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Deindustrialization? A global perspective

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HIGHLIGHTS

- We gather manufacturing employment and output shares for 82% of the world's population, 1970–2010.
- Manufacturing's share in global employment and output did not decline.
- In contrast, both shares tended to decline within countries ("premature industrialization").
- Within countries, productivity grew much faster in manufacturing than in non-manufacturing.
- This difference is much smaller globally because factory jobs moved to less productive countries.

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ABSTRACT

Recent studies show that, *within countries,* manufacturing labor productivity growth has outstripped aggregate labor productivity growth, putting significant downwards pressure on national manufacturing employment shares. We compile the first (nearly) global database of national manufacturing employment and output levels over time, and use it to document two facts seemingly at odds with these results: (1) the manufacturing sector's share of global employment did not fall between 1970 and 2010; and (2) manufacturing and aggregate labor productivity at the global level grew at similar rates. We show that these trends occurred because rapid within-country manufacturing productivity growth was counterbalanced by a shift of manufacturing jobs towards lower productivity economies.

1. Introduction

Recent studies show that industrialization has become more difficult[1]: the per capita GDP at which countries might expect to see their manufacturing employment shares begin to decline has fallen over time, as have the highest manufacturing employment shares that countries achieve before beginning to deindustrialize. Manufacturing shares in national value added display the same declining trends, but much less acutely. Within countries, output per worker has therefore risen much faster in manufacturing than in non-manufacturing. This has given rise to speculation, some of it fearful, that technology is depriving the world of manufacturing jobs.

We argue that these trends must be placed in a global context. After all, manufacturing supply chains have globalized during the period that these concerns arise, and now involve far more and different countries than they once did. Any sensible assessment of past manufacturing employment trends and future possibilities must take this into account. We do so by assembling a dataset of manufacturing employment and output levels covering 64 countries accounting for 82% of the world's population, and the years 1970–2010. This appears to be the most comprehensive database of manufacturing employment shares available to date. Using this "global" database, we document two trends that appear paradoxical in light of the national trends described above: the manufacturing sector's shares of both global employment and

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[1] For example: Dasgupta and Singh (2007), Felipe et al. (2014), Amirapu and Subramanian (2015), and Rodrik (2016).

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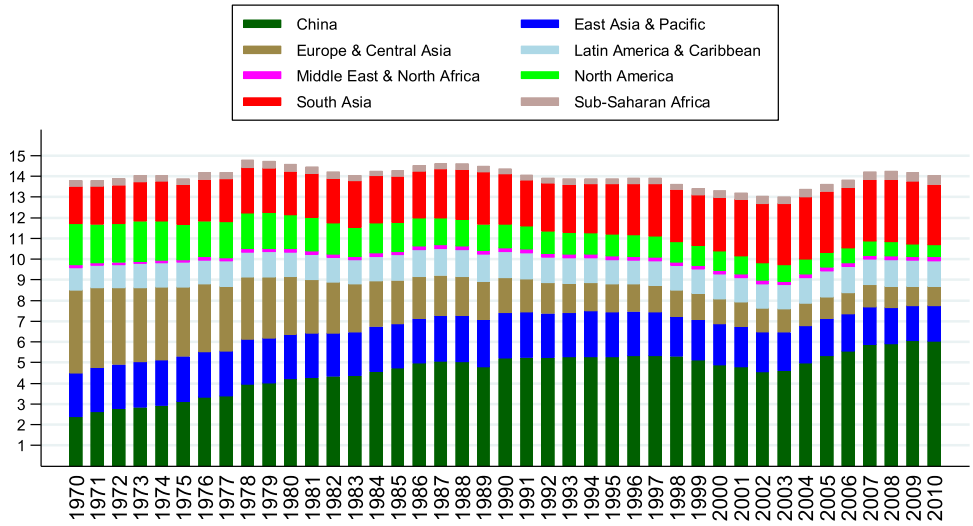

Fig. 1. Share of manufacturing in global employment with regional contributions (64 countries that have all necessary employment data). Note: GGDC employment data, excluding West Germany, augmented with 23 non-GGDC countries from Felipe et al. (2014).

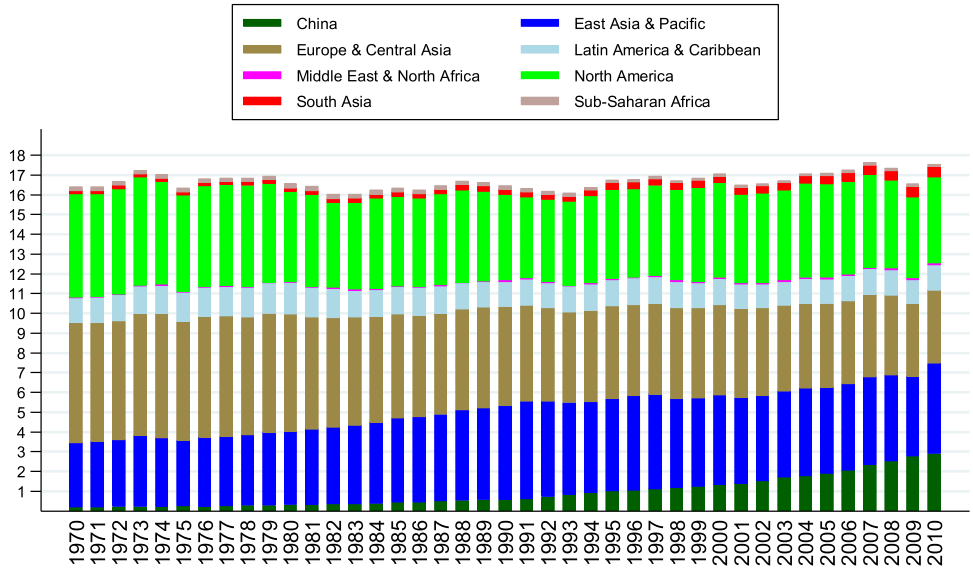

Fig. 2. Share of manufacturing in global output with regional contributions (64 countries that have all necessary employment data).

value added did not change over these four decades. This implies that, globally, manufacturing labor productivity did not grow faster than aggregate labor productivity—a finding sharply at odds with the within-country evidence. We resolve this paradox by showing that massive within-country labor productivity growth was counteracted by a continual shift of manufacturing jobs towards more populous, but lower productivity economies. This in turn reduced the average manufacturing employment shares that industrializing economies could hope to achieve. Thus, even as former industrial powers deindustrialized, and new industrializing economies began to deindustrialize earlier than they used to, the world did not deindustrialize.

2. Data

We began with data on manufacturing employment levels for 41 countries from the Groningen Growth and Development Center's Ten Sector Database (Timmer et al., 2015). We augmented this with data on the manufacturing employment shares of 23 non-GGDC countries that we previously compiled for Felipe et al. (2014).[2] To obtain these countries' total manufacturing employment levels, we multiplied these employment shares by total national employment, which we calculated by combining WDI data on population, the share of the population aged 15–64, and the employment rate within that age group. Manufacturing and aggregate value added data (in constant 2005 dollars) come from the UN Statistics Division.[3] In order to be able to compare

[2] Where GGDC and Felipe et al. (2014) both have data on a country, we have compared the employment share series and found them to be similar in levels, trends and turning points. GGDC provides data on 42 countries. We do not include West Germany, due to reunification.

[3] We would ideally use purchasing power parity (PPP) corrections when comparing manufacturing value added across countries (O'Mahony and Timmer, 2009). However, PPP correction factors specific to the manufacturing sector do not exist for many of the countries in our dataset. PPP corrections for expenditures produced through the International Comparisons Project emphasize differences in the prices of labor-intensive, non-tradable products across countries, and would likely overstate differences in the prices of more tradable manufactured goods between higher and lower-income countries.