flow of imports. Restricting imports in a major way will restrict exports.

This is not a mere theoretical point. A look at the aggregate export and import series during *any* time period for *any* country will show that these series move together, exhibiting a high positive correlation. Figure 1 shows the two series for India from 2002–03 to 2019–20. The gap between them is made up by the inflow of remittances plus a small external debt accumulation. But since these latter are subject to only small changes over time, the expansion or contraction in imports is largely made up by equivalent movement in exports.

Figure 1: Total Exports and Imports and Remittances in India: 2002–03 to 2019–20

Benchmarking Producers to Global Efficiency

The discussion up to this point makes the case that the pursuit of an export-oriented strategy requires a near-free-trade regime. An important positive spillover of such an import policy is to benchmark domestic production costs to world prices which reflect the cost structure of the most efficient suppliers of different products around the world. If it is then found that there are certain sectors in which the country ought to be competitive *vis-à-vis* foreign suppliers but is not, policymakers are forced to look for and remove distortions in domestic policy responsible for such an outcome. For instance, if producers of labor-intensive products in a labor-abundant country like India are unable to compete effectively against their foreign counterparts, the remedy lies not in protection but in the removal of distortions such as those in labor markets, electricity prices and possibly administrative hurdles facing exports. In the absence of a commitment to free trade, the temptation will be to pile a tariff distortion on top of the domestic policy distortions to level the playing field for domestic industries. This is akin to adding a disability to the competitor to neutralize the disability forced on the domestic producer. What must be done instead is to remove the disability ailing the domestic producer.

Two Recent Developments and Export-led Growth

Two relatively recent mutually reinforcing developments have made the free flow of exports and imports even more critical than in the past. First, as a result of advances in transportation and communication technologies, the costs of moving goods and information over long distances have come crashing down. Second, technological advances have given rise to more complex products of mass consumption with design and information-related contents while also making it possible to break down the production processes of old and new products more finely than in the past.

These two developments have meant that it is now possible to specialize production activity not by product but by components and activities associated with each product. Product innovation, product design, production of numerous components, and their final assembly can all take place in different locations based on cost advantage. For example, the iPhone is made of some 1,600 components, which are supplied by 200 firms located in 43 different countries.

In the past, high transport costs allowed countries to minimize production costs by specializing in entire standardized products such as shirts and trousers and trading them for other products such as steel. But today, continuous product innovation and design have become integral to products, and cost minimization mandates specializa-

tion in specific components and activities associated with them.

Therefore, if a country is abundant in labor and the assembly of products is a labor-intensive activity, it must specialize in this activity across a large number of products rather than targeting 100 percent domestic value added in a few of them, which happen to be labor intensive at the aggregate level. Likewise, a country that is rich in human capital is better off focusing on innovation and design, leaving manufacturing of components and assembly to countries that have a cost advantage in those activities.

This conclusion raises serious doubts about the wisdom of policies such as India's phased manufacturing program (PMP), whose aim is to first encourage assembly activity in a product and gradually add more stages of production until the entire product is indigenized. This policy had been tried and failed in the pre-reform era and had been abandoned in the wake of post-1991 reforms. But it has recently been resurrected.

The chance of success of PMP in the modern era is even more remote since the cost disadvantage of adding more and more stages of production to eventually produce 100 percent of the product at home today is much greater than in the past. It is certainly technologically feasible to produce and assemble all 1,600 components of an iPhone indigenously, but the cost of it will be so high that the producer would be able to sell only a handful of its units to a small number of captive wealthy domestic buyers. And even then, the design and innovation embedded in the iPhone will have to be imported.

Rather than produce 100 percent of a product at home and be able to sell only a handful of units within protected domestic market, the country is far better off capturing a large slice of the massive world market in the assembly or a few selected components in which it is the most cost-effective. The goal ought to be to achieve a high *total* value added rather than value added *per unit*. Job creation depends on the former and not the latter. China has understood this principle well. Even with 10 percent value added *per* Apple device, millions of devices it produces contain a lot of *total* value added of Chinese origin.

Evidence: The Myth of Import Substitution Driving the Golden Age of Growth[4]

Three large-scale projects in the 1970s and early 1980s amassed the initial systematic and compelling empirical evidence supporting the case for export-led growth over that for inward-looking import-substitution-industrialization (ISI) strategy.[5] Approximately two decades later, Rodrik (1999) questioned the wisdom of these studies arguing that the golden age of growth in developing countries, which occurred during 1960–73, was in fact characterized by inward-looking, ISI policies. Later, Chang (2007) repeated this claim.

But three inconvenient facts of history stand against such claims.

Table 1: Growth in Developing and OECD Countries

Period	Growth Rate	
	Developing	High Income OECD
1961–75	2.9	3.6
1976–94	2.1	2.3
1995–2013	4.2	1.4
1961–73	2.9	4.2
1974–90	1.9	2.3
1991–2013	4	1.4

Source: Panagariya (2019, Table 6.1).

First, factually, developing countries as a group did not grow the fastest during 1960–73. As Table 1 shows, developing countries have grown the fastest during the decades following 1990. This was the period during which these countries came to genuinely embrace liberalization instead of being forced into it by international financial institutions. At the time Rodrik wrote, he may have lacked these data but by 2007, when Chang published his book, evidence was loud and clear.

Second, had Rodrik gone into individual-country details, he would have found that even during 1960–73 the fastest growing economies were those that had embraced outward-oriented policies. These included not just the four tiger economies of Hong Kong, Singapore, Taiwan, and South Korea, which grew at rates ranging from 8 to 10 percent during 1960–73, but also Brazil, a much larger country, which saw its growth rate accelerate during this period just as its tariffs came down and the currency was devalued to correct for overvaluation.

Finally, the OECD countries had grown significantly faster during 1960–73 than during post-1990 decades. As such, part of the momentum in growth in developing countries during the earlier period came from OECD countries. Similar pull-up effect had been missing from the post-1990 decades. Instead, growth momentum during these decades originated in the policies of the countries themselves.

Evidence: The Myth of Industrial Targeting Leading to Miracle Growth

The nature of governments is to intervene and produce successes that they can directly link to *their* policy initiatives. Import substitution offers the best instrument to achieve this goal. This is because demand for the particular product exists and the exclusion of foreign sources of its supply opens profit opportunities for potential domestic suppliers. A domestic industry can thus readily emerge, and the government can rightfully claim

credit for it. With resources in this industry drawn from various other industries, the cost of this "success" is spread throughout the rest of the economy and, as such, not immediately visible.

This political economy of protection has often led even governments otherwise committed to an export-oriented strategy to flirt with import substitution here and there. The presence of such interventions in turn has provided the devotees of import-substitution model ammunition to argue that these policies rather than the overall outward orientation are to be credited with the success of the countries. The case of South Korea best illustrates the point.

Table 2: Average Annual Growth Rates in South Korea

Period	GDP	Per-capita GDP	Exports of constant-price goods and services	Imports of constant-price goods and services
1	2	3	4	5
1954–62	4.2	1.3	13.9	5.2
1963–73	9.1	8.5	32.1	21.4
1974–82	6.9	5.1	14.0	12.2
1983–95	8.7	7.6	12.6	13.5
1996–2008	4.4	3.8	12.4	8.5

Source: Panagariya (2019, Table 11.1).

South Korea grew at the annual average rate of 9.1 percent during the decade 1963–73 compared with 4.2 percent during 1954–62 and 6.9 percent during 1974–82 (Table 2). There is general agreement that years 1954–62 were characterized by import substitution. But the country began opening up its economy in the early 1960s and became progressively outward oriented during the 1963–73 decade. Its policies during these years were neutral across sectors. Calculations by Westphal (1990, Table 1) show that when the economy-wide implications of all interventions are considered, the policy regime exhibited a slight bias in favor of exports relative to what would have prevailed under free trade. Among other things, neutrality gave rise to the growth of sectors no one had predicted: wigs and human hair exports, entirely absent till 1963, came to account for 10.1 percent of Korean exports by 1970.

When critics such as Rodrik (1995) claim success for industrial targeting, they entirely eschew the discussion of the crucial decade of 1963–73. Instead, they focus on the following decade in which Korea engaged in the Heavy and Chemical Industry (HCI)

drive. But the growth rate during 1974–82 actually fell to 6.9 percent. Moreover, towards the end of this period, the economy faced serious macroeconomic instability, culminating in the abandonment of the HCI drive and the restoration of a neutral policy regime. That, in turn, returned the country to 8.7 percent growth during 1983–95.

Chang (2007) has claimed that the policy of industrial targeting was nevertheless successful because industries promoted under the HCI drive eventually became profitable. But this amounts to post hoc fallacy. After a decade of rapid growth and near double-digit annual increases in real wages, Korea had been becoming more and more labor-scarce and capital-abundant. Therefore, capital-intensive sectors promoted under HCI would have emerged even absent the HCI drive. What HCI drive did was to advance that process by a few years. To legitimately claim his case, Chang must demonstrate that the benefits of advancing the process exceeded its costs.

Recently, there has been a revival of advocacy of industrial policy through the instrumentality of data-heavy analyses. For example, based on a sector-level analysis, Lane shows that HCI drive by Korea led to the expansion of targeted industries as well as industries producing intermediate inputs used by them.[6] Moreover, these effects persisted till at least the mid-1980s, even though HCI was abandoned in 1979. It is not clear, however, how these results prove the success of the HCI drive. After all, even the most inefficient industrial policy pursued by India under Prime Ministers Jawaharlal Nehru and Indira Gandhi had been successful in establishing and expanding industries such as steel, machinery, fertilizers, and chemicals and in stimulating industries producing intermediate inputs used by them. The effect of Nehru-Gandhi-era policies continues to be felt today. But no one seriously argues that Indian industrial policy under Nehru and Gandhi was a success worthy of emulation by other countries.

This is not a rhetorical argument. The success of industrial policy cannot and should not be judged by the expansion of targeted industries and those producing intermediate inputs used by them. No one who believes in the power of incentives would deny that protection and production subsidies are capable of expanding the industries they target. This is especially true when an economy is already growing rapidly and imports account for a sizeable proportion of domestic demand for the targeted products. The presence of imports guarantees the existence of demand. Once protection excludes some of those imports and subsidies additionally cover a part of the production cost, the expansion of domestic production is more or less guaranteed.

Therefore, the real question is whether the HCI drive added to or subtracted from Korea's overall growth. This was precisely the question that pro-interventionist Robert Wade (1990) and intervention-skeptic Ian Little (1994) hotly debated soon after the export-led development model gained

general acceptance. Going by this criterion, it is evident from Table 2 that HCI did not do very well either while in force or in the immediate aftermath. The growth rate during 1974–82 at 6.9 percent was significantly lower than in the preceding as well as the following decade when the economy was free of industrial policy. Also noteworthy in this context is Little's argument that during the miracle decades, "the less interventionist Hong Kong, Singapore, and Taiwan grew faster than Korea" (Little 1994, 365).

Outward Orientation: Beyond Growth

Developing countries seek growth not for its own sake but because it delivers directly or indirectly on numerous other objectives that they seek, such as poverty alleviation, employment opportunities, education, health, infrastructure, and urbanization. Have the countries that have successfully achieved high growth rates been successful in achieving these development objectives? The answer to this question is a resounding yes.

Consider first the poverty alleviation objective. Five countries—Hong Kong, Singapore, Taiwan, South Korea, and China—which have achieved high growth rates on the back of a successful export-oriented strategy have successfully brought down poverty (Table 3). The remarkable fact is that every one of these countries has brought down poverty entirely through the powerful "pull-up" effect of growth with no significant redistribution of income. They specialized in labor-intensive products such as apparel, textiles, footwear, furniture, kitchenware, toys, and other light manufactures, exported them in large volumes, and created well-paid jobs for the masses. The resulting increases in household incomes proved sufficient to make a significant dent in poverty in all cases.

The experience of South Korea helps illustrate the economic transformation made possible by export-led growth. Between 1960 and 1990, the share of agriculture in GDP fell from 36.9 percent to 9.1 percent while that of manufacturing rose from 13.6 percent to 29.2 percent. Alongside, the sector's employment share of agriculture fell from 68.3 percent to 18.3 percent with industry and services absorbing the bulk of the workforce. Remarkably, the real wage grew at the impressive annual average rate of more than 9.5% during 1965 to 1990 even as industry and services absorbed the large number of workers who migrated from agriculture into them.[7] The share of urban population rose from 29.1 percent in 1960 to 74.4 percent in 1990. Net secondary school enrollment ratio rose from 35 percent in 1971 to 88 percent in 1991. Life expectancy at birth rose from 55 years in 1960 to 72 years in 1990.[8] In three decades, South Korea was transformed from a primarily agricultural and rural economy to an industrial and urban one, with all development indicators showing impressive progress. The experience of other fast-growing economies shown in Table 3 has been quite similar.

Table 3: Poverty Alleviation in Fast-growing Economies

Year	Percent population below poverty line*
Hong Kong	
1966	18
1976	7
Singapore	
1966	37
1975	29
1980	18
South Korea	
1965	40.9
1976	14.8
Taiwan	
1964	35
1972	10
China (rural poverty)	
1980	40.65
2001	4.75

*Poverty lines are defined at: HK$3,000 per year at 1966 prices for Hong Kong, S$200 per month at 1975 prices for Singapore, 121,000 won per month at 1981 prices for South Korea, NT$20,000 per year at 1972 prices for Taiwan, and 300 yuan per year at 1990 prices for China.

Source: Panagariya (2019b).

Export-led Development in the Post-pandemic Era

Having argued in favor of export-led growth in general, let me now turn to the consideration of its relevance in the post-COVID era in particular. There are three broad issues here:

(i) Has the pandemic itself fundamentally altered the way of life so as to make the reliance on exports as the engine of growth problematic?

(ii) Is there a rising tide of protection around the world that makes export-led growth infeasible?

(iii) Has export-led growth lost its relevance in view of the shift in technology towards greater capital intensity and automation?

Is the Pandemic Destined to Fundamentally Alter the Way of Life?

Let me state at the outset that my bottom-line answers to all three questions are in the negative. I do not expect the pandemic to fundamentally alter the way we live. When a disaster hits the human race, its response is to come together to rebuild, erect defenses against a similar future disaster, and go back to living the way it has always lived. A good example illustrating this point is the response of the city of New Orleans in the United States to the massive hurricane known as Katrina. The hurricane made landfall as a Category 3 storm with sustained winds of 125 mph in 2005, hitting hard the unprepared residents. It breached the city's levee protection system in over 50 places, triggering flooding of 80 percent of New Orleans. The cataclysm ended up taking 1,800 lives and inflicting $100 billion worth of damage on the city. But in the aftermath of the storm, rather than flee the city, residents put in place a $14 billion worth system of fortified levees and floodgates that would stand up to similar future storms. Life returned to the old normal with the new levees and floodgates system successfully protecting the city against the storms that hit it subsequently.

The experience following the pandemic is unlikely to be any different. Despite the unprecedented death toll, personal tragedies for many, and the vast economic damage, the human race will return to its established way of life once the pandemic passes. We would have better defenses against the next pandemic in terms of masks, Personal Protection Equipment (PPEs), ventilators, and, above all, vaccines. But beyond that, the only changes to lifestyle would be those that enhance productivity and would have come about even in the absence of the pandemic. All the pandemic did is bring forward those changes.

A look at global export data shows how rapidly normalcy returned even in a year like 2021, which saw the massive Delta and Omicron waves sweep through the world. As Figure 2 shows, not only did the once-in-a-century pandemic have a smaller initial effect on the total global exports in comparison to the 2008 financial crisis, but recovery was also much faster and robust. The total exports of goods and services fell from $25.2 trillion in 2019 to $22.7 trillion in 2020 but bounced back the following year, reaching their highest ever level of $28.2 trillion.

For completeness, let me note that during the pandemic, most countries found that they lacked basic equipment such as masks, PPEs, and ventilators and that, in view of their worldwide shortage, they were unable to count on their imports either. They also found themselves without a source of vaccines even after the latter had been developed and were being manufactured. To the extent that similar problems may arise in the case of another pandemic, countries need to be able to manufacture their masks, PPPs, and vaccines even if they lack comparative advantage in them. The validity of this argument cannot be denied any more than that of the conventional national defense

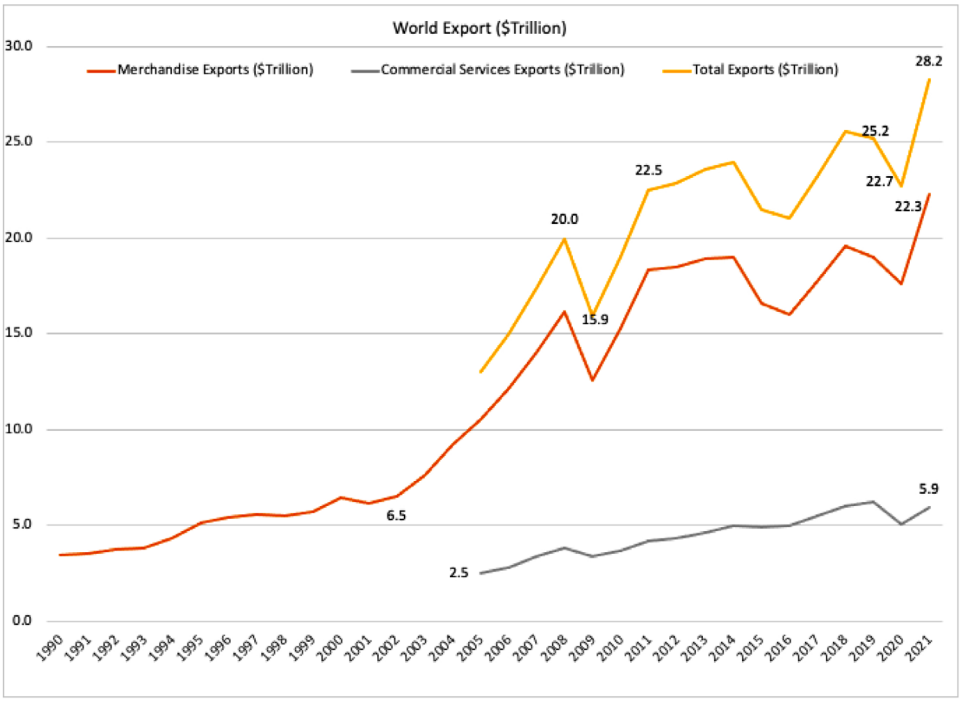

Figure 2: World Exports of Goods and Services

argument for the protection of a domestic armaments industry. But neither of these arguments weakens, let alone negates, the case of export-led growth. Historically, pro-free-trade economists have recognized the need for occasional deviations from full free trade to achieve specific social objectives. But such deviations have to be exceptional and not to be abused.

Rising Tide of Protection

The next question to consider is whether the rising tide of protectionism in the global economy makes export-led growth infeasible in the 21st century. This argument says that when South Korea, Taiwan, and even China were transformed, markets were relatively open. Therefore, these countries could take advantage of scale economies and cheap labor to specialize in and export large volumes of labor-intensive products. The same option is not available today due to rising protectionism around the world.

This argument is a red herring. Significant new trade restrictions have been applied recently but only by the United States and China on each other. Such bilateral restrictions in a multi-country world are easily evaded in a multi-country world by rerouting and reconfiguring trade flows. This is the key reason why trade sanctions are largely ineffective unless all major countries of the world cooperate to enforce them.

Indeed, the global economy is far more open today than in the days when South Korea and Taiwan trans-

formed. When these countries began opening up, even the Tokyo Round of trade negotiations was still far away. And by the time the World Trade Organization (WTO) came into existence in 1995, their high-growth years were already behind them. Even China began opening up its economy in the late 1970s. But the liberalization negotiated as a part of the Uruguay Round of negotiations, which established the WTO, was implemented between 1995 and 2005. By the time this liberalization was completed, China had already grown at the annual average rate of 10 percent for two and a half decades.

Another way to make this point is that in 1990, global merchandise exports stood at only $3.5 trillion. Even ten years later, in 2000, they had grown to just $6.5 trillion. Had China taken a skeptical view of global markets, especially since it was not even a member of the WTO yet, it would have lost out on the phenomenal growth it achieved. In comparison, today, in 2022, merchandise exports stand at $25 trillion, and commercial services exports are at another $7 trillion. Lest a skeptic is tempted to argue that the growth in exports is simply a reflection of growth in the world GDP, let me hasten to add that as a proportion of GDP, merchandise exports turned out to be 14.8 percent in 1990, 19 percent in 2000, 23 percent in 2010, and 23.1 percent in 2021. Any country that has its own house in order can find plenty of export opportunities in the global export market. Vietnam offers the latest example of a country that has found no difficulty in expanding its exports of goods and services from just 83.5 billion in 2010 to an impressive $286.2 billion in 2020. As a proportion of GDP, they have risen from 72 percent to 105.5 percent over the same period.

Automation

The third and final argument against export-led growth in today's world, based on automation, too, has been greatly overstated. Automation in the form of progressively declining labor-to-capital ratio in manufacturing has been an ongoing phenomenon for decades. As such, it is a fact that the labor-cost advantage of developing countries has been declining. However, the high mobility of capital, which has tended to equalize the cost of capital in different locations, declining costs of transportation, and rising incomes, which have expanded demand for manufactures manifold, have kept the benefit of lower wages alive. Moreover, in today's world, with production processes finely broken down into many activities, it is possible for developing countries to specialize in the most labor-intensive components and activities of each product and still benefit from their abundant labor force.

For machines to replace human labor, two conditions must be fulfilled: Such replacement must be technologically feasible, and it must be commercially viable in the sense that it must yield a unit cost of production no higher than when performed manually. Today, the replacement of some of the most labor-intensive activities by machines is not even technologically feasible. For instance, this is broadly true of the apparel industry—robots have not yet learned to stitch two pieces of

cloth. But even if technological breakthrough makes this feasible, it will be a long time before automatic stitching can beat manual stitching commercially at the wages prevailing in many developing countries.

Nothing illustrates the limits of automation better than the efforts by Adidas to automate its production of sneakers, traditionally one of the most labor-intensive activities. At the end of 2015, the company had opened its first high-tech speed factory in Ansbach, Germany, which began producing sneakers using intelligent robotics technology. In 2017, it opened another similar factory in Atlanta, United States. But by November 2019, Adidas had already announced its intention to close both factories in April 2020 and use their technology in the two factories in China and Vietnam (Crowe 2019).

Indeed, of 360 million pairs of shoes that Adidas produced at the time, these factories together produced only one million. In a 2017 story published in *Quartz*, Kasper Rorsted, the CEO of Adidas, said that full automation of sneaker manufacturing was unlikely in the next 5 to 10 years. When asked whether manufacturing was poised to return to the United States and Europe, he said, "I do not believe, and it is a complete illusion to believe, that manufacturing can go back to Europe in terms of volume" (quoted in Bain 2017). He added that despite political interest in the United States to bring back manufacturing, it is financially "very illogical" and unlikely to happen. His words proved prophetic. Two years later, the company announced closing down the automated factories.

Concluding Remarks

The success of East Asian tiger economies bears witness to the power of trade openness. They succeeded in achieving increases in per-capita income within three decades spanning 1960 to 1990 that western industrial economies had taken a century or longer to achieve. Their growth also led to the elimination of abject poverty despite no significant redistributive social programs. China has successfully repeated the experience of the tiger economies during 1980 to 2010 in spite of its much larger population after it shed its Mao Zedong era autarkic policies. In the last decade, Vietnam appears to be on a similar trajectory.

The experience of India, which has been a reluctant liberalizer, has been no different. Its rapid growth beginning in 2003 was also accompanied by a rapid expansion of trade (see Figure 1). The expansion in trade had, in turn, followed its gradual liberalization for more than a decade and elimination of the overvaluation of the rupee. Any reservations that the pandemic, rising protection, and automation have now closed the window to export-led development must be discarded. Trade liberalization and globalization may have come to a pause today. But this gives us no reason to despair since the pause has occurred at a point where, thanks to the past liberalization, the world markets are highly open, and global trade has been flourishing.

Endnotes

1 This paper had its origins in a presentation at a plenary session at the Kautilya Economic Conclave jointly hosted by the Institute of Economic Growth, New Delhi and the Ministry of Finance, Government of India, New Delhi on July 8-10, 2022. Thanks are due to two referees for comments that contributed to multiple improvements in the paper.

2 This section draws heavily on Panagariya (2021).

3 This example is a slight variation on the one originally used by Fredric Bastiat (1845, pp. 53-5) more than 170 years ago to counter his mercantilist opponents who argued that the benefits of trade came from exporting while imports constituted a cost.

4 This section and the following one draw heavily on Panagariya (2019a).

5 These were: OECD study led by Little, Scitovsky, and Scott (1970); NBER study led by Bhagwati (1978); Krueger (1978); and World Bank study led by Balassa (1981).

6 Choi and Levchenko (2023) make similar points using firm-level data. An important weakness of their analysis is that the firms that failed and therefore exited in the early phase of HCI drive are missing from their sample.

7 Sources of estimates relating to sectoral shifts in output and employment and real wage increases reported here can be found in Panagariya (2019, Ch. 11).

8 Indicators of secondary school enrollment, life expectancy at birth and urbanization are from the World Development Indicators of the World Bank.

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