Working Paper Series

#2015-039

Industrialisation in time and space

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UNIDO/UNU-MERIT background papers for the UNIDO, Industrial Development Report 2016: IDR 2016 WP 6

This working paper is part of a collaborative research effort of UNIDO and UNU-MERIT. It has been commissioned as a background paper for the UNIDO Industrial Development Report 2016.

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UNU-MERIT Working Papers

ISSN 1871-9872

Maastricht Economic and social Research Institute on Innovation and Technology, UNU-MERIT

Maastricht Graduate School of Governance MGSoG

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Industrialisation in Time and Space[1]

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September 2015

Abstract

This paper analyses broad changes in the global structure of production in the last half century. The analysis is carried out along two dimensions: sectoral and geographical. A novelty of the paper is the use of sector-specific PPPs to estimate the structure of production in current PPP international dollars. The analysis is based on a comprehensive dataset that covers 140 countries (accounting for 98% of global GDP in 2012) for the period 1960-2012. Salient findings of the paper include the following. First, in current prices there was a process of global de-industrialisation. The manufacturing share in global GDP dropped from more than 20% in the early 1960s to 12% by the end of the period. This process, however, was not even across country-groups and regions. As expected, it was much more pronounced in the advanced economies. In developing countries there was an increase in the share of manufacturing, followed by a decline from the early 1990s onwards. However, in constant prices, the share of manufacturing remained more or less constant. This implies that prices of services have been increasing much more rapidly than those of manufactured goods, probably due to slower productivity growth in services. In geographic terms, the share of developing countries in world manufacturing value added has increased from 25% to more than 50%. This phenomenon was clearly driven by the Asian developing economies. Finally, within manufacturing knowledge-intensive, high-tech industries and natural-resource intensive industries have increased their shares in global manufacturing value added.

JEL Codes: L16, L6, O11

Keywords: Global structure of production; regional shares; purchasing power parities; manufacturing; Baumol's law.

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[1] This paper was prepared as a background paper for the UNIDO 2016 *Industrial Development Report*. We gratefully acknowledge financial support from UNIDO. We thank Robert Inklaar and Marcel Timmer for making their sectoral PPPs available to us.

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1. Introduction

For more than a century industrialisation has been regarded as the major avenue towards economic development. The experience of today's most successful economies provides evidence for the key role of manufacturing industries in the process of transformation that was at the core of their development success. Several theoretical arguments, mostly related to the special opportunities that this sector provides to exploit technological knowledge and dynamic economies of scale, support this view. Compared to other sectors of the economy, manufacturing is seen as having higher potential for innovation, technological learning and knowledge spillovers to the rest of the economy.

In recent years, however, this view has started to be contested, both from empirical and theoretical perspectives. In the first place, it is clear that advanced economies are overwhelmingly service economies. Next, the successful experience of some counties – especially India – in driving economic growth on the basis of a vibrant and dynamic ICT-intensive service sector has prompted some authors to argue that we are entering an era of service-led growth, also from the perspective of emerging economies. Finally, the emergence of China as *the* global factory of the world has made it more difficult for latecomer countries to foster a successful export-led industrialisation strategy.

Against this backdrop, the present paper aims at analysing the broad changes that have taken place in the global structure of production in the last half century. The analysis is carried out along two dimensions: sectoral and geographical. From a sectoral perspective we analyse changes in the global structure of production. From a geographical perspective, we focus on changes in regional shares in global value added.

When examining the transformations that took place in the structure of global production we seek to determine whether there has been a global process of de-industrialisation throughout the period. That is, whether the global share of manufacturing in total GDP has been shrinking since 1960. Such a finding would be indicative of underlying changes in the conditions for industrialisation, and therefore, would have important implications for latecomer countries trying to industrialise. Moreover, if this trend is confirmed by the data, then the examination of specific country experiences should be assessed against this global pattern. That is, an effort should be made to disentangle how much of the so-called 'premature de-industrialisation process' reflects shifts in global structure of production and how much is due to country-specific factors.

The study of global shifts in the structure of production within the manufacturing sector, in turn, will shed new light on the general patterns of cross-regional changes in the structure of manufacturing during these decades. It will also provide new insights on the changing global importance of different industries. In particular, we will explore whether high-tech industries have been increasing their shares in global production. Similarly, we will analyse the changing importance of other types of industries such as, for example, natural-resource-intensive industries.

The questions that we address in this paper have also been addressed by other scholars but typically looking at scattered pieces of evidence. To the best of our knowledge, there have not been any systematic attempts to analyse these trends from a long-run historical perspective, using international comparable measures and encompassing all regions of the world. This paper thus provides a novel contribution to this literature. In particular, it constructs and examines a comprehensive dataset that covers 147 countries (accounting for 98% of world's GDP in 2012) for the period 1960-2012, making use of recently published production-side, sector-specific PPP converters.

The structure of the paper is as follows. Section 2 provides a general overview of the approach proposed to analyse the changing nature of manufacturing global production in the last half century. It provides

details on the procedures and details the main sources used to construct the dataset. Next, Section 3 summarises the main trends observed in the constructed dataset. This is done in two steps. The first step deals with aggregate trends, looking at manufacturing as a single sector, and analysing the changing importance of manufacturing in GDP at the global and regional level. The second step moves into a more detailed industry-specific analysis and opens up the aggregate trends distinguishing ten broad manufacturing industries. Finally, Section 4 presents the main conclusions that can be derived from the analysis. An appendix with more details on the construction of the dataset is presented at the end of the paper.

2. The Approach

2.1. Measuring the share of Global Manufacturing Value Added in World GDP

The major goal of this paper is to analyse the shifts that took place in the global structure of production during the last half century. Global GDP can be calculated using purchasing power parities. Global manufacturing production, in turn, can only be obtained if we have international comparable figures for manufacturing value added, measured in a common denominator, for all the countries of the world (or at least a vast majority of them) in each year of the period analysed.

This introduces an important methodological challenge. While there are long datasets with internationally comparable information on income and GDP levels at so-called purchasing power parities (PPPs), the available data to make cross-country comparisons of specific sectors is much more restricted, both in terms of time and geographic coverage. A remarkable exception is the recent publication of sector-specific, production-side PPP converters by Inklaar and Timmer (2012) for a large sample of countries in the year 2005. Based on the basic heading parities and expenditure data from the 2005 ICP benchmark, these authors estimate sector-specific, multilateral PPPs for 10 broad sectors of the economy in a total of 147 countries. In order to do so, the expenditure PPP converters are adjusted to match as close as possible with industry of origin PPPs. In particular, trade and market margins are peeled off and specific corrections are made to account for the relative prices in intermediate (domestic and imported) goods.

Though this is an important step forward, this contribution only provides sectoral purchasing power parities for one year (2005). Therefore, a long term analysis based on these data could only be undertaken at constant prices of that year. When looking at the structure of the economy, however, it is customary to use current year prices, as the relative size of different sectors is determined not only by the quantities they produce but also by variations in their relative prices.

In order to tackle this problem, in this paper we put forward a new approach to estimate the manufacturing value added at current sector-specific PPP dollars for the set of countries covered in Inklaar and Timmer (2012). In a nutshell, the approach *adjusts* the observed sector structures of value added at current domestic prices in order to take into consideration the change in the relative size of sectors (manufacturing and non-manufacturing) that take place when a PPP conversion is applied. This adjustment takes into consideration the fact that in the developing countries the relative price of non-tradable sectors (as compared to tradable sectors) tends to increase when PPPs are used as converters. Therefore, the share of non-tradeables in GDP also increases, reducing the corresponding share of manufacturing. This increase in the relative size of non-tradable sectors is typically larger in less developed countries and tends to diminish as countries reach higher levels of GDP per capita. Hence, in advanced economies the sectoral shares in GDP calculated at domestic prices tend to be very similar to sectoral shares calculated using Purchasing Power Parities. At low levels of income, however, it makes a huge difference whether or not one uses PPPs.

To illustrate the proposed procedure we need to introduce some basic equations. The variable we want to estimate is the share of manufacturing in GDP in international PPP dollars calculated using sector-specific PPP converters ($s_{i,t}^{PPP}$). That is,

$$s_{i,t}^{PPP} = \frac{MVA_{i,t}^{PPP}}{GDP_{i,t}^{PPP}} \quad (1)$$

Where MVA stands for the manufacturing value added, the subscripts *i* and *t* identify the country and the year, and the superscript *PPP* denotes that the corresponding variables is expressed in sector-specific purchasing power parities (case of manufacturing) or production-side purchasing power parities (case of GDP).

By definition, both variables are calculated by dividing their values in domestic currency by the corresponding PPP converter. That is:

$$MVA_{i,t}^{PPP} = \frac{MVA_{i,t}^{LCU}}{PPP_{i,t}^{MAN}} \quad (2)$$

$$GDP_{i,t}^{PPP} = \frac{GDP_{i,t}^{LCU}}{PPP_{i,t}^{GDP}} \quad (3)$$

Thus, simple manipulation of equation (1) yields:

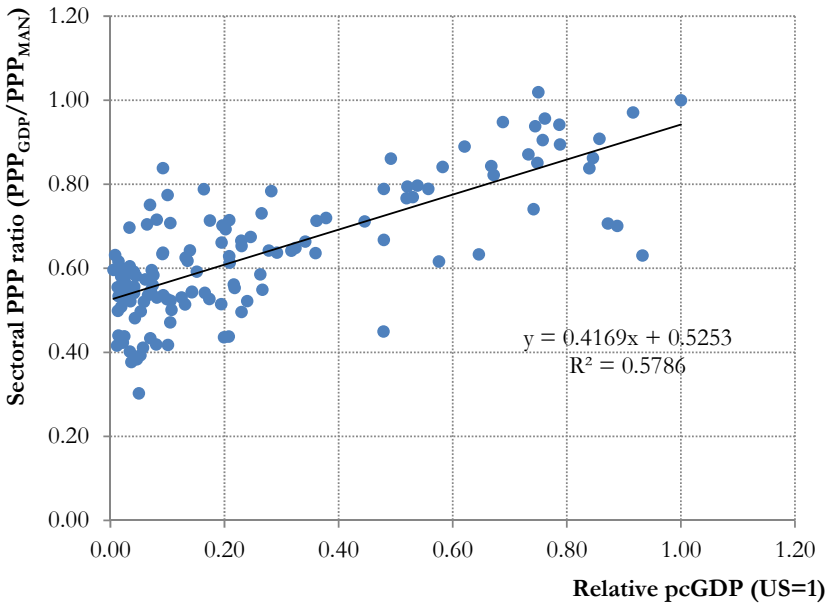
$$s_{i,t}^{PPP} = \frac{MVA_{i,t}^{LCU}}{PPP_{i,t}^{MAN}} \Big/ \frac{GDP_{i,t}^{LCU}}{PPP_{i,t}^{GDP}} = \frac{MVA_{i,t}^{LCU}}{GDP_{i,t}^{LCU}} * \frac{PPP_{i,t}^{GDP}}{PPP_{i,t}^{MAN}} = s_{i,t}^{LCU} * r_{i,t} \quad (4)$$

Where $s_{i,t}^{LCU}$ is the share of manufacturing in GDP (calculated using variables expressed in domestic currency) and $r_{i,t}$ is the ratio between the PPP for GDP and the PPP for manufacturing. From now on, this ratio will be generically labelled as the "sectoral PPP ratio".

From equation (4) it follows that the manufacturing share in GDP at current PPP is equivalent to the manufacturing share at current local currency units (LCU) multiplied by the sectoral PPP ratio of the particular year that we are evaluating. Since $s_{i,t}^{LCU}$ is typically available in large datasets such as, for example, the UN's *Main Aggregate Database* or the World Bank's *World Development Indicators Database*, our main empirical challenge is how to estimate $r_{i,t}$. As we mentioned before, the dataset of Inklaar and Timmer (2012) already provides estimates of this ratio for all countries of our sample in the year 2005. The question is then how to extrapolate the values of 2005 to the remaining years of the period under consideration. Following the literature we argue that the changes over time in this ratio depend on the changes in the income levels of each country[4]. Low-income countries will have low ratios while rich countries will have ratios close or equal to one (meaning that there are no differences between the share calculated at LCU or PPP). Therefore, in order to make the extrapolation we postulate that there is a positive relationship between the sectoral PPP ratio and the income level: this ratio increases with income. A brief look at the data of Inklaar and Timmer (2012) for the year 2005 seems to confirm this intuition.

[4] This has been typically labelled as the "Penn-effect". See Bergin et al. (2006) and Feenstra et al. (2013) for recent review on this issue.

Figure 1. *Relationship between sectoral PPP ratio (y-axis) and relative per capita GDP (x-axis). 140 countries for the year 2005.*



As we can see in the figure, there is a highly significant positive relationship between the level of incomes (as compared to the US) and the sectoral PPP ratio. As countries catch-up with the US the ratio r_i tends to increase. Keeping this trend in mind and recalling that we already have data on the sectoral PPP ratio for the year 2005 and data on the manufacturing shares in LCU and the relative income of each country with respect to the US for the whole period, we propose a procedure that adjusts the observed sectoral PPP ratio of 2005 by the (observed) changes in the relative per capita GDP with respect to the US. More specifically, we estimate the elasticity of sectoral PPP ratio with respect to relative incomes by running the following regression for the year 2005 using OLS techniques:

$$Ln(r_{i,2005}) = \alpha + \beta Ln(y_{i,2005}) \qquad (5)$$

Where $y_{i,2005}$ stands for the relative per capita income of country *i* with respect to the US in the year 2005. Since the regression has a log-log form, the estimated coefficient β can be interpreted as an elasticity. That is, it gives an indication of how much the sectoral PPP ratio changes when the relative income level varies by one%.

Running this model over the countries included in the Inklaar and Timmer (2012) database yields the following results[5]:

[5] Seven outliers were removed from the regression.

Table 1. *Regression results*

Source	SS	df	MS	Number of obs =	140
				F(1, 138) =	100.41
Model	3.24138616	1	3.24138616	Prob > F =	0.0000
Residual	4.45500726	138	.032282661	R-squared =	0.4212
				Adj R-squared =	0.4170
Total	7.69639342	139	.055369737	Root MSE =	.17967

lnrelPPP	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
lnrelus	.1154686	.0115235	10.02	0.000	.0926832	.138254
_cons	3.826049	.0327948	116.67	0.000	3.761203	3.890894

In line with our expectations, the coefficient associated with LNRELUS is positive and highly significant. As we can see the estimated elasticity is 0.115. That means that for every percentage point increase in the relative income the sectoral PPP ratio will increase by 0.115%.

Using these results we can estimate the sectoral PPP ratio of each country of our sample (*i*) for each year of the period (*t*) starting from the observed values of 2005 and applying the estimated elasticity β to observed changes in the country's relative income between year t and base year 2005. That is:

$$r_{i,t} = r_{i,2005} * \left[1 + \left(\Delta y_i * \hat{\beta}\right)\right] \quad (6)$$

Where Δy_i stands for the percentage variation of the relative income between 2005 and the year *t*, and $\hat{\beta}$ is the estimated elasticity.

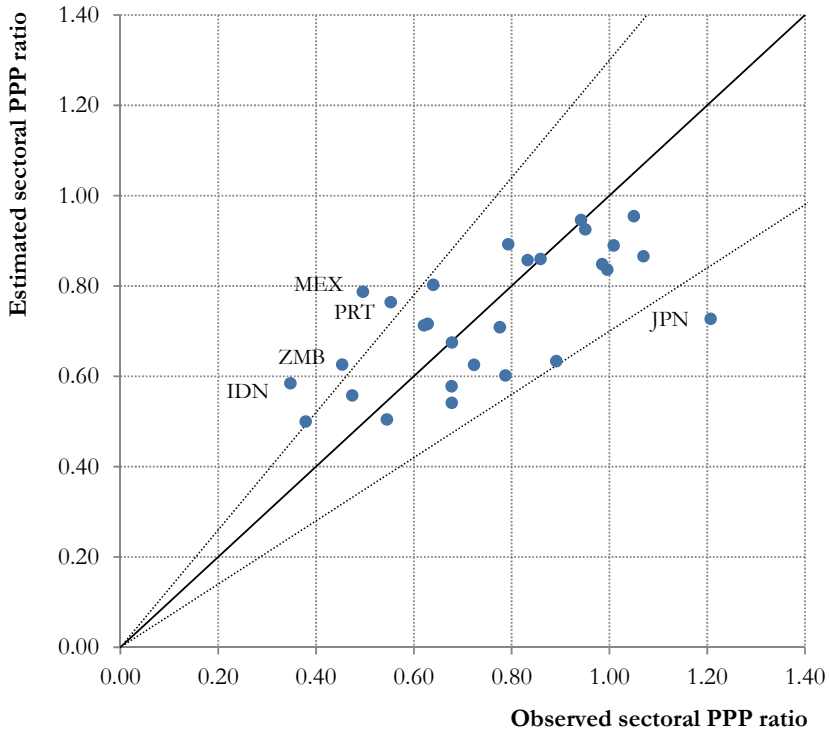
Following this procedure we can estimate the sectoral PPP ratios for the 140 countries over the period 1960-2013 and then multiply these ratios by the corresponding manufacturing share at LCU to obtain the manufacturing share at current PPP international dollars of each year, which was our original goal. Once we have the manufacturing shares at current PPPs we can easily estimate the manufacturing value added of each country by simple multiplication between the GDP at current PPP (taken from PWT8) and the corresponding manufacturing share.

Note that we are using coefficients from cross section analysis to extrapolate PPPs in time. Therefore it is interesting to compare our estimates for the sectoral PPP ratios with some benchmark in order to evaluate their reliability. As we mentioned before, there are no systematic estimations of manufacturing PPPs covering such a large sample of countries in this long span of time. There are, however, some scattered pieces of evidence coming from the International Comparisons of Productivity Levels (ICOP) project, started in 1983 at the University of Groningen. Within this project, several studies for the manufacturing sector of different countries have been done using the industry-of-origin perspective. van Ark and Timmer (2001) summarise the results of these studies and present manufacturing UVRs and GDP PPPs for 30 countries around the year 1986. Even though they are not strictly comparable, these estimates can be used to calculate the corresponding sectoral PPP ratios and assess the reliability of our own estimates[6]. In particular, we can compare our estimations for the specific countries and years covered in these studies, as published in van Ark and Timmer (2001).

[6] The corresponding data is taken from Table 1, page 46. Sectoral PPP ratios are calculated dividing the GDP PPP (third column of the table) by the manufacturing UVR (first column). The countries/years included are: Australia (1987), Belgium (1987), Brazil (1985), Canada (1987), China (1985), Czech Republic (1996), Egypt (1996), Finland (1987), France (1987), Hungary (1987 and 1996), India (1983), Indonesia (1987), Japan (1987), Korea (1987), Mexico (1988), Morocco (1997), Netherlands

The following figure summarises the results of this robustness check. On the vertical axis we plot our own estimates and on the horizontal axis the sectoral PPP ratios that can be derived from van Ark and Timmer (2001). If our method is reliable we would expect most observations to be close to the 45 degree line. Therefore the figure also includes a solid diagonal (the 45 degree line) and two dotted lines representing an upper bound (estimated values that are 30% higher than the observed values from the ICOP database) and a lower bound (estimated values that are 30% lower than the observed values):

Figure 2. *Comparison between sectoral PPP ratios (PPP_{GDP}/PPP_{MAN}). Own estimations (y-axis) versus ICOP estimations (x-axis).*



As we can see the estimated sectoral PPP ratios are quite close to the "observed" ones. With the exception of some outliers (such as Indonesia, Japan and Mexico) most estimates fall in a range of ±30% of the corresponding value estimated by the ICOP project for the 1980s. Moreover, with the only exception of Japan, all the observations outside these ranges fall above the upper bound. That means that when the difference is large it is mainly due to an underestimation of the real reduction that should be applied to the manufacturing share. This comparison would indicate that the method is not perfect, but seems to correctly predict the direction of the required adjustment without introducing any systematic bias. In the worst case, it will underestimate the real change, but it will definitely give a more accurate picture of the real (internationally comparable) manufacturing shares, than if we do not make the adjustment of equation 4.

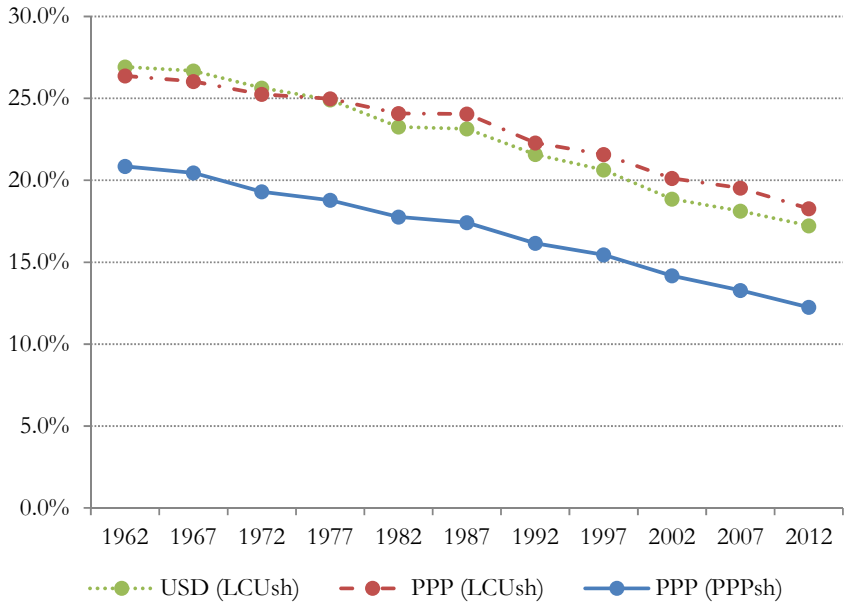
(1987), Poland (1989 and 1996), Portugal (1984), Spain (1984), Sweden (1987), Taiwan (1986), Tanzania (1989), UK (1987), West Germany (1987) and Zambia (1990).

2.2. Comparison of Estimates

2.2.1. Current USD versus current PPPs

Before entering into the detailed analysis of the results, it is interesting to see how our estimates of the global structure of production based on sectorally adjusted PPP differ from two alternative estimates: one made at current dollars and the other one made at current aggregate PPPs but without sectoral adjustment. In order to do so, the following figure presents the manufacturing share in GDP at the world level estimated using the three different valuations at current prices[7].

Figure 3. *Manufacturing value added as % of GDP at the world level between 1960 and 2012 (5-year averages). Comparison between different valuation procedures.*



Note: Each series calculate the MANVA/GDP ratio using different valuations for the sectoral and aggregate value added. PPP (PPPsh) = Value Added Share at Current PPP dollars estimated using sector-specific converters; PPP (LCUsh) = Value Added at Current PPP dollars estimated using GDP PPP converter; USD (LCUsh) = Value Added at Current USD using exchange rates

Source: Table 2, Table C. 1 and Table C. 3.

When looking at the figure, the first striking fact that emerges is the clear negative trend. Regardless of the measure used, at current prices all series show a steady decline, suggesting a global process of de-industrialisation. Though very pronounced, the size of the decline of the share of manufacturing varies across series. The largest drop is observed in the one calculated at current USD, that loses ten percentage points, moving from 27 to 17% between 1962 and 2012. In the other two series the manufacturing share drops by around eight percentage points during the period.

A second important feature that emerges from the figure has to do with differences in the levels of each of the series. Our preferred measure (the solid blue line) is always much lower than the two alternatives.

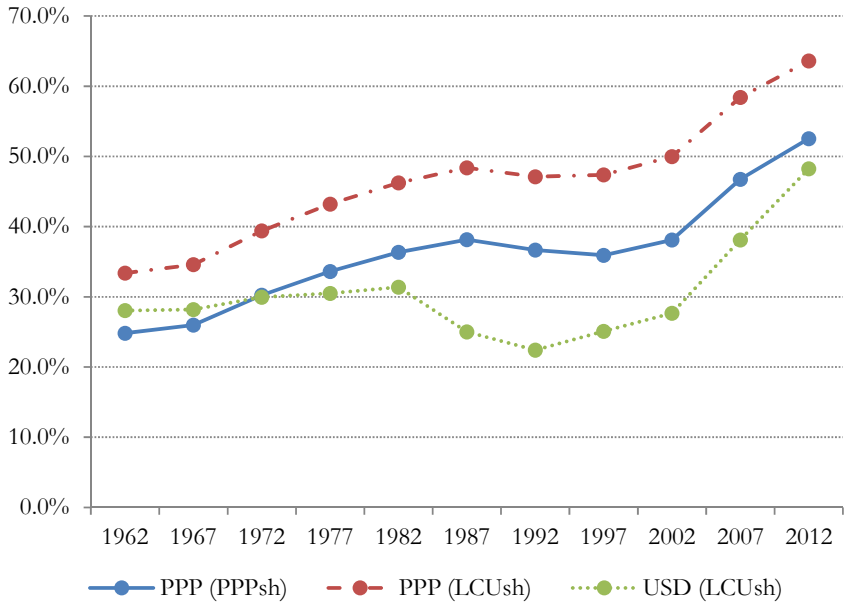
[7] The data used to construct this figures is contained in a series of tables that will be presented in the next sections. The details on how exactly this data has been constructed, the sources used and the countries included in each regional aggregate can be found in the appendices of this paper.

This does not come as a surprise. As we mentioned before, the sectoral PPP adjustment decreases (by definition) the manufacturing share in most developing countries, thus bringing down the aggregate figures.

Overall, the main conclusion that we can derive from this comparison is that, at the global level, measuring manufacturing value added with a sector-specific PPP converter yields a much lower share in total GDP. This, however, does not affect the general declining trend observed during the last five decades. However one converts value added at current prices to a common denominator, one always sees rapid global deindustrialisation.

We turn now to compare the results of alternative estimates for another key indicator: the share of developing countries in world manufacturing value added[8]. As before the comparison is done between the estimates at current dollars (USD-LCUsh), at current PPP international dollars without sectoral adjustment (PPP-LCUsh) and at current PPP international dollars with sectoral adjustment (PPP-PPPsh).

Figure 4. *Developing countries' share in World Manufacturing Value Added between 1960 and 2012 (5-year averages). Comparison between different valuation procedures.*



Note: Each series calculate the MANVA/GDP ratio using different valuations for the sectoral and aggregate value added. PPP (PPPsh) = Value Added at Current PPP dollars estimated using sector-specific converters; PPP (LCUsh) = Value Added at Current PPP dollars estimated using GDP PPP converters; USD (LCUsh) = Value Added at Current USD using current exchange rates.

Source: Table 3, Table C. 2 and Table C. 4.

The figure clearly shows that the share of developing countries in global manufacturing value added has been increasing quite dramatically throughout the period, regardless of the valuation method used[9]. As

[8] Developing countries are defined as all countries of our sample that in 1990 were not high-income according to the World Bank's definition. In the next section we provide further details on this definition.

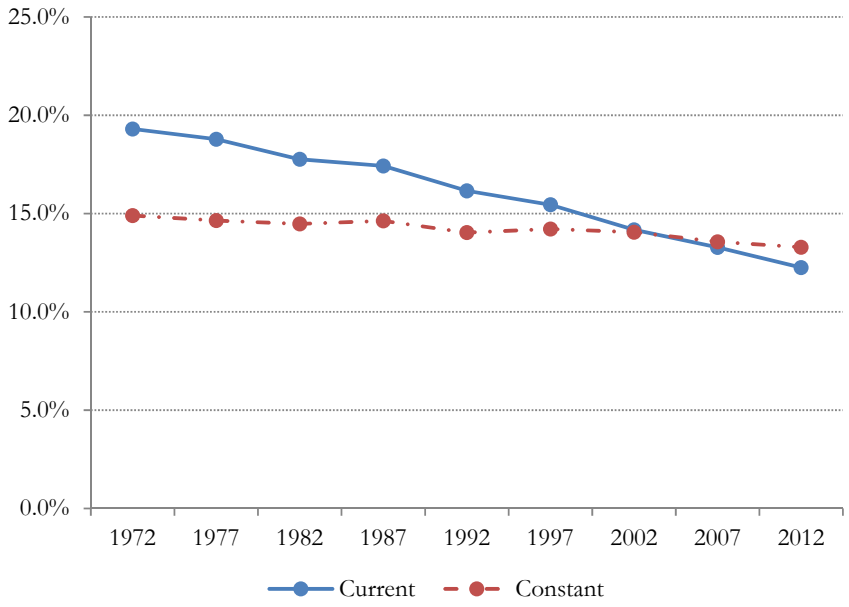
[9] In the 1960s, the figure at current USD is above the one at PPPs. One possible explanation for this rather odd result is that the USD figures for the former communist economies are typically overestimated.

expected, the share estimated using the sectorally specific PPPs for the manufacturing sector falls in between the other two series. On the one hand, it is almost always above the estimates at current USD because converting value added with PPPs in general tends to result in higher levels of comparative value added for developing countries, than conversions using exchange rates (see Szirmai and Ren, 2000). On the other hand, however, it is always below the estimates at current GDP PPPs because the specific PPPs for manufacturing tend to be higher than those for total GDP in less developed countries. The total PPP is strongly affected by very cheap services in the non-tradable sectors of less developed countries. Therefore, using the aggregate GDP PPP converter to convert manufacturing value added will overestimate the real size of developing countries' manufacturing sectors.

2.2.2. Current PPPs *versus* constant PPPs

A last comparison worth making before entering into the detailed analysis of value added shares by region is related to the effect of prices. As it is well known, using constant or current prices can certainly introduce important differences in the final results. In this section we compare our estimates for the share of manufacturing in global GDP using sector-adjusted PPPs at current prices of each year and at sector-adjusted PPPs at constant prices of 2005. The following figure presents the comparison:

Figure 5. *Manufacturing share in GDP at the world level between 1960 and 2012 (5-year averages). Comparison between estimates at current and constant 2005 prices.*



Note: Each series calculate the MANVA/GDP ratio using different valuations for the sectoral and aggregate value added. Current = Value Added at Current PPP dollars estimated using sector-specific converters; Constant = Value Added at 2005 PPP dollars using sector-specific converters.

Source: Table 2 and Table C. 5.

A striking fact that emerges from this figure is that the process of global de-industrialisation documented before is only visible when we perform the analysis at current prices. The series of manufacturing share in global GDP at constant prices, instead, stays almost unchanged during much of the period and shows

only a slight decline in recent years. This means that the importance of manufacturing industries in terms of the quantity of goods produced has not changed significantly in the last 40 years. The sharp decline observed at current prices therefore seems primarily to reflect changes in the relative prices of this sector compared to those in the primary sectors and the service sectors.

A further investigation of this finding would shed new light on the deep factors driving global de-industrialisation (at current prices). One interesting hypothesis is that this differential in sectoral price movements is explained by differences in the relative productivity gains between major sectors. An important strand of the literature has argued that manufacturing is the main driver of productivity gains in the economy. If this is true, then it make sense that the relative prices of service sectors with less productivity dynamism will increase faster than manufacturing prices, thus resulting in increased shares of services in GDP at current prices. This reasoning would be in line with the famous Baumol law, according to which the scope for productivity gains is limited in the service sector, and as a result prices in this sector tend to rise faster than prices of more dynamic sectors (Baumol and Bowen, 1966). Previous research on this matter seems to support this view (see, for example, Baumol et al., 1989, Rowthorn and Wells, 1987 and Rowthorn 1997, 1999, 2004).

This discussion, however, exceeds the limits of this paper. In what follows, our focus is exclusively on the figures at the current price PPP dollars (sectorally adjusted). In future work we aim to explore the reasons for the divergent price movements in more detail.

3. Results

This section presents the main trends that can be observed in the constructed dataset. The analysis is divided in two broad sections. The first part focuses on the transformations that took place at the aggregate sectoral level (considering manufacturing as a single sector) while the second part looks specifically at the transformation that took place in the structure of manufacturing production. In both cases, the analysis is done along two dimensions: changes in the sectoral composition and changes in the geographical distribution.

3.1. Total Manufacturing

3.1.1. The Share of manufacturing in GDP, global and by country groups

We start our analysis by looking at the changing share of manufacturing in total GDP at the world level and by different groups of countries over the last fifty years. The country groups have been defined using two criteria: income level and geographical location. First, we have made a distinction between advanced and developing economies. This distinction is based on the income level of each country of our sample in 1990. We have used the World Bank's definition of countries by income category of the year 1990: all countries that were already identified as high income countries in that year have been included in the group of advanced economies. The remaining countries have been included in the developing economies category[10]. Secondly, within each of these groups we have distinguished countries according to the broad geographical region to which they belong. The analysis of this paper focuses exclusively on the broad aggregates of countries without entering into the details of specific economies.

Following these criteria, the next table presents the corresponding manufacturing shares for each country group. In all cases, the values are calculated as five-year averages around the indicated year:

[10] It is important to notice that by following this procedure we are including some countries in the developing group that today are classified by the World Bank as high income economies. These are the cases of Chile, Cyprus, Equatorial Guinea, Greece, Rep. of Korea, Macao, Malta, Portugal and Uruguay. We also include in the group of developing countries all countries from Middle East and all former communist economies. The complete list of countries by group and region is detailed in Table B.1.

Table 2. *The share of manufacturing in GDP, by region. 5-year averages, 1962-2012.*
[Value Added at Current PPP dollars, estimated using sector-specific converters]

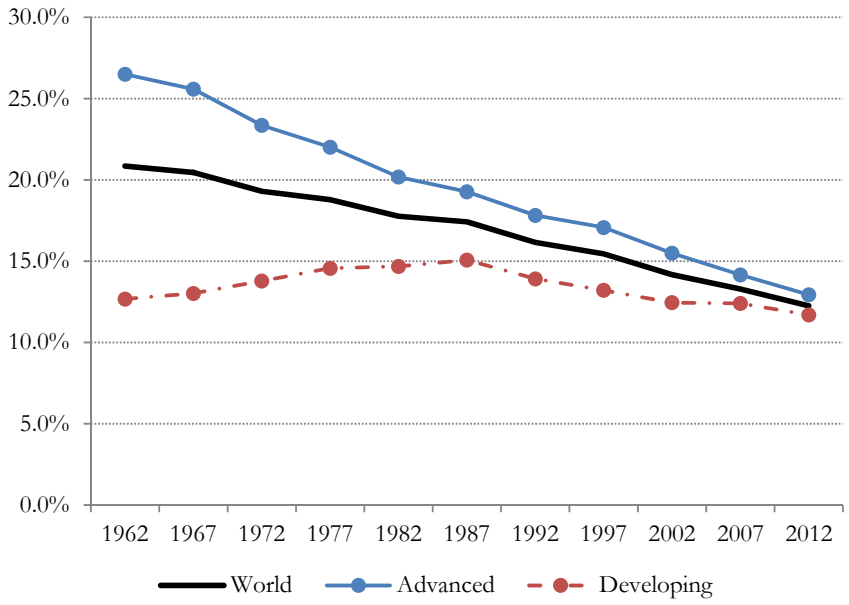
Name	1962	1967	1972	1977	1982	1987	1992	1997	2002	2007	2012
World	**20.9%**	**20.5%**	**19.3%**	**18.8%**	**17.8%**	**17.4%**	**16.2%**	**15.5%**	**14.2%**	**13.3%**	**12.3%**
Advanced	**26.5%**	**25.6%**	**23.4%**	**22.0%**	**20.2%**	**19.3%**	**17.8%**	**17.1%**	**15.5%**	**14.2%**	**12.9%**
Americas	23.4%	23.5%	20.6%	19.9%	18.0%	16.6%	15.3%	15.2%	13.2%	11.9%	11.7%
Europe	31.2%	29.2%	26.9%	25.4%	23.1%	22.6%	20.5%	19.6%	18.4%	16.7%	14.5%
Asia & Oceania	22.2%	21.9%	22.0%	19.4%	19.2%	19.0%	18.2%	16.5%	14.9%	14.3%	12.7%
Developing	**12.7%**	**13.0%**	**13.8%**	**14.6%**	**14.7%**	**15.1%**	**13.9%**	**13.2%**	**12.5%**	**12.4%**	**11.7%**
Africa & M.E.	7.8%	8.7%	8.8%	8.8%	9.1%	10.5%	10.1%	9.8%	8.0%	7.0%	6.6%
N. Af./Middle East	*7.6%*	*8.5%*	*8.6%*	*8.3%*	*8.7%*	*11.4%*	*11.1%*	*10.8%*	*8.5%*	*7.6%*	*7.6%*
Sub-Saharan Africa	*8.0%*	*9.0%*	*9.1%*	*9.5%*	*9.7%*	*9.0%*	*8.3%*	*7.8%*	*7.1%*	*5.7%*	*4.7%*
Americas	15.4%	15.5%	17.0%	17.1%	16.2%	17.1%	14.8%	14.2%	13.8%	12.9%	11.1%
North America	*14.3%*	*16.2%*	*17.4%*	*17.0%*	*15.4%*	*17.4%*	*16.9%*	*18.6%*	*16.8%*	*15.5%*	*14.5%*
Central America/Carib.	*14.2%*	*14.6%*	*16.0%*	*15.9%*	*16.7%*	*17.2%*	*15.8%*	*16.5%*	*14.9%*	*13.5%*	*11.0%*
South America	*16.0%*	*15.2%*	*16.8%*	*17.2%*	*16.7%*	*16.9%*	*13.7%*	*12.7%*	*12.5%*	*11.8%*	*9.9%*
Asia (exc. FSU)	9.0%	8.8%	10.3%	11.5%	12.2%	12.7%	13.2%	13.9%	13.5%	14.1%	13.5%
Eastern Asia	*12.4%*	*12.1%*	*14.6%*	*16.3%*	*15.9%*	*15.5%*	*16.0%*	*16.8%*	*16.6%*	*17.5%*	*17.0%*
South-Eastern Asia	*7.3%*	*7.6%*	*8.8%*	*9.4%*	*10.4%*	*11.9%*	*13.6%*	*14.4%*	*14.0%*	*13.6%*	*12.3%*
Southern Asia	*6.9%*	*6.4%*	*6.7%*	*7.1%*	*7.3%*	*7.3%*	*7.5%*	*7.6%*	*7.2%*	*7.6%*	*7.2%*
Europe	16.2%	16.6%	17.1%	18.2%	18.4%	18.5%	16.4%	13.0%	11.6%	11.2%	10.5%
Western Europe	*21.1%*	*18.6%*	*14.7%*	*13.9%*	*13.5%*	*13.5%*	*12.3%*	*11.6%*	*10.3%*	*9.0%*	*8.2%*
Eastern Europe	*18.4%*	*18.3%*	*18.6%*	*19.2%*	*19.4%*	*20.0%*	*15.6%*	*13.4%*	*12.7%*	*12.8%*	*12.8%*
Former Soviet Union	*15.3%*	*16.1%*	*16.8%*	*18.2%*	*18.4%*	*18.4%*	*17.1%*	*13.0%*	*11.1%*	*10.8%*	*9.7%*
Oceania	12.4%	10.9%	9.5%	10.7%	9.2%	8.9%	10.2%	10.4%	11.0%	10.2%	10.3%

Source: Own elaboration based on various sources (see Appendix A).

Note: The group of advanced economies includes 25 countries that by 1990 were already considered as high-income. It includes 16 countries from Europe (Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, United Kingdom, Ireland, Iceland, Italy, Luxemburg, Netherlands, Norway and Sweden), two countries from Northern America (Canada and the USA), five countries from Asia (Brunei Darussalam, Hong Kong, Japan, Singapore and Taiwan) and two countries from Oceania (Australia and New Zealand).

As previously stated, the first row of the table suggests a process of global de-industrialisation. The manufacturing share in global GDP drops from more than 20% in the early 1960s to 12% by the end of the period. This process, however, is not even across country-groups and regions. As expected, it is much more pronounced in advanced economies. In this group, the manufacturing share starts at a very high level – accounting for more than a quarter of GDP– but shows a sharp decline. By the end of the period is only half of what it was in the early 1960s. In the developing world, instead, the manufacturing share shows an inverted-U shaped trend: it increases steadily between 1962 and 1987, and falls steadily afterwards. Overall, the manufacturing share in developing economies in 2012 is slightly smaller than in 1962.

Figure 6. *Manufacturing share on GDP between 1960 and 2012 (5-year averages). Comparison between different regions.*



Note: Series calculated using sector-specific PPP converters at the country level.

Source: Table 2

Looking at the trends within the developing world we also find some interesting patterns. With the only exception of Asia, the turning point of all developing regions takes place around 1987. After this turning point, the largest decline is observed in Europe (that loses eight percentage points between 1987 and 2012) and Latin America (which loses six percentage points). In Asia, instead, the manufacturing share keeps on growing until the late 2000s, and only declines after 2007. Looking between end-points of the period, the only developing region that has a net increase in its manufacturing share is Asia. In Africa, Latin America and developing Europe, instead, the average share of 2012 was lower than that of 1962. Overall, there is a clear contrasting pattern between developing Asia and the remaining regions of the developing world.

Another feature worth noting is that the sharp decline in developing Europe is mainly driven by the industrial collapse of the communist bloc. By the end of the 1980s, Eastern Europe and the Soviet Union presented the largest manufacturing shares in the world (20 and 18% respectively). 25 years later, the share of Eastern Europe is only slightly above the average of the developing countries . In the case of the former Soviet Union it is well below this average.

3.1.2. The share of regions in global manufacturing value added

We turn now to the analysis of the share of each country group in global manufacturing value added and the shifts that can be observed during the last fifty years. The following table summarise these trends:

Table 3. *Share in World's Manufacturing Value Added, by region. 5-year averages, 1962-2012. [Value Added at Current PPP estimated using sector-specific converters]*

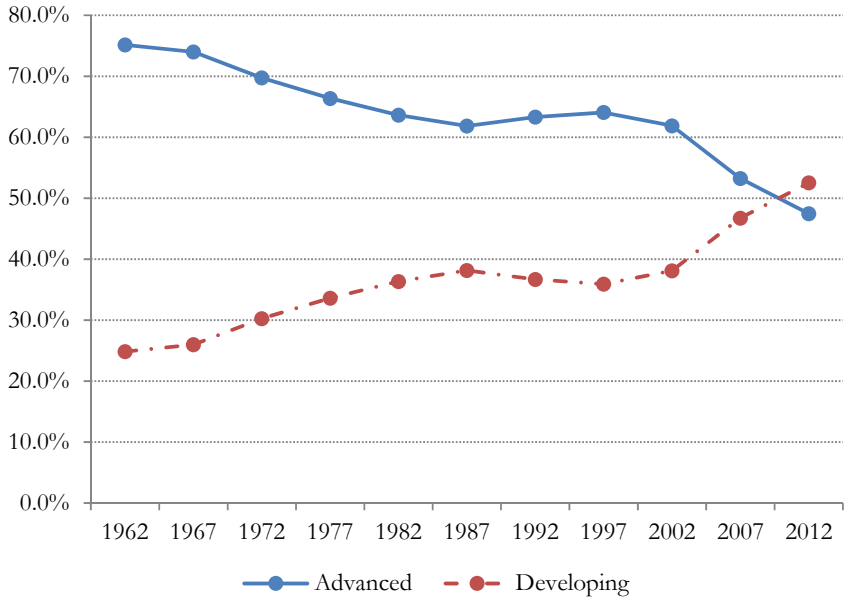
Name	1962	1967	1972	1977	1982	1987	1992	1997	2002	2007	2012
World	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Advanced	**75.2%**	**74.0%**	**69.8%**	**66.4%**	**63.6%**	**61.8%**	**63.3%**	**64.1%**	**61.9%**	**53.3%**	**47.5%**
Americas	31.4%	31.9%	27.1%	25.8%	24.6%	23.7%	23.1%	24.3%	22.7%	19.3%	18.7%
Europe	37.0%	34.0%	32.7%	30.9%	28.3%	26.9%	26.7%	27.1%	27.8%	23.8%	20.0%
Asia & Oceania	6.8%	8.1%	10.0%	9.7%	10.7%	11.3%	13.5%	12.7%	11.4%	10.1%	8.8%
Developing	**24.8%**	**26.0%**	**30.2%**	**33.6%**	**36.4%**	**38.2%**	**36.7%**	**35.9%**	**38.1%**	**46.7%**	**52.5%**
Africa & M.E.	2.1%	2.4%	2.8%	3.0%	3.3%	3.5%	3.6%	3.7%	3.6%	3.9%	4.4%
N. Af./Middle East	*1.0%*	*1.2%*	*1.5%*	*1.7%*	*1.9%*	*2.3%*	*2.6%*	*2.8%*	*2.5%*	*2.8%*	*3.3%*
Sub-Saharan Africa	*1.1%*	*1.2%*	*1.3%*	*1.3%*	*1.4%*	*1.2%*	*1.0%*	*1.0%*	*1.0%*	*1.1%*	*1.1%*
Americas	4.1%	4.3%	5.5%	6.2%	6.6%	6.6%	6.4%	7.2%	6.8%	6.9%	6.6%
North America	*1.3%*	*1.6%*	*1.9%*	*2.1%*	*2.3%*	*2.2%*	*2.3%*	*2.4%*	*2.5%*	*2.4%*	*2.3%*
Central America/Carib.	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*
South America	*2.8%*	*2.7%*	*3.6%*	*4.0%*	*4.2%*	*4.3%*	*4.0%*	*4.7%*	*4.3%*	*4.5%*	*4.2%*
Asia (exc. FSU)	5.5%	5.3%	6.9%	8.1%	9.7%	11.9%	15.1%	19.1%	22.1%	29.1%	34.6%
Eastern Asia	*2.8%*	*2.8%*	*4.0%*	*5.0%*	*6.3%*	*8.1%*	*9.7%*	*12.4%*	*15.2%*	*20.6%*	*24.9%*
South-Eastern Asia	*0.7%*	*0.7%*	*0.9%*	*1.2%*	*1.7%*	*2.0%*	*3.2%*	*3.9%*	*3.6%*	*3.9%*	*4.2%*
Southern Asia	*2.0%*	*1.7%*	*1.9%*	*2.0%*	*1.7%*	*1.8%*	*2.3%*	*2.8%*	*3.3%*	*4.6%*	*5.5%*
Europe	13.1%	14.0%	15.1%	16.3%	16.8%	16.2%	11.6%	5.9%	5.6%	6.8%	6.9%
Western Europe	*0.7%*	*0.7%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.5%*	*0.4%*
Eastern Europe	*3.1%*	*2.9%*	*3.0%*	*3.4%*	*3.6%*	*3.7%*	*2.4%*	*2.2%*	*2.3%*	*2.4%*	*2.6%*
Former Soviet Union	*9.3%*	*10.4%*	*11.5%*	*12.3%*	*12.6%*	*12.0%*	*8.6%*	*3.1%*	*2.7%*	*3.8%*	*3.9%*
Oceania	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Own elaboration based on various sources (see Appendix A).

Note: The group of advanced economies includes 25 countries that by 1990 were already considered as high-income. It includes 16 countries from Europe (Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, United Kingdom, Ireland, Iceland, Italy, Luxemburg, Netherlands, Norway and Sweden), two countries from Northern America (Canada and the USA), five countries from Asia (Brunei Darussalam, Hong Kong, Japan, Singapore and Taiwan) and two countries from Oceania (Australia and New Zealand).

As the table indicates, the geographical distribution of global manufacturing value added has also been changing quite dramatically in the last fifty years. First of all, we can observe a clear shift in the production of manufactures from advanced towards developing economies. Between 1960 and 2013, the share of advanced economies declined by almost 30 percentage points, from 75 to 47% of global manufacturing value added. The other side of the coin, of course, is the emergence of the developing countries as major producers of manufactures. In the last fifty years, developing economies have increased their share from 25 to more than 50% of global manufacturing production. The following figure clearly illustrates these shifts in global production:

Figure 7. *Share on World Manufacturing Value Added between 1960 and 2012 (5-year averages). Comparison between different regions.*



Note: Series calculated using sector-specific PPP converters at the country level.

Source: Table **3.**

Within developing countries the region that has gained most has been Asia. In particular, Eastern Asia, that has increased its share from 3 to 25% of world global manufacturing. South Eastern and South Asia have also increased quite notably their shares. Latin America and some sub-regions of Africa (most notably Northern Africa) have also increased their share in world manufacturing production, though in much more modest ranges. The emergence of the developing world as a key global player in manufacturing production is clearly associated with the dynamics observed in Eastern Asia.

The tables and figures presented so far give interesting insights on the general patterns of structural change and the main geographical shifts that have taken place in the global structure of production in the last half century. In the following section we move deeper into the analysis of the specific industries that have been driving these dynamics.

3.2. Manufacturing industries

In this section we present our estimates at the industry-level. These estimates have been calculated by applying, for each country of our sample, the sector shares in manufacturing value added (at current dollars) to the total PPP converted manufacturing value added estimated in the previous section. Our approach thus faces an important limitation: by using the structure at current dollars it does not account for the fact that the value added of different industries should be converted using different sectoral PPPs. Unfortunately, industry-specific PPP converters at the level of sectoral disaggregation used here for such a large sample of countries are almost impossible to construct or collect. Therefore, our procedure is a second best solution.

Our main data source to estimate the industrial shares at current prices has been the UNIDO INDSTAT database. This source has been complemented with other alternative databases in order to improve the data quality and fill several gaps. In the Appendix B we detail the sources and procedures used.

The disaggregation used is based on the ISIC rev. 3, at two digits. However, in order to maximise the comparability across countries some industries have been merged. The following table presents details on the disaggregation used:

Table 4. *Industrial disaggregation*

No.	Industry	Short	ISIC
1	*Food, beverages and tobacco*	*Food…*	15t16
2	*Textiles, leather and footwear*	*Textiles…*	17t19
3	*Wood, paper and publishing*	*Wood…*	20t22
4	*Coke, refined petroleum and nuclear fuel*	*Ref. Petrol.*	23
5	*Chemicals and chemical*	*Chemicals…*	24
6	*Non-metallic mineral*	*Non-metallic*	25t26
7	*Basic and fabricated metals*	*Metals*	27t28
8	*Machinery, electrical and optical equipment*	*Machinery…*	29t33
9	*Transport equipment*	*Transp. Eq.*	34t35
10	*Manufacturing NEC; Recycling*	*Manuf NEC*	36t37
D	Total Manufacturing		D

Our analysis, thus, will be based on the 10 industries listed in Table 4. As in the previous section, we will present the results in terms of the broad country groups defined before. Due to data availability restrictions, the analysis of this section will only cover the sub-period 1970-2013.

3.2.1. The structure of manufacturing, global and by region

We start by looking at the industry shares in global manufacturing value added during this period. The following table present the estimates for each year of our period. It also includes the percentage change of each industry between 1972 and 2012. As before, all estimates are five-year averages around the specified year.

Table 5. *Industry shares in World's Manufacturing Value Added. 5-year averages, 1972-2012*
[Value Added at Current PPP estimated using sector-specific converters]

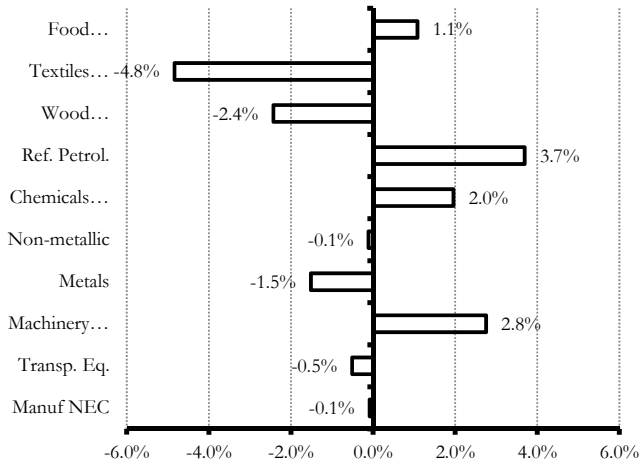
ISIC	Industry	1972	1977	1982	1987	1992	1997	2002	2007	2012	Δ 2012-72 (p.p.)
15t16	*Food…*	12.5%	12.5%	12.8%	12.4%	13.6%	13.7%	13.8%	13.3%	13.6%	1.1%
17t19	*Textiles…*	10.6%	10.0%	9.6%	8.9%	7.9%	7.2%	6.3%	5.7%	5.8%	-4.8%
20t22	*Wood…*	10.3%	9.9%	9.9%	10.1%	9.9%	10.5%	10.0%	8.6%	7.9%	-2.4%
23	*Ref. Petrol.*	2.3%	2.7%	3.1%	3.2%	3.7%	3.6%	4.1%	5.5%	6.0%	3.7%
24	*Chemicals…*	8.8%	9.1%	9.3%	9.5%	10.0%	9.9%	10.2%	10.3%	10.8%	2.0%
25t26	*Non-metallic*	8.5%	8.4%	8.3%	8.5%	8.8%	9.2%	8.9%	8.6%	8.4%	-0.1%
27t28	*Metals*	15.4%	14.6%	13.7%	13.2%	13.3%	12.8%	12.5%	14.0%	13.8%	-1.5%
29t33	*Machinery…*	19.0%	19.8%	20.6%	21.0%	20.0%	20.0%	20.5%	21.2%	21.8%	2.8%
34t35	*Transp. Eq.*	9.5%	9.8%	9.6%	10.2%	9.6%	9.7%	10.2%	9.7%	9.0%	-0.5%
36t37	*Manuf NEC*	3.0%	3.2%	3.1%	3.0%	3.3%	3.5%	3.5%	3.1%	3.0%	-0.1%
D	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%

Source: Own elaboration based on various sources (see Appendix B).

Our results indicate a clear pattern of structural change at the world manufacturing level in the last 40 years. Global manufacturing value added has shifted towards three major industries: *Ref. Petrol.*, *Machinery* and *Chemicals*. Food manufacturing has also increased its share. While the increase in *Ref. Petrol* has been probably driven by price factors, the increase in the other two sectors seem to be more related to the emergence and dynamism of high-tech industries during this period. In clear contrast, three industries have lost important ground in global manufacturing value added: *Textiles*, *Wood* and *Metals*. *Textiles* has seen the largest decline in its share during the period.

The trends summarised in **Error! Reference source not found.** thus provide support for the proposition that in the last decades there has been an important process of structural transformation from low-tech, labour intensive industries towards more high-tech, capital intensive industries. The following figure clearly illustrates this point:

Figure 8. *Industry shares on World Manufacturing Value Added. Difference between 2012 and 1972 (5-year averages), in percentage points.*



However, the pattern of structural transformation depicted in Figure 8 has not been the same across the different regions of the world. As shown in the next table, there are some interesting differences between advanced and developing economies.

Table 6. *Industry shares in Manufacturing Value Added. Advanced and Developing Countries, 5-year averages, 1972 and 2012*

ISIC	Industry	1972		2012		Δ 2012-1972 (in p.p.)	
		Advanced	Developing	Advanced	Developing	Advanced	Developing
15t16	*Food…*	10.7%	16.7%	12.2%	14.8%	1.5%	-1.9%
17t19	*Textiles…*	8.6%	15.3%	2.5%	8.7%	-6.1%	-6.6%
20t22	*Wood…*	11.3%	8.1%	9.9%	6.1%	-1.4%	-2.0%
23	*Ref. Petrol.*	1.7%	3.5%	5.6%	6.3%	3.8%	2.8%
24	*Chemicals…*	8.9%	8.7%	11.5%	10.1%	2.6%	1.4%
25t26	*Non-metallic*	8.0%	9.8%	6.9%	9.8%	-1.1%	0.0%
27t28	*Metals*	16.9%	11.8%	13.1%	14.5%	-3.8%	2.7%
29t33	*Machinery…*	20.5%	15.7%	25.2%	18.7%	4.7%	3.0%
34t35	*Transp. Eq.*	10.4%	7.5%	9.7%	8.4%	-0.7%	0.9%
36t37	*Manuf NEC*	3.1%	2.9%	3.5%	2.5%	0.3%	-0.3%
D	Total	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%

Source: Own elaboration based on various sources (see Appendix B).

Note: The columns within each year distinguish the broad regions defined in the previous section.

The pattern of structural transformation in the group of advanced economies mimics quite closely that of the world. This probably reflects the fact that this group of countries has dominated the global production of manufactures until the late 2000s. Thus, it is plausible that the world pattern is driven mainly by what has occurred in these economies. In the developing world, however, some industries have

moved in a direction opposite to that of the global pattern. *Food* Manufacturing has lost ground while *Metals* and *Transport equipment* have increased their shares between 1972 and 2012.

Looking within the four main regions of developing countries we also find some interesting contrasts. As **Table 7** indicates, the patterns of structural change have been quite different across regions. In Asia, structural change has been clearly oriented towards knowledge-intensive, high-tech industries such as *Machinery* and *Transport Equipment* to the detriment of labour-intensive industries (such as *Textiles*) and natural resource-intensive industries (such as *Food*). In the other regions, instead, the main *winners* have been natural resource-intensive industries: *Chemicals* and *Non-metallic minerals* in Africa & ME, *Food* and *Ref. Petrol.* in Latin America and *Ref. Petrol.* and *Metals* in Europe. High-tech industries such as *Machinery* and *Transport Equipment* have also gain share in Africa & ME and Latin America, but to a much lesser extent than in Asia.

Table 7. *Industry shares in Manufacturing Value Added in developing countries, by region. 5-year averages, 1972 and 2012*

ISIC	Industry	1972				2012				Δ 2012-1972 (in p.p.)			
		Africa & ME	LA	Asia	Europe	Africa & ME	LA	Asia	Europe	Africa & ME	LA	Asia	Europe
15t16	*Food…*	20.9%	19.5%	16.0%	15.2%	20.3%	23.8%	12.3%	15.6%	-0.6%	4.3%	-3.7%	0.3%
17t19	*Textiles…*	14.6%	12.8%	18.1%	15.1%	13.1%	6.1%	9.7%	3.7%	-1.5%	-6.7%	-8.4%	-11.4%
20t22	*Wood…*	7.1%	6.4%	4.9%	10.4%	6.1%	7.3%	5.5%	8.0%	-1.0%	0.9%	0.6%	-2.4%
23	*Ref. Petrol.*	9.9%	3.7%	4.3%	1.9%	8.1%	6.6%	4.2%	15.3%	-1.8%	3.0%	-0.1%	13.4%
24	*Chemicals…*	10.2%	13.1%	11.5%	5.5%	13.6%	11.1%	10.1%	7.2%	3.3%	-2.0%	-1.4%	1.7%
25t26	*Non-metallic*	9.1%	9.8%	9.5%	10.0%	12.2%	8.2%	9.9%	9.1%	3.2%	-1.6%	0.4%	-0.9%
27t28	*Metals*	13.9%	13.5%	12.8%	10.3%	8.7%	14.7%	15.0%	15.6%	-5.2%	1.2%	2.1%	5.3%
29t33	*Machinery…*	7.3%	11.0%	16.0%	18.8%	10.5%	9.2%	22.3%	14.8%	3.1%	-1.7%	6.3%	-4.0%
34t35	*Transp. Eq.*	5.0%	8.1%	4.6%	9.0%	4.0%	10.0%	8.7%	7.7%	-0.9%	2.0%	4.1%	-1.3%
36t37	*Manuf NEC*	2.0%	2.3%	2.1%	3.6%	3.4%	3.0%	2.2%	2.9%	1.5%	0.7%	0.2%	-0.7%
D	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%

Source: Own elaboration based on various sources (see Appendix B).

Note: The columns within each year distinguish the broad regions defined in the previous section.

3.2.2. The share of regions in manufacturing sectors

We turn now to the question of how these sectoral dynamics are reflected in changes in the geographical location of production across the globe. Our last tables, therefore, present the share of country groups (**Table 8**) and developing regions (**Table 9**) in the global value added of each industry. Hence, they provide an indication of how the different country groups and regions have been increasing (or reducing) their participation in the total production of specific industries.

Table 8. *Regional shares in World Manufacturing Value Added by industry. 5-year averages, 1972 and 2012*

ISIC	Industry	1972		2012		Δ2012-1972 (in p.p.)	
		Advanced	Developing	Advanced	Developing	Advanced	Developing
15t16	*Food…*	59.6%	40.4%	42.7%	57.3%	-16.9%	16.9%
17t19	*Textiles…*	56.4%	43.6%	20.5%	79.5%	-35.9%	35.9%
20t22	*Wood…*	76.2%	23.8%	59.4%	40.6%	-16.8%	16.8%
23	*Ref. Petrol.*	53.1%	46.9%	44.3%	55.7%	-8.8%	8.8%
24	*Chemicals…*	70.1%	29.9%	50.6%	49.4%	-19.5%	19.5%
25t26	*Non-metallic*	65.2%	34.8%	38.8%	61.2%	-26.4%	26.4%
27t28	*Metals*	76.8%	23.2%	45.0%	55.0%	-31.8%	31.8%
29t33	*Machinery…*	75.0%	25.0%	54.9%	45.1%	-20.1%	20.1%
34t35	*Transp. Eq.*	76.2%	23.8%	51.2%	48.8%	-25.0%	25.0%
36t37	*Manuf NEC*	71.6%	28.4%	55.4%	44.6%	-16.2%	16.2%
D	Total	69.8%	30.2%	47.5%	52.5%	-22.3%	22.3%

Source: Own elaboration based on various sources (see Appendix B).

Note: The columns within each year distinguish the broad regions defined in the previous section. The horizontal sum for each year yields 100%.

Table 9. *Developing Regions' shares in World Manufacturing Value Added by industry. 5-year averages, 1972 and 2012*

ISIC	Industry	1972				2012				2012-1972 (in p.p.)			
		Africa & ME	LA	Asia	Europe	Africa & ME	LA	Asia	Europe	Africa & ME	LA	Asia	Europe
15t16	*Food…*	4.7%	8.6%	8.8%	18.4%	8.0%	11.5%	31.2%	8.0%	3.3%	2.9%	22.5%	-10.4%
17t19	*Textiles…*	3.8%	6.6%	11.8%	21.4%	4.4%	6.9%	58.1%	4.4%	0.6%	0.3%	46.4%	-17.0%
20t22	*Wood…*	1.9%	3.4%	3.3%	15.2%	7.0%	6.1%	24.1%	7.0%	5.1%	2.7%	20.8%	-8.2%
23	*Ref. Petrol.*	12.2%	8.8%	13.1%	12.7%	17.9%	7.3%	24.5%	17.9%	5.7%	-1.5%	11.4%	5.1%
24	*Chemicals…*	3.2%	8.2%	9.0%	9.5%	4.6%	6.8%	32.4%	4.6%	1.4%	-1.4%	23.4%	-4.8%
25t26	*Non-metallic*	3.0%	6.3%	7.7%	17.8%	7.6%	6.4%	40.8%	7.6%	4.6%	0.1%	33.1%	-10.3%
27t28	*Metals*	2.5%	4.8%	5.8%	10.1%	7.8%	7.0%	37.5%	7.8%	5.3%	2.1%	31.7%	-2.3%
29t33	*Machinery…*	1.1%	3.2%	5.8%	14.9%	4.7%	2.8%	35.5%	4.7%	3.6%	-0.4%	29.7%	-10.2%
34t35	*Transp. Eq.*	1.5%	4.6%	3.4%	14.3%	6.0%	7.3%	33.6%	6.0%	4.5%	2.6%	30.2%	-8.4%
36t37	*Manuf NEC*	1.8%	4.1%	4.6%	17.9%	6.9%	6.5%	26.0%	6.9%	5.1%	2.5%	21.4%	-11.0%
D	Total	2.8%	5.5%	6.9%	15.1%	6.9%	6.6%	34.6%	6.9%	4.2%	1.1%	27.7%	-8.1%

Source: Own elaboration based on various sources (see Appendix B).

Note: The columns within each year distinguish the broad regions defined in the previous section. The horizontal sum for each year yields the total share of Developing economies in the world total for that particular industry (i.e., the corresponding value in Table 8.

As we can see, the global shift of production towards developing countries has been quite stable across industries. With the single exception of *Ref. Petroleum*, these countries have gained between 16 and 36 percentage points of share in the world's total value added in all other industries. The largest shift has taken place in *Textiles*, where the share of developing countries jumped from 43 to almost 80% during the period. Other industries that showed an outstanding performance are *Non-metallic minerals*, *Metals*, *Machinery* and *Transport Equipment*.

When these trends are broken down by region, it becomes clear that they have been driven almost exclusively by Asian developing countries. Across all industries this is by far the region that gained most ground. Consistent with our previous analysis, in Africa–and to a lesser extent also in Latin America– the industries that have expanded the most are typically natural resource-intensive industries such as *Food Manufacturing*, *Wood Products*, *Ref. Petroleum* and *Basic Metals*.

4. Conclusions

In this paper we have presented a newly constructed dataset on the global structure of manufacturing production. The original contribution of this dataset is that it covers almost the entire world for a very long span of time and uses the best available data in order to express all variables in a measure that is internationally comparable. In constructing this dataset we have also explored different measures to analyse the major shifts in global production and we found that the indicator used to measure the level of "industrialisation" is not neutral.

The examination of this dataset in time and space leads to some interesting conclusions. First and foremost, it provides evidence on a process of global process of de-industrialisation. At the world level, the share of manufacturing in GDP has been steadily declining in the last half century. This dynamic has been mostly driven by the advanced economies but not exclusively. Since the late 1980s, the share of manufacturing in GDP has also been falling in all developing regions except Asia.

Secondly, our results point to the emergence of the developing world as a major producer of manufactures. In fact, our estimates suggest that in the most recent years the share of global manufacturing value added in developing countries has been larger than in advanced economies. This phenomenon has been clearly driven by the Asian developing economies.

Third, the use of sectorally specific PPPs to convert manufacturing value added for a large number of countries represents an important methodological advance. For many years UNIDO has calculated the share of manufacturing in global GDP and the shares of developing countries in global manufacturing value added using exchange rates. The use of exchange rates underestimates the share of developing countries in global manufacturing and overestimates the share of manufacturing in global GDP.

Fourth, in constant prices there has been very little change in the structure of global production. In terms of real volumes, there has not been much deindustrialisation. This is clearly related to differences in sectoral price trends. Over time, the price of services increases relative to the price of manufactured goods. A question for further research is whether or not this is a manifestation of Baumol's law which claims that productivity growth in services is slower than in manufacturing.

Finally, the study of these trends at industry level demonstrates that the global structure of manufacturing has shifted in the last four decades towards three major sectors: *Refined petroleum*, *Chemicals* and *Machinery and equipment*. Knowledge-intensive, high-tech industries and natural-resource intensive industries have been driving the global structural change. At the regional level, we have identified some interesting contrasts. While Asia has been moving mainly towards high-tech industries, Africa, Latin America and developing Europe has been moving mainly towards resource-intensive industries.

The broad analysis at country-groups provides only a first step in which this dataset can be exploited. In future research we aim at using this dataset to analyse the patterns of structural change by country looking at the changing income levels. Moreover, we aim to include new data on sectoral employment in order to explore the trends in labour productivity. This can also shed new light on the main drivers of global de-industrialisation and the striking differences between the indicators calculated at constant and current prices.

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APPENDIX A. Constructing the aggregate variables

This appendix details the sources and methods used to construct the various variables analysed throughout Section 3.1. For the sake of clarity, we order the description by variable.

A.1. GDP at current PPPs

For most countries, this variable has been taken from PWT8[11]. Specifically, we have used the variable cgdpo, which is defined as the "Output-side real GDP at current PPPs (in mil. 2005US$)". In order to convert this variable into current prices we have multiplied it for the GDP price deflator of the US, as detailed in the variable pl_gdpo ("Price level of CGDPo (PPP/XR), price level of USA GDPo in 2005=1") of the same data source.

This source provides information for 167 countries between 1950 and 2011. However, it does not provide any estimates for the former communist republics before 1990. Therefore, different data sources have been used to build our figures for USSR, Yugoslavia and Czechoslovakia between 1960 and 1990.

In the case of the USSR the GDP at current PPPs was calculated using estimates of the relative size of the soviet economy as compared to the US published by the CIA. These estimates have been done at PPPs and cover the period 1960-1985. The Soviet GDP was thus calculated multiplying the ratio USSR/US GDP published in CIA (1984)[12] by the GDP at current PPPs for the US obtained before. For the year 1990 the Soviet GDP was calculated summing up the GDP of the former soviet republics as published in PWT8[13].

In the cases of Yugoslavia and Czechoslovakia, the GDP at current PPPs was calculated using a similar procedure. In these cases, however, the relative size with respect to the US was taken from the Conference Board Total Economy Database (TED)[14]. This source provides information on the GDP of both countries (and the US) at constant PPPs of 1990 for the period 1960-1990. Using this data we calculated the relative size of these economies as compared to the US and multiplied these ratios by the GDP at current PPPs of the US obtained before. Since the ratios are calculated in constant prices of 1990 there might be some bias in our estimates. The share of these countries in world manufacturing value added, however, is relatively small so this should not introduce important bias in our global and regional results.

A.2. Manufacturing shares at current LCU

Our main data source for the construction of this variable was the United Nations Statistical Division (UNSD) National Accounts Main Aggregates Database (NAMAD)[15]. This database provides sectoral-level information on value added at current and constant prices for more than 200 countries from 1970 onwards.

For a restricted sample of countries (80 countries) we could build estimates for manufacturing shares on GDP at current LCU for the period 1960-1970. These figures were constructed using several alternative sources (GGDC 10 Sector Database[16], World Bank's WDI Database[17], Szirmai (2011) and the World

[11] Available for download at www.ggdc.net/pwt. See Feenstra et al. (2013) for the details.
[12] This source provides estimates of the USSR/US relative GNI for the years 1960, 1965, 1970, 1975, 1980 and 1983. These benchmarks have been intrapolated to generate yearly estimates.
[13] The estimates for the years 1983-1990 have been calculated by simple intrapolation.
[14] Available for download at http://www.conference-board.org/data/economydatabase/.
[15] Available for download at http://unstats.un.org/unsd/snaama/introduction.asp.
[16] Available for download at http://www.rug.nl/research/ggdc/data/10-sector-database. See Timmer et al. (2014) for the details.
[17] Available for download at http://www.worldbank.org/.

Klems Database[18]). Using these estimates we back cast the regional figures of 1970 (calculated for the whole sample) using the growth rates of the corresponding regional aggregates calculated on the restricted sample. In all cases (except Middle Africa and Eastern Europe) the countries included in the subsample represented more than 80% of the manufacturing value added of the sub-region in 1970. Hence we expect that this procedure would yield accurate estimates for the trends of the whole sample.

For China and Taiwan the NAMAD does not provide information (Taiwan) or the information only covers a restricted period of time (China). Hence, the manufacturing shares in GDP are taken from GGDC 10 Sector Database, and cover the period 1960-2012.

In the case of the USSR the manufacturing shares in GDP from the NAMAD were implausible high. Therefore, we used a different procedure. First we calculated figures of manufacturing value added at current PPPs (sectoral-adjusted) for the year 1990, following the procedure described in section 2.1. Then we back cast these figures to the period 1960-1990 using the Soviet Union manufacturing value added volume indices published in the ICOP Database (benchmark 1987)[19]. Finally, we divided these figures by the GDP at current PPPs obtained in the previous point. Even though the shares obtained combine figures at constant and current prices, they seem more plausible than the shares published by the UNSD. In fact, the resulting shares are in line with estimations at "factor costs" done by the CIA for the year 1950 and 1978 and published in Maddison (1998).

A.3. Manufacturing shares at current PPP

The manufacturing shares at current LCU obtained in the previous step have been then converted into current PPPs using the procedure detailed in Section 2.1.

A.4. Manufacturing Value Added at current PPP

Between 1970 and 2013, this variable has been calculated at the country level, multiplying the GDP at current PPP (see Section A.1) by the manufacturing share in GDP adjusted using the corresponding sectoral PPP ratios (see Section A.2).

For the period 1960-1970, instead, the MVA figures were calculated directly at the regional level using the regional estimates obtained in Section A.2 using the sub-sample of 80 countries.

A.5. GDP at constant 2005 PPPs

For most countries, this variable has been taken from PWT8[20]. Specifically, we have used the variable rgdpo, which is defined as the "Output-side real GDP at chained PPPs (in mil. 2005US$)".

In the cases of Czechoslovakia, the USSR and Yugoslavia, the figures of 1990 obtained by sum have been back cast to 1960 using the data of TED at constant 1990 PPPs.

A.6. Manufacturing Value Added at constant 2005 PPPs

To obtain this variable we have first calculated a benchmark estimate for the year 2005 and then extrapolate this benchmark to the remaining years of the period using volume indices. The 2005 benchmarks were obtained by simple multiplication between the GDP PPP (as described in Section A.1) and the manufacturing share adjusted by the sector PPP ratios (as described in Section A.2). The volume

[18] Available for download at http://www.worldklems.net/.
[19] Available for download at http://www.rug.nl/research/ggdc/data/icop-industrial-database-1987-benchmark.
[20] Available for download at www.ggdc.net/pwt. See Feenstra et al. (2013) for the details.

indices, in turn, were taken from the NAMAD for the period 1970-2012, and from the other sources described in Section A.2 for the period 1960-1970. In the latter period we did the extrapolations at the regional level.

For the cases of the Czechoslovakia and the USSR between 1960 and 1970, the manufacturing volume indices were taken from GGDC ICOP Database, benchmark 1987. Finally, in the case of Yugoslavia we used the data from World Bank (1975).

A.7. Manufacturing shares at constant 2005 PPP

This variable has been calculated at the country level, dividing the manufacturing value added at constant 2005 PPPs (see Section A.6) by the GDP at constant PPPs of the same year (see Section A.7).

A.8. Per Capita GDP at constant 2005

This variable was obtained dividing the figures obtained in Section A.5 by the total population published in the PWT8.

APPENDIX B. Constructing the estimates by industry

This appendix details the sources and methods used to construct the estimates by industry analysed throughout Section 3.2.

B.1. Procedure

Data by industry is typically more difficult to obtain, especially in developing countries before the 1990s. By the same token, industry-specific PPP converters are also rarely available in developing countries. Therefore, our estimates of the world manufacturing value added disaggregated by industries have been calculated following a 2-step procedure:

We estimate regional distributions by industry using the information of some *key countries* for which data of value added at current prices by industry was available. The key countries are defined as countries that accounted for 5% or more of the regional's total manufacturing value added (as estimated in the previous section) and/or accounted for 0.3% or more of world's manufacturing value added, in 1970 or in 2013. In total, there are 78 key countries. However, 11 have been drop due to lack of data. Our regional figures thus are based on the estimates of 67 key countries. See Table B. 1 for the details.

We multiply the regional distribution estimated in the previous point by the total manufacturing value added at current PPPs of the corresponding region. By doing so, we assume that the regional shares by industry are mainly reflecting the shares of the key countries. Furthermore, since we do not make any correction for the differences in PPP converters at the industry level (we are using unadjusted shares by industry) we are also assuming that the PPP adjustment is the same for all industries. This is certainly not the case, but given the data restriction is the best proximate that we can get.

B.2. Industry Shares

The disaggregation by industry for each key country was calculated using the best available source of information. Due to international comparability, information quality and data disaggregation, the following sources have been given priority (in this order)[21]:

1) World Input-Output Database (WIOD)[22]

2) Asia, EU and World KLEMS Databases (KLEMS)[23]

3) UNIDO INDSTAT 2 2014 Database[24]

4) ECLAC Analysis Program of Industrial Dynamics (PADI)[25]

[21] For certain countries these sources have been complemented with information directly published by the National Statistics Institute (NSI).
[22] Available at www.wiod.org. See Timmer (ed) (2012) for details.
[23] Available at asiaklems.net, euklems.net and worldklems.net respectively.
[24] Available at stat.unido.org
[25] See www.cepal.org/en/datos-y-estadisticas for details.

B.3. Definition of Key Countries

The following table presents the shares of each country in regional and global manufacturing Value Added for the years 1970 and 2007. It also identifies the key countries of our sample using the procedure explained above, and details the specific source used to calculate the manufacturing value added distribution by industry.

Table B. 1. *Shares in regional and global manufacturing value added (at current, sectoral-adjusted PPPs) and identification of key countries. 1972 and 2012*

Region/Country	ID	1972		2012		Key country	Source
		Share on Region	Share on World	Share on Region	Share on World		
World	**W**		**100.0%**		**100.0%**		
Advanced	**1**		**69.8%**		**47.5%**		
Americas	11		27.1%		18.7%		
Canada	CAN	6.1%	1.8%	6.1%	1.1%	1	*WIOD+KLEMS*
United States	USA	93.9%	25.3%	93.9%	17.5%	1	*WIOD+KLEMS*
Europe	12		32.7%		20.0%		
Austria	AUT	2.7%	0.7%	2.7%	0.5%	1	*WIOD+KLEMS*
Belgium	BEL	2.6%	1.1%	2.6%	0.5%	1	*WIOD+KLEMS*
Switzerland	CHE	3.5%	1.0%	3.5%	0.7%	1	*Missing*
Germany	DEU	29.7%	8.0%	29.7%	5.9%	1	*WIOD+KLEMS*
Denmark	DNK	1.4%	0.5%	1.4%	0.3%	1	*WIOD+KLEMS*
Spain	ESP	9.3%	2.8%	9.3%	1.9%	1	*WIOD+KLEMS*
Finland	FIN	1.5%	0.4%	1.5%	0.3%	1	*WIOD+KLEMS*
France	FRA	13.0%	5.3%	13.0%	2.6%	1	*WIOD+KLEMS*
United Kingdom	GBR	11.6%	6.1%	11.6%	2.3%	1	*WIOD+KLEMS*
Ireland	IRL	1.7%	0.1%	1.7%	0.3%	1	*WIOD+KLEMS*
Iceland	ISL	0.1%	0.0%	0.1%	0.0%		
Italy	ITA	14.5%	4.3%	14.5%	2.9%	1	*WIOD+KLEMS*
Luxembourg	LUX	0.1%	0.1%	0.1%	0.0%		
Netherlands	NLD	4.4%	1.3%	4.4%	0.9%	1	*WIOD+KLEMS*
Norway	NOR	0.8%	0.1%	0.8%	0.2%		
Sweden	SWE	3.1%	0.9%	3.1%	0.6%	1	*WIOD+KLEMS*
Asia and Oceania	13		10.0%		8.8%		
Australia	AUS	6.6%	1.1%	6.6%	0.6%	1	*WIOD+KLEMS*
Brunei Darussalam	BRN	0.2%	0.0%	0.2%	0.0%		
Hong Kong	HKG	0.4%	0.1%	0.4%	0.0%		
Japan	JPN	72.7%	8.1%	72.7%	6.4%	1	*WIOD+KLEMS*
New Zealand	NZL	1.5%	0.2%	1.5%	0.1%		
Singapore	SGP	4.5%	0.0%	4.5%	0.4%	1	*INDSTAT*
Taiwan	TWN	14.1%	0.4%	14.1%	1.2%	1	*WIOD+INDSTAT*
Developing	**2**		**30.2%**		**52.5%**		
Africa	21		2.8%		4.4%		
North Africa and ME	211		1.5%		3.3%		
Bahrain	BHR	1.2%	0.0%	1.2%	0.0%		
Cyprus	CYP	0.3%	0.0%	0.3%	0.0%		
Egypt	EGY	12.2%	0.1%	12.2%	0.4%	1	*INDSTAT*
Iraq	IRQ	1.0%	0.1%	1.0%	0.0%		
Israel	ISR	7.0%	0.2%	7.0%	0.2%	1	*INDSTAT*
Jordan	JOR	1.3%	0.0%	1.3%	0.0%		
Kuwait	KWT	2.5%	0.1%	2.5%	0.1%	1	*INDSTAT*
Lebanon	LBN	1.0%	0.0%	1.0%	0.0%		
Morocco	MAR	4.4%	0.1%	4.4%	0.1%	1	*INDSTAT*
Oman	OMN	2.2%	0.0%	2.2%	0.1%		
Qatar	QAT	4.5%	0.0%	4.5%	0.2%	1	*Missing*
Saudi Arabia	SAU	17.8%	0.2%	17.8%	0.6%	1	*INDSTAT*
Sudan	SDN	1.5%	0.0%	1.5%	0.1%		
Syrian Arab Republic	SYR	0.9%	0.0%	0.9%	0.0%		
Tunisia	TUN	2.6%	0.0%	2.6%	0.1%	1	*INDSTAT*
Turkey	TUR	38.7%	0.8%	38.7%	1.3%	1	*WIOD+INDSTAT*
Yemen	YEM	0.8%	-	0.8%	0.0%		

Table B.1. *Shares On regional and global manufacturing value added (at current, sectoral adjusted PPPs) and identification of key countries. 1972 and 2012 (Cont.)*

Region/Country	ID	1972		2012		Key country	Source
		Share on Region	Share on World	Share on Region	Share on World		
Sub-Saharan Africa	212		1.3%		1.1%		
Angola	AGO	3.0%	0.0%	3.0%	0.0%	1	*Missing*
Burundi	BDI	0.2%	0.0%	0.2%	0.0%		
Benin	BEN	0.5%	0.0%	0.5%	0.0%		
Burkina Faso	BFA	0.8%	0.0%	0.8%	0.0%		
Botswana	BWA	1.1%	0.0%	1.1%	0.0%		
Central African Rep.	CAF	0.2%	0.0%	0.2%	0.0%		
Côte d'Ivoire	CIV	2.9%	0.0%	2.9%	0.0%	1	*INDSTAT*
Cameroon	CMR	3.3%	0.0%	3.3%	0.0%	1	*INDSTAT*
Congo	COG	0.2%	0.0%	0.2%	0.0%		
Comoros	COM	0.0%	0.0%	0.0%	0.0%		
Cabo Verde	CPV	0.1%	0.0%	0.1%	0.0%		
Djibouti	DJI	0.0%	0.0%	0.0%	0.0%		
Ethiopia	ETH	1.6%	0.0%	1.6%	0.0%		
Gabon	GAB	0.8%	0.0%	0.8%	0.0%		
Ghana	GHA	2.2%	0.0%	2.2%	0.0%		
Guinea	GIN	0.3%	0.0%	0.3%	0.0%		
Gambia	GMB	0.1%	0.0%	0.1%	0.0%		
Guinea-Bissau	GNB	0.1%	0.0%	0.1%	0.0%		
Equatorial Guinea	GNQ	0.0%	0.0%	0.0%	0.0%		
Kenya	KEN	3.9%	0.0%	3.9%	0.0%	1	*INDSTAT*
Liberia	LBR	0.1%	0.0%	0.1%	0.0%		
Lesotho	LSO	0.2%	0.0%	0.2%	0.0%		
Madagascar	MDG	1.1%	0.0%	1.1%	0.0%		
Mali	MLI	0.6%	0.0%	0.6%	0.0%		
Mozambique	MOZ	1.4%	0.0%	1.4%	0.0%		
Mauritania	MRT	0.3%	0.0%	0.3%	0.0%		
Mauritius	MUS	1.7%	0.0%	1.7%	0.0%		
Malawi	MWI	0.7%	0.0%	0.7%	0.0%		
Namibia	NAM	1.2%	0.0%	1.2%	0.0%		
Niger	NER	0.3%	0.0%	0.3%	0.0%		
Nigeria	NGA	11.8%	0.2%	11.8%	0.1%	1	*INDSTAT*
Rwanda	RWA	0.4%	0.0%	0.4%	0.0%		
Senegal	SEN	1.6%	0.0%	1.6%	0.0%		
Sierra Leone	SLE	0.1%	0.0%	0.1%	0.0%		
Sao Tome&Principe	STP	0.0%	0.0%	0.0%	0.0%		
Swaziland	SWZ	1.2%	0.0%	1.2%	0.0%		
Chad	TCD	0.5%	0.0%	0.5%	0.0%		
Togo	TGO	0.3%	0.0%	0.3%	0.0%		
Tanzania	TZA	2.9%	0.1%	2.9%	0.0%	1	*INDSTAT*
Uganda	UGA	2.5%	0.0%	2.5%	0.0%	1	*INDSTAT*
South Africa	ZAF	45.0%	0.7%	45.0%	0.5%	1	*INDSTAT*
D.R. of the Congo	ZAR	2.1%	0.0%	2.1%	0.0%		
Zambia	ZMB	1.3%	0.0%	1.3%	0.0%		
Zimbabwe	ZWE	1.3%	0.0%	1.3%	0.0%		
Americas	22		5.5%		6.6%		
North America	221		1.9%		2.3%		
Mexico	MEX	100.0%	1.9%	100.0%	2.3%	1	*WIOD+INDSTAT*
C. America & Carib.	222		0.0%		0.1%		
Costa Rica	CRI	100.0%	0.0%	100.0%	0.1%	1	*INDSTAT*
South America	223		3.6%		4.2%		
Argentina	ARG	19.3%	0.4%	19.3%	0.8%	1	*INDSTAT*
Bolivia	BOL	0.7%	0.0%	0.7%	0.0%		
Brazil	BRA	48.6%	1.9%	48.6%	2.1%	1	*WIOD+INDSTAT*
Chile	CHL	5.9%	0.2%	5.9%	0.2%	1	*INDSTAT*
Colombia	COL	8.3%	0.4%	8.3%	0.4%	1	*INDSTAT*
Ecuador	ECU	2.3%	0.0%	2.3%	0.1%		
Peru	PER	6.6%	0.2%	6.6%	0.3%	1	*INDSTAT*
Paraguay	PRY	0.5%	0.0%	0.5%	0.0%		
Uruguay	URY	1.0%	0.1%	1.0%	0.0%		
Venezuela	VEN	6.7%	0.5%	6.7%	0.3%	1	*INDSTAT*

Table B.1. *Shares in regional and global manufacturing value added (at current, sectoral adjusted PPPs) and identification of key countries. 1972 and 2012 (Cont.)*

Region/Country	ID	1972		2012		Key country	Source
		Share on Region	Share on World	Share on Region	Share on World		
Asia (exc. FSU)	23		6.9%		34.6%		
Eastern Asia	231		4.0%		24.9%		
China	CHN	87.6%	3.7%	87.6%	21.8%	1	*WIOD+INDSTAT*
Republic of Korea	KOR	12.4%	0.3%	12.4%	3.1%	1	*WIOD+KLEMS*
Macao	MAC	0.0%	0.0%	0.0%	0.0%		
Mongolia	MNG	0.0%	0.0%	0.0%	0.0%		
South-Eastern Asia	232		0.9%		4.2%		
Indonesia	IDN	39.4%	0.3%	39.4%	1.7%	1	*WIOD+INDSTAT*
Cambodia	KHM	0.8%	0.0%	0.8%	0.0%		
Lao People's DR	LAO	0.2%	0.0%	0.2%	0.0%		
Malaysia	MYS	15.9%	0.1%	15.9%	0.7%	1	*INDSTAT*
Philippines	PHL	11.6%	0.3%	11.6%	0.5%	1	*INDSTAT*
Thailand	THA	25.5%	0.2%	25.5%	1.1%	1	*INDSTAT*
Viet Nam	VNM	6.7%	0.1%	6.7%	0.3%	1	*Missing*
Southern Asia	233		1.9%		5.5%		
Bangladesh	BGD	4.7%	0.1%	4.7%	0.3%	1	*INDSTAT*
Bhutan	BTN	0.0%	0.0%	0.0%	0.0%		
India	IND	76.4%	1.5%	76.4%	4.2%	1	*WIOD+INDSTAT*
Iran	IRN	10.0%	0.2%	10.0%	0.5%	1	*INDSTAT*
Sri Lanka	LKA	2.1%	0.1%	2.1%	0.1%		
Maldives	MDV	0.0%	0.0%	0.0%	0.0%		
Nepal	NPL	0.3%	0.0%	0.3%	0.0%		
Pakistan	PAK	6.4%	0.1%	6.4%	0.4%	1	*INDSTAT*
Europe	24		15.1%		6.9%		
Western Europe	241		0.6%		0.4%		
Greece	GRC	40.4%	0.3%	40.4%	0.2%	1	*WIOD+KLEMS*
Malta	MLT	2.2%	0.0%	2.2%	0.0%		
Portugal	PRT	57.5%	0.3%	57.5%	0.3%	1	*WIOD+KLEMS*
Eastern Europe	242		3.0%		2.6%		
Albania	ALB	0.4%	0.0%	0.4%	0.0%		
Bulgaria	BGR	2.8%	0.1%	2.8%	0.1%	1	*Missing*
Bosnia & Herzegov.	BIH	0.9%	-	0.9%	0.0%		
Czech Republic	CZE	15.8%	-	15.8%	0.4%	1	*WIOD*
Czechoslovakia	CZE_f	-	1.0%	-	-	1	*INDSTAT*
Croatia	HRV	2.9%	-	2.9%	0.1%	1	*Missing*
Hungary	HUN	11.4%	0.2%	11.4%	0.3%	1	*WIOD+INDSTAT*
Macedonia	MKD	0.5%	-	0.5%	0.0%		
Montenegro	MNE	0.1%	-	0.1%	0.0%		
Poland	POL	35.7%	0.8%	35.7%	0.9%	1	*WIOD+INDSTAT*
Romania	ROM	17.4%	0.4%	17.4%	0.4%	1	*WIOD+INDSTAT*
Serbia	SRB	2.7%	-	2.7%	0.1%	1	*Missing*
Slovakia	SVK	6.3%	-	6.3%	0.2%	1	*WIOD*
Slovenia	SVN	3.1%	-	3.1%	0.1%	1	*Missing*
Yugoslavia	YUG	-	0.5%	-	-	1	*INDSTAT*
Former Soviet Union	243		11.5%		3.9%		
Armenia	ARM	0.3%	-	0.3%	0.0%		
Azerbaijan	AZE	0.7%	-	0.7%	0.0%		
Belarus	BLR	7.0%	-	7.0%	0.3%	1	*Missing*
Estonia	EST	0.8%	-	0.8%	0.0%		
Georgia	GEO	0.5%	-	0.5%	0.0%		
Kazakhstan	KAZ	5.0%	-	5.0%	0.2%	1	*Missing*
Kyrgyzstan	KGZ	0.3%	-	0.3%	0.0%		
Lithuania	LTU	2.0%	-	2.0%	0.1%		
Latvia	LVA	0.8%	-	0.8%	0.0%		
Rep. of Moldova	MDA	0.2%	-	0.2%	0.0%		
Russian Federation	RUS	73.9%	-	73.9%	2.9%	1	*WIOD*
Tajikistan	TJK	0.3%	-	0.3%	0.0%		
Ukraine	UKR	8.1%	-	8.1%	0.3%	1	*Missing*
USSR	USSR	-	11.5%	-	-	1	*INDSTAT*
Oceania	25		0.0%		0.0%		
Fiji	FJI	100.0%	0.0%	100.0%	0.0%	1	*INDSTAT*

APPENDIX C. Results by region using alternative measures

The following tables present the results of the regional estimates using alternative measures (See Section 2.2).

Table C. 1. *Manufacturing Share in GDP, by region. 5-year averages, 1962-2013.*
[Value Added at Current PPP estimated using GDP converter]

Name	1962	1967	1972	1977	1982	1987	1992	1997	2002	2007	2012
World	**26.4%**	**26.0%**	**25.3%**	**25.0%**	**24.1%**	**24.1%**	**22.3%**	**21.6%**	**20.1%**	**19.5%**	**18.3%**
Advanced	**29.7%**	**28.8%**	**26.5%**	**25.0%**	**23.1%**	**22.2%**	**20.5%**	**19.6%**	**17.8%**	**16.3%**	**14.8%**
Americas	23.7%	23.8%	20.9%	20.1%	18.2%	16.9%	15.6%	15.4%	13.4%	12.1%	11.9%
Europe	36.1%	33.9%	31.0%	29.3%	26.7%	26.3%	23.6%	22.6%	21.1%	19.1%	16.5%
Asia & Oceania	31.2%	30.9%	30.9%	27.4%	27.2%	27.0%	25.2%	22.9%	21.0%	20.2%	18.1%
Developing	**21.6%**	**22.1%**	**23.5%**	**24.9%**	**25.3%**	**26.4%**	**24.7%**	**24.3%**	**23.2%**	**22.8%**	**21.1%**
Africa & M.E.	13.1%	14.9%	15.0%	15.1%	15.9%	18.4%	18.1%	17.6%	14.5%	12.3%	11.8%
N. Af./Middle East	*12.4%*	*14.0%*	*13.9%*	*13.4%*	*14.4%*	*19.3%*	*19.1%*	*18.7%*	*14.9%*	*13.0%*	*12.9%*
Sub-Saharan Africa	*13.8%*	*15.9%*	*16.3%*	*17.5%*	*18.0%*	*17.1%*	*16.5%*	*15.3%*	*13.8%*	*10.9%*	*9.8%*
Americas	22.9%	22.8%	24.7%	24.7%	23.3%	25.1%	21.6%	20.6%	20.2%	18.8%	16.0%
North America	*18.0%*	*20.4%*	*21.8%*	*21.1%*	*18.9%*	*22.1%*	*21.6%*	*24.1%*	*21.7%*	*19.8%*	*18.4%*
Central America/Carib.	*20.6%*	*21.2%*	*23.1%*	*22.8%*	*24.4%*	*25.4%*	*23.4%*	*24.4%*	*22.5%*	*20.2%*	*16.4%*
South America	*25.3%*	*24.2%*	*26.2%*	*26.6%*	*26.0%*	*26.5%*	*21.6%*	*19.4%*	*19.5%*	*18.3%*	*15.1%*
Asia (exc. FSU)	19.3%	19.0%	22.2%	24.8%	26.2%	27.0%	27.6%	28.7%	27.8%	28.2%	26.0%
Eastern Asia	*27.7%*	*27.0%*	*32.5%*	*35.8%*	*34.5%*	*33.0%*	*33.7%*	*35.1%*	*34.0%*	*34.9%*	*32.6%*
South-Eastern Asia	*15.2%*	*16.1%*	*18.5%*	*19.6%*	*21.3%*	*24.4%*	*27.0%*	*28.4%*	*28.7%*	*27.5%*	*24.2%*
Southern Asia	*14.1%*	*13.2%*	*13.9%*	*15.0%*	*15.5%*	*15.7%*	*16.0%*	*16.2%*	*15.2%*	*15.6%*	*14.2%*
Europe	25.7%	26.3%	27.0%	28.8%	29.2%	29.4%	25.0%	20.9%	18.5%	17.5%	16.1%
Western Europe	*27.8%*	*24.4%*	*18.9%*	*17.8%*	*17.5%*	*17.4%*	*15.7%*	*14.7%*	*13.0%*	*11.3%*	*10.4%*
Eastern Europe	*31.0%*	*30.8%*	*31.4%*	*32.3%*	*32.7%*	*33.8%*	*25.0%*	*21.3%*	*20.1%*	*20.0%*	*19.8%*
Former Soviet Union	*24.1%*	*25.3%*	*26.5%*	*28.6%*	*29.0%*	*28.9%*	*25.9%*	*22.0%*	*18.6%*	*17.1%*	*15.0%*
Oceania	16.8%	15.2%	12.8%	14.2%	12.3%	12.2%	13.9%	14.4%	15.4%	14.5%	14.8%

Source: Own elaboration based on various sources (see Appendix A).

Table C. 2. *Share in World's Manufacturing Value Added, by region. 5-year averages, 1962-2012. [Value Added at Current PPP estimated using GDP converter]*

Name	1962	1967	1972	1977	1982	1987	1992	1997	2002	2007	2012
World	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Advanced	**66.6%**	**65.4%**	**60.6%**	**56.8%**	**53.8%**	**51.6%**	**52.9%**	**52.6%**	**50.0%**	**41.6%**	**36.4%**
Americas	25.2%	25.4%	21.0%	19.7%	18.4%	17.4%	17.0%	17.7%	16.3%	13.3%	12.7%
Europe	33.9%	31.1%	28.9%	26.8%	24.2%	22.6%	22.3%	22.3%	22.4%	18.5%	15.3%
Asia & Oceania	7.5%	8.9%	10.8%	10.3%	11.2%	11.6%	13.6%	12.6%	11.3%	9.7%	8.4%
Developing	**33.4%**	**34.6%**	**39.4%**	**43.2%**	**46.2%**	**48.4%**	**47.1%**	**47.4%**	**50.0%**	**58.4%**	**63.6%**
Africa & M.E.	2.8%	3.2%	3.6%	3.9%	4.2%	4.5%	4.7%	4.8%	4.5%	4.7%	5.3%
N. Af./Middle East	*1.3%*	*1.6%*	*1.9%*	*2.1%*	*2.3%*	*2.8%*	*3.2%*	*3.5%*	*3.1%*	*3.3%*	*3.7%*
Sub-Saharan Africa	*1.5%*	*1.6%*	*1.7%*	*1.8%*	*1.9%*	*1.6%*	*1.5%*	*1.4%*	*1.4%*	*1.4%*	*1.6%*
Americas	4.8%	5.0%	6.1%	6.7%	7.0%	7.0%	6.8%	7.4%	7.1%	6.9%	6.3%
North America	*1.3%*	*1.6%*	*1.8%*	*2.0%*	*2.1%*	*2.0%*	*2.1%*	*2.2%*	*2.3%*	*2.1%*	*1.9%*
Central America/Carib.	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*
South America	*3.5%*	*3.4%*	*4.3%*	*4.7%*	*4.8%*	*4.9%*	*4.6%*	*5.1%*	*4.7%*	*4.7%*	*4.3%*
Asia (exc. FSU)	9.3%	9.0%	11.4%	13.2%	15.4%	18.3%	22.9%	28.3%	32.1%	39.7%	44.9%
Eastern Asia	*5.0%*	*5.0%*	*6.8%*	*8.2%*	*10.1%*	*12.5%*	*14.7%*	*18.5%*	*22.0%*	*27.9%*	*32.0%*
South-Eastern Asia	*1.2%*	*1.1%*	*1.5%*	*1.9%*	*2.5%*	*3.0%*	*4.6%*	*5.4%*	*5.2%*	*5.4%*	*5.6%*
Southern Asia	*3.2%*	*2.8%*	*3.1%*	*3.1%*	*2.7%*	*2.8%*	*3.5%*	*4.3%*	*5.0%*	*6.4%*	*7.2%*
Europe	16.4%	17.4%	18.3%	19.4%	19.7%	18.7%	12.8%	6.8%	6.3%	7.1%	7.1%
Western Europe	*0.7%*	*0.7%*	*0.6%*	*0.6%*	*0.5%*	*0.5%*	*0.6%*	*0.6%*	*0.6%*	*0.4%*	*0.4%*
Eastern Europe	*4.1%*	*3.8%*	*3.9%*	*4.3%*	*4.4%*	*4.5%*	*2.8%*	*2.5%*	*2.5%*	*2.6%*	*2.7%*
Former Soviet Union	*11.6%*	*12.9%*	*13.8%*	*14.6%*	*14.7%*	*13.6%*	*9.4%*	*3.8%*	*3.2%*	*4.1%*	*4.1%*
Oceania	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Own elaboration based on various sources (see Appendix A).

Table C. 3. *Manufacturing Share over GDP, by region. 5-year averages, 1962-2012.*
[Value Added at Current USD]

Name	1962	1967	1972	1977	1982	1987	1992	1997	2002	2007	2012
World	**26.9%**	**26.7%**	**25.6%**	**24.9%**	**23.3%**	**23.1%**	**21.6%**	**20.6%**	**18.9%**	**18.1%**	**17.2%**
Advanced	**28.9%**	**28.2%**	**26.2%**	**25.0%**	**23.0%**	**22.5%**	**21.1%**	**19.9%**	**17.8%**	**16.3%**	**14.7%**
Americas	23.7%	23.8%	20.9%	20.1%	18.2%	16.9%	15.6%	15.4%	13.4%	12.1%	11.8%
Europe	36.4%	33.9%	30.8%	28.9%	26.5%	26.1%	23.5%	22.3%	20.9%	18.9%	16.5%
Asia & Oceania	31.3%	30.9%	30.6%	27.0%	26.8%	26.9%	25.5%	23.4%	21.5%	20.2%	17.4%
Developing	**22.8%**	**23.4%**	**24.4%**	**24.7%**	**24.0%**	**25.2%**	**23.3%**	**23.1%**	**22.4%**	**22.0%**	**21.1%**
Africa & M.E.	14.6%	16.1%	16.0%	15.5%	14.9%	17.5%	17.9%	17.2%	14.3%	12.6%	11.5%
N. Af./Middle East	*15.2%*	*16.4%*	*15.4%*	*13.9%*	*12.2%*	*17.7%*	*18.6%*	*18.0%*	*14.5%*	*13.2%*	*12.4%*
Sub-Saharan Africa	*14.0%*	*15.9%*	*16.5%*	*17.9%*	*18.8%*	*17.3%*	*16.6%*	*15.3%*	*13.7%*	*11.2%*	*9.6%*
Americas	24.3%	24.4%	25.7%	26.0%	24.2%	25.7%	21.9%	20.7%	20.4%	18.7%	15.9%
North America	*18.0%*	*20.4%*	*21.8%*	*21.1%*	*19.1%*	*22.2%*	*21.5%*	*24.2%*	*21.7%*	*19.8%*	*18.4%*
Central America/Carib.	*20.6%*	*21.2%*	*23.1%*	*22.7%*	*24.2%*	*25.4%*	*23.4%*	*24.5%*	*22.4%*	*20.2%*	*16.3%*
South America	*26.3%*	*25.9%*	*27.3%*	*27.9%*	*26.5%*	*27.0%*	*22.1%*	*19.7%*	*19.5%*	*18.2%*	*15.1%*
Asia (exc. FSU)	20.2%	19.9%	22.8%	23.7%	23.4%	24.7%	26.6%	28.5%	28.5%	29.2%	27.7%
Eastern Asia	*27.4%*	*27.0%*	*32.4%*	*35.2%*	*34.1%*	*32.6%*	*32.5%*	*34.0%*	*33.5%*	*34.6%*	*32.5%*
South-Eastern Asia	*17.5%*	*18.0%*	*19.0%*	*19.7%*	*21.3%*	*24.8%*	*27.6%*	*28.8%*	*29.1%*	*27.7%*	*24.5%*
Southern Asia	*14.4%*	*13.3%*	*13.9%*	*13.7%*	*13.7%*	*15.1%*	*15.6%*	*16.1%*	*15.2%*	*15.6%*	*14.1%*
Europe	25.6%	26.2%	27.0%	28.7%	29.0%	29.4%	23.8%	19.9%	17.8%	17.2%	15.9%
Western Europe	*27.1%*	*24.1%*	*18.9%*	*17.8%*	*17.4%*	*17.3%*	*15.7%*	*14.7%*	*12.9%*	*11.2%*	*10.3%*
Eastern Europe	*32.1%*	*31.5%*	*31.8%*	*32.2%*	*32.8%*	*34.6%*	*24.8%*	*21.4%*	*20.2%*	*20.2%*	*20.1%*
Former Soviet Union	*24.1%*	*25.3%*	*26.5%*	*28.6%*	*29.0%*	*29.0%*	*25.8%*	*21.6%*	*18.2%*	*16.9%*	*14.8%*
Oceania	16.8%	15.3%	12.9%	14.2%	12.4%	12.2%	13.9%	14.3%	15.4%	14.5%	14.8%

Source: Own elaboration based on various sources (see Appendix A).

Table C. 4. *Share in World's Manufacturing Value Added, by region. 5-year averages, 1962-2012. [Value Added at Current PPP estimated using GDP converter]*

Name	1962	1967	1972	1977	1982	1987	1992	1997	2002	2007	2012
World	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Advanced	**72.0%**	**71.8%**	**70.0%**	**69.5%**	**68.6%**	**75.0%**	**77.6%**	**74.9%**	**72.3%**	**61.9%**	**51.7%**
Americas	32.6%	32.2%	25.7%	22.6%	23.6%	22.7%	20.5%	22.0%	23.3%	18.7%	17.6%
Europe	33.0%	31.4%	32.5%	34.0%	30.6%	32.3%	34.2%	32.1%	31.1%	29.8%	22.3%
Asia & Oceania	6.4%	8.2%	11.9%	12.9%	14.4%	19.9%	22.9%	20.9%	17.9%	13.4%	11.8%
Developing	**28.0%**	**28.2%**	**30.0%**	**30.5%**	**31.4%**	**25.0%**	**22.4%**	**25.1%**	**27.7%**	**38.1%**	**48.3%**
Africa & M.E.	2.0%	2.2%	2.7%	3.4%	3.6%	2.9%	3.1%	3.1%	2.9%	3.5%	4.1%
N. Af./Middle East	*1.0%*	*1.1%*	*1.3%*	*1.8%*	*1.7%*	*1.8%*	*2.1%*	*2.3%*	*2.1%*	*2.6%*	*3.0%*
Sub-Saharan Africa	*1.0%*	*1.1%*	*1.3%*	*1.6%*	*1.9%*	*1.1%*	*1.0%*	*0.8%*	*0.8%*	*0.9%*	*1.1%*
Americas	4.5%	4.5%	5.1%	5.7%	6.1%	5.0%	5.2%	6.3%	5.8%	6.5%	6.8%
North America	*0.8%*	*1.0%*	*1.2%*	*1.3%*	*1.5%*	*1.1%*	*1.6%*	*1.6%*	*2.3%*	*2.0%*	*1.8%*
Central America/Carib.	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*
South America	*3.7%*	*3.4%*	*3.9%*	*4.4%*	*4.6%*	*3.8%*	*3.5%*	*4.6%*	*3.5%*	*4.5%*	*5.0%*
Asia (exc. FSU)	6.0%	5.4%	6.0%	6.7%	8.2%	7.6%	9.0%	12.2%	15.2%	22.2%	31.7%
Eastern Asia	*3.4%*	*3.2%*	*3.8%*	*4.1%*	*4.7%*	*4.4%*	*5.3%*	*7.9%*	*10.7%*	*16.4%*	*24.4%*
South-Eastern Asia	*0.7%*	*0.7%*	*0.8%*	*1.1%*	*1.6%*	*1.5%*	*2.2%*	*2.6%*	*2.5%*	*3.1%*	*4.0%*
Southern Asia	*1.9%*	*1.5%*	*1.5%*	*1.5%*	*1.9%*	*1.7%*	*1.5%*	*1.7%*	*1.9%*	*2.7%*	*3.3%*
Europe	15.5%	16.2%	16.2%	14.6%	13.4%	9.5%	5.1%	3.6%	3.7%	5.8%	5.6%
Western Europe	*0.6%*	*0.6%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.4%*
Eastern Europe	*3.3%*	*3.0%*	*3.0%*	*3.1%*	*3.1%*	*2.8%*	*1.3%*	*1.4%*	*1.7%*	*2.4%*	*2.2%*
Former Soviet Union	*11.6%*	*12.6%*	*12.6%*	*11.0%*	*9.9%*	*6.2%*	*3.2%*	*1.5%*	*1.5%*	*2.8%*	*2.9%*
Oceania	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Own elaboration based on various sources (see Appendix A).

Table C. 5. *Manufacturing Share over GDP, by region. 5-year averages, 1962-2012.*
[Value Added at Constant PPPs of 2005]

Name	1962	1967	1972	1977	1982	1987	1992	1997	2002	2007	2012
World			**14.9%**	**14.6%**	**14.5%**	**14.6%**	**14.0%**	**14.2%**	**14.1%**	**13.6%**	**13.3%**
Advanced			**19.8%**	**18.9%**	**18.2%**	**18.2%**	**16.9%**	**16.0%**	**15.0%**	**14.5%**	**13.3%**
Americas			14.2%	13.8%	13.3%	13.5%	13.0%	13.2%	12.3%	12.2%	10.2%
Europe			25.3%	24.0%	22.8%	22.6%	20.6%	19.0%	18.1%	16.9%	16.1%
Asia & Oceania			22.0%	19.9%	20.5%	20.7%	18.0%	16.3%	15.2%	14.7%	14.5%
Developing			**8.7%**	**9.5%**	**9.9%**	**10.3%**	**10.3%**	**11.9%**	**12.8%**	**12.6%**	**13.3%**
Africa & M.E.			6.6%	6.8%	7.6%	9.0%	9.0%	9.0%	8.1%	7.1%	6.8%
N. Af./Middle East			*6.2%*	*6.4%*	*7.4%*	*9.4%*	*9.4%*	*9.5%*	*8.5%*	*7.7%*	*7.9%*
Sub-Saharan Africa			*7.2%*	*7.4%*	*7.8%*	*8.5%*	*8.3%*	*7.9%*	*7.3%*	*5.9%*	*4.9%*
Americas			18.7%	18.6%	17.3%	17.3%	15.5%	13.6%	14.2%	12.8%	12.1%
North America			*15.5%*	*15.6%*	*15.0%*	*16.4%*	*17.3%*	*19.7%*	*18.0%*	*14.9%*	*14.9%*
Central America/Carib.			*10.2%*	*11.3%*	*11.2%*	*11.3%*	*11.4%*	*12.3%*	*13.6%*	*15.2%*	*14.8%*
South America			*20.4%*	*20.3%*	*18.8%*	*17.9%*	*14.7%*	*11.6%*	*12.6%*	*11.8%*	*11.1%*
Asia (exc. FSU)			4.8%	5.9%	7.1%	8.1%	9.6%	12.5%	13.9%	14.6%	16.0%
Eastern Asia			*4.2%*	*5.5%*	*6.3%*	*7.2%*	*9.5%*	*14.5%*	*16.8%*	*18.5%*	*21.0%*
South-Eastern Asia			*8.2%*	*9.1%*	*9.6%*	*10.9%*	*12.0%*	*12.8%*	*14.7%*	*13.8%*	*13.3%*
Southern Asia			*4.2%*	*5.0%*	*6.8%*	*8.0%*	*8.0%*	*8.3%*	*7.8%*	*7.6%*	*7.4%*
Europe			8.9%	9.8%	10.1%	10.1%	8.9%	10.4%	11.8%	10.8%	10.1%
Western Europe			*13.5%*	*14.2%*	*14.5%*	*13.9%*	*12.0%*	*10.8%*	*9.5%*	*8.9%*	*7.9%*
Eastern Europe			*11.8%*	*13.4%*	*14.1%*	*14.6%*	*11.2%*	*11.0%*	*11.9%*	*13.7%*	*14.3%*
Former Soviet Union			*7.9%*	*8.6%*	*8.7%*	*8.7%*	*7.9%*	*10.1%*	*12.3%*	*9.6%*	*8.3%*
Oceania			8.3%	7.6%	7.7%	7.3%	7.4%	8.5%	10.2%	10.0%	10.3%

Source: Own elaboration based on various sources (see Appendix A).

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