

⇒ Make In India : Which Exports can drive the next wave of growth ? (Anand, Kochhar, Mishra), 2015.

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Abstract

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- Structural transformation —
 - How much countries export
 - what they export & with
 - with whom they trade.
- Analysis of India's exports by the technological content, quality, sophistication, & complexity of the export basket.
- Authors suggest-/identify five priority areas & policies.
 - a) Redⁿ of trade cost, at & behind the border
 - b) Further liberalisation of FDI including through simplification of regulations & procedures.
 - c) Improving infrastructure including in urban areas to enhance manufacturing & services in cities.
 - d) Preparing labour resources (skills) & mkt's (flexibility) for the technological progress that will shape jobs in the years ahead;
 - e) Creating a enabling environment for innovation & entrepreneurship to draw the economy into higher productivity activities.

1) Introduction & Motivation.

- India's exports have been increasing since the early 1990s — both as a share of GDP & as a share of world exports.
- Total exports as a share of GDP have risen to almost 25% in 2013 from around 10% in 1995.

1) Total share ^{Export} as a share of GDP	1995	2012
	10	25

- 2) Indian goods exports as a share of world goods exports have risen by 1.7% during that period.

✶

- It is generally accepted that trade leads to structural transformation & diversification of the economies, but recent literature suggests that the dynamics of structural transformation also depends on what goods & services are traded ~~in~~ and with whom.

- The structural transformation & future growth and export performance depend on:
 - i) diversification across destinations, products & services.
 - ii) Composition of the export basket measured by technological content, quality, sophistication & complexity of exports.
 - iii) how closely related a country's G & S exports are to globally-traded products & services.

- This study breaks \nwarrow Documenting the evolution of India's exports along these dimensions & analysing its implications for future export performance, structural transformation & growth.

- a) Diversification \rightarrow Both geographically & product wise is found export-revenues & enhance growth.

- It helps to stabilizing export earnings in longer run. (Hausman, Hwang, Rodrik) (Mishra),..

found the prospects of export diversification in exports on economic growth via various channels.

- Relatedness of products: A model of structural transformation in the product space shows that changes in the revealed comparative advantage are governed by the pattern of relatedness of products at global level.
- As countries change their export mix, there is strong tendency to move ~~towards~~ towards ~~new~~ goods that are more closely related to one already being ~~produced~~ produced rather than to goods that are less closely related.
- Countries that are specialised in a dense part of the product space have an easier time in developing a expanding their revealed comparative advantage than countries that are specialised in more disconnected ~~technological~~ products.

For example, it will be more difficult for a resource rich economy like Iraq - with more than 99% of its exports concentrated in oil - to diversify into high hi-tech manufacturing, than a country like Philippines that has already diversified and has comparative advantage in manufacturing several technological products.

- Pattern of comparative advantage & capabilities (p. 5) ②
by technological content - of export and quantify
diversity, sophistication, quality, and complexity of
Indian export vis-a-vis peer EMs (Emerging Markets)
- Further, using network analysis, we study the connectedness
of Indian products and services with globally traded
goods and services, and characterize the structure of this
network to identify sources of emerging & comparative
advantage in India's export basket.
- Finally, ~~we~~ this paper discusses the main policy
implications of findings.
- Indian exports have progressively diversified in terms
of products and, in line with other EMs.
- While service exports, as a share of total exports and
in terms of sophistication, and comparable to high
income countries, the share of manufacturing exports and
their level of overall value content are still low compared
to its peers, especially in Asia.
- India exports many high quality products, but
there is still room for India to converge with other
EMs in manufacturing quality and complexity.
- India could also benefit by focusing both
domestically-oriented prodⁿ to satisfy large
domestic demand and producing goods for global
mkt. For instance, by in addition to building
automobile components, diversifying into designing

high-quality infoⁿ solutions. export-oriented automatic products.

- Similarly in service sector export-, India has huge potential to leverage its electronic hardware, storage devices, and computer services exports and diversify into high-quality information solutions.
- For more complex exports, India should leverage existing information networks, technology & financial channels.
- Ongoing transformation would help growth over the medium-term through ~~re~~ reallocation of resources to more ~~productive~~ productive sectors and high productivity gains in specialized sectors.
- Improving the quality, sophistication & complexity in exporting products and services would help raise overall value of exports and make economic growth more broad based.
- India can also benefit by increasing intra-regional trade integration.
 - Promoting ties in transfer of know-how, and technologies from advanced economies will also help India catch up with global technology & quality frontier.
 - Encouraging technological ~~and~~ innovation by small-medium sized firms and integrating the informal sector would not only boost Indian exports, but also help create jobs and make growth more inclusive.

II The Evolution of India's Export Basket. (P-7)

A) Composition B) Direction C) Diversification

A) Composition

The pattern pointed that ~~that~~ → well integrated, technologically advanced services sector, exporting high technology and high-value added services, and a relatively lagging manufacturing sector, exporting relatively low-tech and low-value products.

- Typically, as a non-resource rich country develops, its exports basket moves from primary resource-based exports

↓
Low and medium tech. manufacturing

↓
More high-tech manufacturing & the share of services export increases, with modern services becoming progressively more important.

- Share of manufacturing exports in total goods export in India is low and has declined to 67% from nearly 80% during 1990-2013.

On the other hand, the share of service exports in total exports has grown to over 32% in 2013 from 28% in 2000.

B) Evolution of Goods Exports.

→ manufacturing exports accounted 90% of total exports in China (2013)

→ India (2013).

57% of total exports

- Primary products accounts for almost 40% of merchandise exports.

- In terms of technological content, the share of high-tech and medium-tech manufacturing exports in total manufacturing exports has increased globally, with a particularly large increase in China. India is no exception. (p. 8)

- 1) Resource based primary products → Agri. products ~~like~~ (such as cotton, rice, tea, bovine meat & spices) refined petro. oil, cotton, precious metals).
- 2) Medium tech manufacturing products such as engineering goods (Automotive industry, machinery, intermediary inputs car, bikes, construction, mining equipments).
- 3) Traditional exports → textiles, gems, and leather products
- 4) High-tech (Veterinary & Pharmaceutical products, television, Aircraft components, X-ray equipment, ^{LED in} electronics)
- 5) Low tech - (jewelry, textile & Apparel)

- There is clear shift from traditional exports towards high and medium tech manufacturing products! exports, however, the share of high & medium tech manufacturing exports in total goods exports is substantially lower than when compared to China.

i) The Evolution of Service Exports.

- Rapid growth in services in the last decade has been attributed to inf^a and (ICT) revolution of mid-1990s and rapid growth in technology, technosperability & tradibility that changed the nature, productivity & tradibility of services.

- (P-9)
- Rapid growth of such services that do not require face-to-face interaction, and can be stored and traded digitally, that kind services defined as modern services.
 - Modern services are the fastest-growing sector of the global economy, with the share of modern services exports in total services export growing in almost every country. This account for nearly 70% of the total commercial services exports.
 - Computer service exports are a major component of service exports from India, accounting for almost 70% of total service exports. Finance, travel, sea transportation (freight) & several business services such as legal, accounting, management, public relations, architecture, engineering & technical services account for the remaining chunk of India's export service & export basket.
 - World mkt share of certain other services are increasing, in particular of R&D, franchising, & service exchange between affiliate enterprises.

B) Direction of India's Exports

- In line with global trends, Indian exports exhibit a shift towards emerging and developing economies at a expense of advanced economies.
- The share of exports to the EU & the USA fell to around 29% in 2013 from over 45% in 2000.

C) Diversification of Indian Exports.

(p-10)

- The evolvⁿ of Indian export-diversification is in line with global patterns of economic transformation.
- As countries develop they become less specialized and more diversified in terms of output, trade and employment.

- $H I$ (Herfindahl Index \rightarrow Also known as Herfindahl-Hirschman Index $H H I$) is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them. Formula $H I = \sum_{i=1}^n s_i^2$

n = number of firms

s_i = is the mkt share of firm (i).

(H) below 0.01 indicates a highly competitive industry

(H) below 0.15 indicates unconnected industry

(H) between (0.15 to 0.25) \rightarrow moderate concentration

$H I$ above 0.25 \rightarrow High concentration.

- ~~H I~~ This study use $H I$ both at the agg. level and the sector level - to compare the evolution of Indian exports.

- India has increasingly diversified its merchandise exports over the last three decades. Similarly, service exports have also become more diversified over time, reflecting the benefits of fragmentation, and integration of different activities becoming feasible through technological changes.

- The trend diversification in Indian export-basket both agg. and within sectors. Among peer-EMs, Indian exports are well diversified.
- A similar pattern of diversification is witnessed when we look at the (HI) by technological intensity.
- There is clear trend of increased diversification of primary, resource based and hi-technology manufacturing exports.
- Internationally traded services from Indian are also growing in diversity, with new firms providing a variety of new services such as architecture, engineering hardware, software, consulting, analysis & financial services. But, relative to goods and ~~service~~ exports, India's service export diversification is relatively low compared to peer EMs.

III The Transformation of India's Exports

- A) The Quality of Indian Exports.
- B) The Sophistication of Indian Exports.
- C) Complexity of Indian Exports

→ Indian service exports are highly sophisticated and complex. However, even though the quality, sophistication & complexity of Indian goods exports have increased, it remains below the level of peers. Improving the quality, sophistication, and complexity of goods exports, & further enhancing the complexity of service exports remain key policy priorities.

(A) The Quality of Indian Exports

• The given figure, compares the quality of selected exports from India with peer EMs. Indian exports of diamonds, nuclear ~~treat~~ reactors, tin and alloys are better quality than peer-EMs, however, on most other goods, India does not fare as well when compared to its peers.

B The Sophistication of Indian Exports.

(p.10)

• Similar to the concept of quality, in recent years, a small but rapidly growing literature has emerged, examining increasing in sophistication as a possible determinant of growth.

• HHR developed an indicator that measures the productivity level associated with a country's export basket.

low to High

- This measure is significantly positively associated with subsequent economic growth.
- High productivity goods \rightarrow faster growth & vice versa than the countries with lower-productivity goods.
- They conclude that it is not the amount of exports, but the technological content and sophistication of exports that matters for growth and future export performance.
- Extending this framework Anand et al (2012), Mukherjee et al (2011) have shown that greater services exports sophistication is also associated with higher growth.

Sophistication captures more than tech. characteristics, it includes product differentiation, production fragmentation, resource availability & other factors.

- New classification ~~to~~ ^{to access} product ~~char~~ ^{features}, in great details, based on the average income of exporting economies.
- As part of their analysis, HHR define the related concepts of "productivity" or "income potential" of a given product - (PRODY), ranking products and services based on income level of ~~the~~ countries that export them - products exported by rich countries are ranked higher.
- Indian services exports are highly sophisticated. In fact, Indian service exports, dominated by highly sophisticated modern services, are even more sophisticated than the average level of high-income countries.
- The service export sophistication grew relatively faster in India because the composition of service export moved away from traditional activities to modern activities like business & computer services.
- As a result, for its level of per capital income, India is a clear outlier in terms of the sophistication of its services exports.
- In contrast, the level of Indian goods export sophistication remains low, even below the average sophistication level of Asian economies. It is much lower than China & Brazil.
- In manufacturing exports shows similar trends - it has increased over time, but ~~remains~~ remains below the average sophistication level of rest of Asia.

C. Complexity of Indian Exports

(P-17)

- An new indicator called economic complexity Index (ECI), developed by Hausman et al (2011) & Sumner & Hidalgo (2011), is based on the underlying idea that countries differ in the amount of product-knowledge they hold, and so do products.
- It is a ~~holistic~~ holistic measure that captures a country's productive knowledge & capabilities.
- Countries that possess more knowledge have what it takes to produce a more diverse set of products. In other words, the amount of embedded knowledge that a country has is expressed in its productive diversity.
- Ubiquity is defined as the number of countries that make a product. The ubiquity of a product reveals infoⁿ about the volume of knowledge that is required for its production.
- Complex products - those that require large productive knowledge - are less ~~pro~~ ubiquitous.
- Therefore, the amount of knowledge that a country has is expressed both in the diversity & ubiquity of products that it makes.
- Countries like Japan or Germany, with high ECI, produce goods that are highly unlikely to be produced by countries with low ECI.
- Similarly, countries with low ECI are more likely to produce things that are commonly

produce around the globe.

- India has a room to converge both in manufacturing productivity and product complexity.
- India ranks 54 out of 144 countries.
- Though higher than Brazil & South Africa.
- India ranks below peer EMs, and especially China in the ECI.
- India is a non-ubiquitous, and a diversified merchandise exporter.
- Diversity of service exports against the ubiquity of that country's overall service export basket is shown in the box, with average diversity and ubiquity dividing the chart into four quadrants.
- India falls in the quadrant of relatively non-diversified countries exporting exclusive services.
- This is reflection of the fact that high-value ~~term~~ computer exports make up the majority of India's service exports. So, even though India's service exports are of a high-value, they are much less diversified.

IV Implications of the Evolution of Indian Exports.

- a) Analysis of RCA of Indian Exports.
- b) Product-space Analysis
- c) The Income enhancing potential.

a) ~~Analysis of RCA~~

- This section analyzes its implications for future exports performance and growth via use the product space and network approaches drawing upon the works of Hausman & Klinger (2006) & Hidalgo et al (2007) and

• To study the potential of Indian exports, are

(P. 16)

- i) Calculation of RCA
- ii) Product space analysis - rank products and services according to their income enhancing potential and likely probability of being exported.
- iii) Explore products that are easier easier to diversify into using the concepts of product space.

A) Revealed Comparative Advantage (RCA) Analysis.

• RCA, a concept first developed by Balassa (1965) is a measure of the relative export-performance by a country for a specific export product.

• A country is said to have a RCA in a particular export when the share of the product in a country's total exports is larger than the share of that product in the global trade (yielding an $RCA > 1$)

• Using RCA's, India's major export-products are classified into four main categories:

- i) Classic → India demonstrated long term RCA account 60% of India's export baskets. gems & jewellery, food garments & leather etc).
- ii) Marginal
- iii) Disappearing → No longer RCA, account only 4% of India's export-basket.
- iv) Emerging

→ M.P.s - exports products in which India never had comparative advantage - make up slightly over 25% of export basket.

Products	(1)	% of India's basket consistent	Average Y. Level Associated
1) Classic Products	India has demonstrated a long-run RCA.	60%	11,734
2) Disappearing Products	In which India no longer has RCA	4%	12,225
3) Emerging Products	Export products in which India has gained RCA in recent times	10%	12,678
4) Marginal Products	In which India never had comparative Advantage	25%	19,000

B) Product-Space Analysis of Indian Exports.

- A summary export charts for services, manufacturing, & service exports for India comparing it to its peers.
- India's comparative advantage in exports is less than 20% of potential service & manufactured products.
- India, only exports 70% of potential services that are tradable, implying significant scope for diversifying Indian services exports.

B) Product-Space Analysis of Indian Exports.

- In standard trade theory, diversifying to new export products of higher productivity (structural transformation) is a passive consequence of changing comparative advantages based on factor accumulation.

- To analyse the development and structural transformation from this perspective, Hidalgo et al. (2007) have developed a new analytical tool called product-space.
- Product space is a term used to describe the network of relatedness between products. Relatedness is associated with the similarity in the inputs required by a certain activity, including skills, institutional & infrastructure requirements, & technological similarity, and is quantified by a measure called proximity.
- The concept of proximity formalizes the intuitive idea that the ability of a country to produce a product depends on its ability to produce similar products.
- Use This study used the product space network to analyse the evolution of India's productive structure, by observing the location of products in which India has RCA > 1 in two different time periods (1995 & 2012).
- Two clear trends are visible :-
 - i) the number of products in which India has comparative advantage has increased, and in line with the experience of other countries.
 - ii) Core of the network consists of metal products, machinery, and chemicals, whereas the periphery is formed by fishing, tropical & cereal agriculture.

• Over time exports of apparels and textiles have lead (p-19) to a comparative advantages in related products such as Bakery, leather, fashion, garment-tech. exports.

• Other sources of comparative advantage can be traced in India manufacturing through diversifying into automotive components to design, domestic sourcing, assembly, and distribution of finished automotive vehicles & chemical products.

C The Income Enhancing Potential of Indian Exports

• Further, this study uses the concept of income associated with a product to rank the income enhancing potential of Indian exports.

• Quadrant $\left\{ \begin{array}{l} \text{X-axis (Greater difficulty to diversify} \\ \text{(inverse of density)} \\ \text{Y-axis (High Income Potential).} \end{array} \right.$

• Ideal location on this plane is the upper-left quadrant: Goods are close and also highly sophisticated.

• The figure suggests a tradeoff between ease of diversification and export-sophistication.

V The Way Forward

• India is well positioned to benefit from these structural changes in the export basket - it has good potential to expanding exports to new areas, ~~was~~ increasing the share of manufacturing, increasing sophistication of G & S, and diversifying into income enhancing exports.

A) What needs to be done?

(Page 2)

- i) India could benefit by increasing the value and quality of manufacturing exports, especially of high-tech and medium-tech goods.
- ii) Even though Indian service exports are sophisticated, India can benefit from overall diversification & emergence of service activities.
- iii) Diversifying into products and services that are of higher quality, high income potential and central in the world network will be essential to amass new sources of comparative advantages.
- iv) Going forward, India could also benefit from realizing exports with new ~~regions~~ regions.

B. How to Achieve it: Medium-term Policy Priorities.

- i) Reducing Trade Barriers and Fostering Integration.
 - a) Trade reforms will be necessary to expand trade and to realize trade with new regions.
 - b) ~~Fostering~~ Fostering regional trade integration will reduce trading costs, help in integration with the rest of the world, and improve competitiveness.
 - c) Expⁿ of trade & trade integration can ~~accelerate~~ accelerate the process of productivity convergence.
 - d) Trade liberalisation ~~will~~ will help harness the demographic dividend.
 - e) Efforts to become a central hub in Global value chains (GVCs).

ii) Liberalise FDI regime. (8-23)
a) Greater focus on FDI to boost- exports and enhance productivity.

iii) Improve Infrastructure Planning.
a) Investments to improve export-related infrastructure and to boost- industrial production are vital for realize exports potential.

iv) ⁵⁰ Develop skills & liberalize Labour Mkt.

v) Environment for Innovation & Entrepreneurship