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INDUSTRIAL COMPETITIVENESS, TRADE AND ECONOMIC GROWTH

A Mutual Dependence

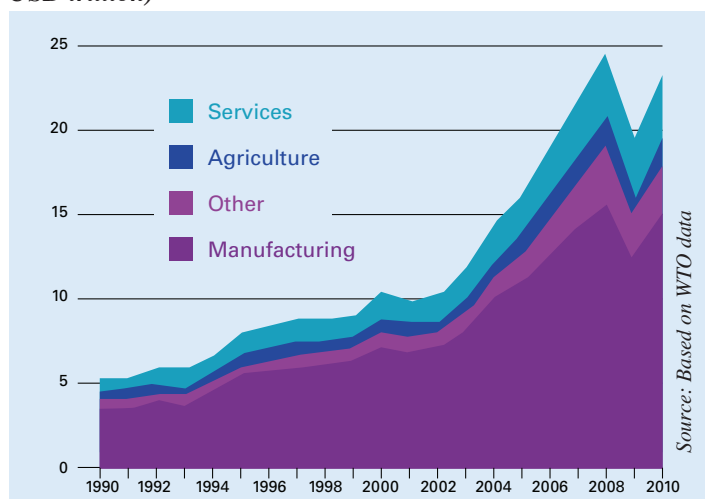
Key Messages

- Notwithstanding the hype surrounding trade in services and the commodity boom, trade in manufacturing products still accounts for the lion's share of world trade
- Within manufacturing, products with a highly technological content make up the largest share of trade. Tapping into this lucrative market provides an invaluable opportunity for countries to industrialize and hence, to reap the benefits of overall economic growth
- Despite diverging views, industrial competitiveness, i.e. the ability of a country to tap into growth markets, is a key determinant of countries' development prospects. As a country's industrial competitiveness can be assessed quantitatively, policymakers can benefit from the invaluable opportunity of gauging the impact of their policies.

Introduction

World trade has grown rapidly in recent decades due to the growth of emerging markets, trade liberalization, the integration of the global economy, rising incomes and reduced transportation and communication costs. It has diversified significantly, both in terms of changes in the composition of countries' export product mix and the spread of production over several sectors. The pattern of trade has been influenced by a gradual increase in the value of both trade in commercial services (insurance, banking, etc.) and in fuels and mining products (Fig. 1). However, trade in manufactured products still accounts for the lion's share of global trade (down only minimally from 69% in 1990 to 65% in 2010). These developments call into question the emerging narrative in industrialized and developing countries alike that trade in non-manufactured products has become an equally viable option for participation in global markets and profiting from trade.

Figure 1: The changing composition of world trade (1990-2010 USD trillion)



Manufacturing (still) matters

The outbreak of the financial crisis of 2007-08 dealt a harsh blow to global manufactured trade. As Figure 1, however, indicates, the impact of the crisis on manufactured trade was proportionately less severe than on trade in fuels and mining products, though it was admittedly more detrimental for manufactured trade than for agriculture and commercial services. The restabilization of the global economy also meant that the rebound was more pronounced in manufactured trade than in commercial services (Table 1).

Table 1: World exports of merchandise and commercial services, 2005-11 in USD bn and annual % change

| | Value | Annual % change | | | |
|----------------------------------|-------|-----------------|------|------|---------|
| | 2011 | 2009 | 2010 | 2011 | 2005-11 |
| Merchandise | 18217 | -22 | 22 | 19 | 10 |
| Commercial services | 4149 | 10 | 10 | 11 | 9 |
| Transport | 855 | 15 | 15 | 8 | 7 |
| Travel | 1063 | -9 | 9 | 12 | 7 |
| Other commercial services | 2228 | -7 | 8 | 11 | 10 |

Source: WTO Secretariat for merchandise and WTO and UNCTAD Secretariats for commercial services

This data echoes a recurrent theme in the debate in many industrialized countries on the significance of manufacturing as a source of value added and employment. For the past two decades, policymakers and economists have questioned the importance of the manufacturing sector for the economy and turned their attention to the contribution of the service sector to the economy (wholesale and retail trade, transport, government, financial, professional and personal services). Increasingly, the realization is that "manufacturing (still) matters" both for industrialized and developing countries, despite the fact that developed economies have shifted the

bulk of their economic output and employment away from the manufacturing to the service sector. While more ‘traditional’ manufacturing activities may foster economic growth and prosperity in developing countries and boost their competitiveness, ‘advanced manufacturing’, i.e. activities that “(a) depend on the use and coordination of information, automation, computation, software, sensing, and networking, and/or (b) make use of cutting edge materials and emerging capabilities enabled by the physical and biological sciences, for example nanotechnology, chemistry, and biology.” (PCAST, 2011, p. ii), can contribute to economic recovery and sustainable growth in advanced economies and improve their competitiveness.

The changing face of manufacturing

The concept of manufacturing has changed fundamentally in recent years. Today, manufacturing comprises a range of activities from low value-added manual assembly to upstream R&D as well as high value-added design and downstream support services, such as sales and customer service. The decomposition¹ and fragmentation² of production, the entry of new competitors, the emergence of ICT-enabled services embedded in physical products and the further development of production technology have significantly altered the face of manufacturing (UNIDO, 2013a). In other words, the boundaries of where manufacturing ends and services begin are becoming increasingly blurred.

This blurring has given new impetus to the long-standing debate on the significance of manufacturing for economic development. Ha-Joon Chang, for example, asserts that the size and competitiveness of a country’s manufacturing base is the most important determinant of its prosperity, and that service-based economies actually build on a strong manufacturing base. US economist Jagdish Bhagwati, on the other hand, claims that the service sector can be as innovative and productive as the manufacturing sector, i.e. that industrialized countries, in particular, should primarily focus on value added services, such as branding and logistics, and on outsourcing production processes (The Economist, 2011). While at first glance these two positions seem to be in stark contrast with each other, they can be reconciled

by acknowledging the mutual dependence between manufacturing *proper* (the physical transformation of inputs into products ready for consumption) and a whole range of manufacturing-related services (design, R&D, engineering, after-sale services), with the latter, in fact, being irrelevant without the former.

There is broad consensus that manufacturing is an engine of growth. The rationale behind this is based on a handful, but fairly strong empirical realities which have been summarized in a recent book on pathways to industrialization in the 21st century (Szirmai, A., Naude, W., Alcorta, L., 2013), namely:

- A clear correlation exists between the degree of industrialization and per capita income growth during the fastest growth period of most countries;
- Manufacturing offers special opportunities for capital accumulation due to its larger scope for mechanization but also its spatial concentration;
- The manufacturing sector generates technological progress, and diffuses it to other economic sectors such as the service sector.;
- Consequently, productivity levels (and hence real wages) are higher in the manufacturing sector than in other sectors, though the gap with commercial services seems to have declined over the last few decades. Nonetheless, the scope for pro-

ductivity growth is greater in manufacturing, and the transfer of resources into manufacturing therefore entails both a static and a dynamic structural change bonus.

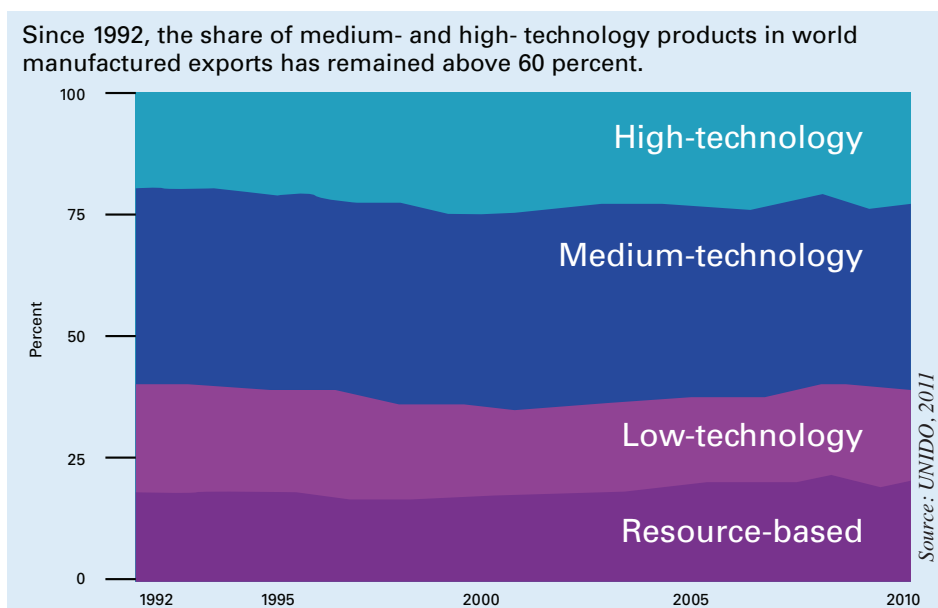
Competitiveness carries considerable weight

As a vibrant manufacturing sector drives economic growth, engagement in the production of manufactured goods—be it actual production or manufacturing-related services—entails major potential in terms of wealth and job creation, both in industrialized and in developing countries. The global market for manufactured goods has consistently been the largest over the last decades.

Since the early 1990s, the share of medium- and high-technology products in world manufactured exports has continually remained over 60%. This is despite the well-known fact that the decomposition and fragmentation of the production process has given rise to a surge in inter-industry trade of semi-manufactured products within global production networks.

From an economic growth perspective, it is a fairly safe bet to assume that the production of medium- and high-technology goods will function as an engine of growth both in industrialized and in developing countries due to the enhanced scope for capital accumulation, progress and, consequently, labour productivity and high real wages. As trade in these products has been

Figure 2: Technology composition of manufactured exports, 1992-2010



¹ The “geographic and organizational recasting of operations from actual manufacturing through R&D and strategy”, i.e. outsourcing (the purchasing of goods or services outside the given firm’s boundaries) and offshoring (the moving of activities to a different country, either within the company internally or using outside suppliers) (UNIDO, 2013a).

² A vertically connected production process that takes place in one location [and which] can now be undertaken in different regions or countries” (Jones, 2000 quoted in Goswami, Mattoo and Sáez (eds.), 2012).

the most significant factor for rapid growth in global trade, tapping into such markets opens unparalleled opportunities for any country, provided it can meet the required specifications.

Over the last 20 years, a much larger number of countries has started engaging in manufacturing production, that is, more countries can act as trading partners for a much larger number of products. Developing countries' share in world manufactured exports rose from 20.4% in 1992 to 39% in 2009. These are the countries in which the manufacturing sector has been most buoyant, with a 5.6% annual growth rate in MVA over 1990-2010, slightly higher than the 4.8% GDP growth rate. This trend is likely to continue as developing countries' manufacturing production capacity expands and more manufacturing activities are relocated there from industrialized countries to reduce production costs.

Tapping into such diversified and growing markets thus provides a unique opportunity to unleash growth in industrialized and developing countries alike, provided the country has the capacity to do so. *Industrial competitiveness* refers to a country's capacity to increase its presence in domestic and international markets for manufactured products while at the same time developing industrial structures in sectors and activities with higher value added and technological content. This definition draws on the path-breaking analysis of the late Sanjaya Lall in the Industrial Development Report 2002/3, according to which a

country's level of industrial competitiveness changes over time as a result of the interrelation of economic, political, social and historical factors.

The accumulation of necessary financial, organizational and human capabilities to perform ever increasing complex production tasks fosters a gradual shift in the structure of a country's industrial sector from simple, low-tech processes (such as simple textiles) to higher value-added high-tech production processes (such as vehicles and precision instruments). With the onset of this virtuous cycle triggered by their ability to serve the global market for manufactured products, several countries—notably the emerging countries in East Asia—have not only built diversified and resilient economies but, more significantly, created millions of jobs and considerably improved the well-being of their populations.

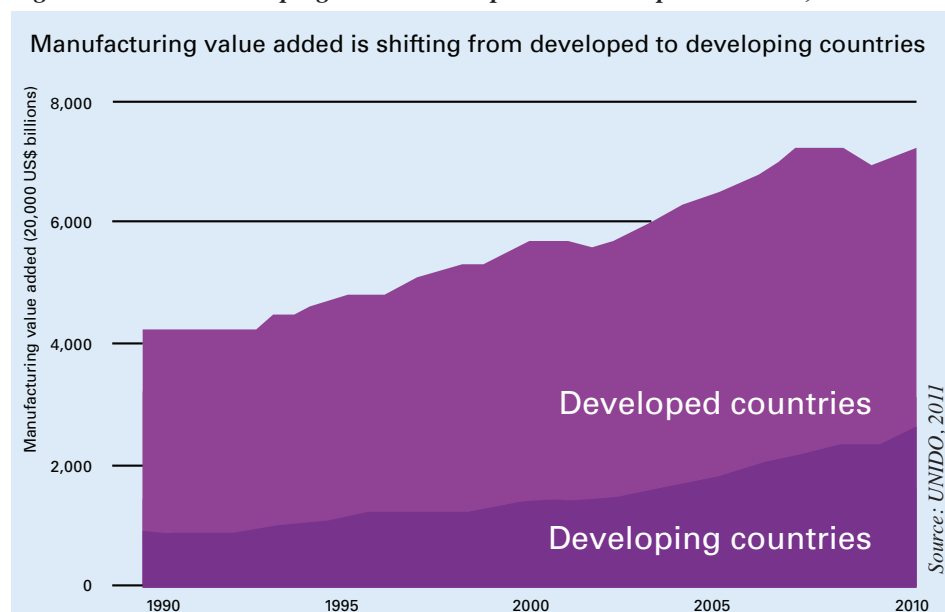
Measuring industrial competitiveness

In view of the importance of participating in global markets, many analysts have tried to gauge the aptitude of a country to trade, though little consensus has been reached on how to actually measure it. Considering that manufacturing—be it in the form of “traditional” manufacturing or in the form of services—plays such a crucial role for growth and competitiveness, UNIDO regularly produces the Competitive Industrial Performance (CIP) index to benchmark industrial competitiveness at the

global level. It combines six dimensions of industrial performance in a single intuitive measure and captures the ability of countries to produce and export manufactures competitively, as well as their structural change towards higher value-added, technology intensive sectors. The six dimensions are:

- *Industrial capacity*. MVA per capita is the primary indicator of an economy's industrialization, adjusted for population. It shows an economy's capacity to add value in manufacturing.
- *Manufactured export capacity* is key to economic growth and competitiveness in a global economy. This indicator reflects an economy's capacity to meet global demand for manufactures in an increasingly competitive environment. Manufactured exports show whether national MVA is competitive internationally.
- *Impact on world MVA* is measured by an economy's share in world MVA, which indicates an economy's relative performance and impact in manufacturing.
- *Impact on world manufactures trade* is measured by an economy's share in world manufactured exports, which shows an economy's competitive position relative to others in international markets. Gains in world market share reflect more competitiveness, losses signal deterioration.
- *Industrialization intensity* is measured by the arithmetic average of the share of MVA in GDP (which captures manufacturing's weight in the economy) and the share of medium- and high-technology activities in MVA (which shows the technological complexity of manufacturing). A more complex structure denotes industrial maturity, flexibility and the ability to move into faster growing activities.
- *Export quality* is measured by the simple arithmetic average of the share of manufactured exports in total exports (the importance of manufacturing in export activity) and the share of medium- and high-technology products in manufactured exports (which captures the technological complexity of exports, along with the ability to make more advanced products and move into more dynamic areas of exports).

Figure 3: MVA in developing countries compared to developed countries, 1990-2012



Policy implications: Innovating the manufacturing and service sector

Manufacturing in the 21st century is both a valuable commodity and a strategic asset. The increasing complexity of manufacturing processes and supply networks, cost pressures and growing customer expectations for quality and speed represent the key challenges for both mature and developing economies in establishing a dynamic manufacturing sector. This requires infrastructure that facilitates the inclusion in global production networks, the transformation from production-based and unskilled labour to advanced automation and investments in higher education and human resources.

Governments must keep abreast of emerging trends in manufacturing in order to be able to determine how their national firms can take part in the innovative process and thereby derive the greatest value from the globally integrated production process. To be competitive in today's world, firms need to identify in which stage of production they can compete successfully (UNIDO, 2013a). To stay ahead of the pack, they must maintain an innovation advantage over the long term, which requires investments in new and differentiated capabilities (Pisano and Shih, 2012).

Finally, governments are increasingly being called upon to coordinate policy measures together with the private sector, which can facilitate the process of innovation and upgrading. Due to the dynamic interaction between manufacturing and services, former distinctions between the two sectors are becoming increasingly redundant. The challenge for policymakers is hence to determine how to best align modernization in both the service and the manufacturing sector as necessary instruments to enhance their country's industrial competitiveness.

For further information,
please contact:
A.Alcorta@unido.org
www.unido.org

Table 2: Top 30 ranking of countries in the Competitive Industrial Performance (CIP) index, 2010

| CIP Ranking 2010 | Country | CIP Ranking 2010 | Country | CIP Ranking 2010 | Country |
|------------------|--------------------------|------------------|----------------|------------------|--------------------|
| 1 | Japan | 16 | Austria | 31 | Norway |
| 2 | Germany | 17 | Canada | 32 | Slovenia |
| 3 | United States of America | 18 | Finland | 33 | Brazil |
| 4 | Republic of Korea | 19 | Spain | 34 | Portugal |
| 5 | China, Taiwan Province | 20 | Czech Republic | 35 | Argentina |
| 6 | Singapore | 21 | Malaysia | 36 | Russian Federation |
| 7 | China | 22 | Mexico | 37 | Saudi Arabia |
| 8 | Switzerland | 23 | Thailand | 38 | Indonesia |
| 9 | Belgium | 24 | Denmark | 39 | Kuwait |
| 10 | France | 25 | Poland | 40 | Belarus |
| 11 | Italy | 26 | Israel | 41 | South Africa |
| 12 | Netherlands | 27 | Slovakia | 42 | Luxembourg |
| 13 | Sweden | 28 | Australia | 43 | India |
| 14 | United Kingdom | 29 | Hungary | 44 | Philippines |
| 15 | Ireland | 30 | Turkey | 45 | Chile |

Source: UNIDO, 2013b

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