

## Trade protectionism and Indonesian policy for intermediate industry<sup>1</sup>

*Massimiliano Cali*<sup>2</sup>  
World Bank Jakarta

Indonesia, like many other emerging countries, views the development of a thriving intermediate inputs industry as a cornerstone of its industrialization process. The government has been increasingly leaning towards protecting domestic producers in order to promote the industry's development. However the record of this import substitution strategy across the globe is not particularly successful and more often than not trade protection has created excessive rents for a few domestic producers at the detriment of international competitiveness. Our empirical analysis suggests that protectionism is ineffective to promote domestic industries also in Indonesia. According to our results protecting a sector through higher tariffs is likely to hurt both domestic producers in that sector and domestic users of intermediates. In addition the most dynamic sector among domestic intermediates – auto-parts - has the highest concentration of foreign owned plants, hinting at the importance of foreign capital as a source of innovation and productivity growth. Auto-parts has also been rapidly switching its sourcing from imported to locally produced inputs, dispelling the myth that foreign ownership may be associated with lower development of domestic linkages. This evidence suggests that maintaining as open a trade and investment regime as possible is going to be a pre-condition for the further development of intermediate industries in Indonesia. In addition the successful industrialization of countries like South Korea and Taiwan shows that more positive forms of support to producers, such as reducing costs of investment and of production inputs can play a key role in spurring industrialization as long as they address existing market failures. However in order to be effective this strategy requires the state to adequately rationalize industries and discipline firms recipient of assistance. This task requires in turn efficient screening and monitoring mechanisms and an institution relatively impermeable to firms' lobbying. Such targeted support should not crowd out more horizontal interventions, which Indonesia needs to invest in if it aims to achieve a sustained industrial development path.

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<sup>1</sup> This note draws extensively, especially for much of the empirical material, from the report "Is Import Substitution a Viable Strategy to Develop the Indonesian Intermediate Industry?" commissioned by the World Bank Jakarta to Presisi. The author would like to acknowledge, without implicating them, two of the authors of that report for the useful discussions, which have benefited the report.

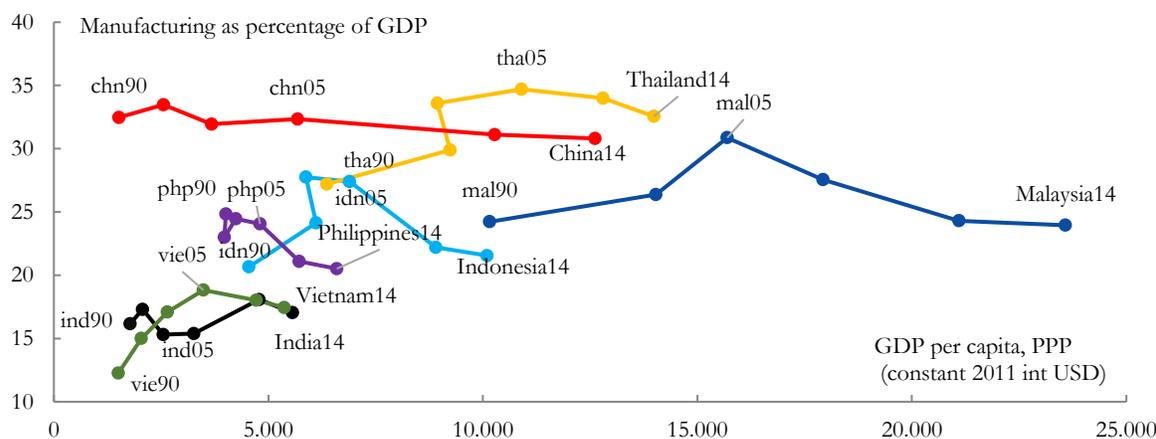
<sup>2</sup> Senior Economist, Trade and Competitiveness Global Practice, World Bank, Jakarta, email: [mcali@worldbank.org](mailto:mcali@worldbank.org).

## Introduction

Indonesia, like many other emerging countries, views the development of a thriving intermediate inputs industry as a cornerstone of its industrialization process. The government's plan is to promote policies that can turn raw materials into semi-processed materials and from semi-processed materials into components increasing value-addition at home (Government of Indonesia, 2011). This focus reflects the importance of manufacturing more generally in economic development, as the sector allows a more efficient reallocation of resources away from agriculture and tends to experience stronger productivity growth over time (Rodrik, 2016). These arguments apply very much to the experience of Indonesia as well (Rahardja and Winkler, 2012).

However the development of intermediate industries has proven elusive in Indonesia so far. Indonesian intermediate inputs' production is often not sufficiently competitive by international standards and it contributes relatively little to exports.<sup>3</sup> This is consistent with a more general struggle to revive the manufacturing sector in the country. While a decline in the share of manufacturing output in GDP is observed across Asia, Indonesia's de-industrialization is happening at a low level of per capita income (figure 1), and hence is "premature" (Diop, 2016). This premature deindustrialization risks undermining the quality of jobs as well as the economy-wide productivity growth (Rodrik 2016).

**Figure 1: Indonesia's premature de-industrialization**  
(percent of GDP)



Source: World Development Indicators, World Bank

## Import substitution as a strategy to develop intermediates?

One of the strategies that countries have used to promote the manufacturing sector is import substitution industrialization (ISI). While this strategy has taken different shapes and forms, one common principle is the protection - through tariffs and non tariff measures - of the domestic

<sup>3</sup> In 2014 no intermediate inputs featured among the 15 largest exported products (at the HS 6 digit classification) by Indonesia and only two (chemical wood pulp and copper ores) were included in the list of the top 25 export sectors.

sector from imports, and sometimes from foreign investments as well. This is justified by the infant industry argument. By sheltering domestic producers from competition protection allows them to recover the fixed costs of the investment in the initial period until a point where they become competitive and protectionism is not needed any longer. Much of Latin America across the 1950s and the 1960s has been a basket case of ISI with mixed evidence of its success in stimulating industrialization. This is in line with the mixed evidence on ISI across the globe and reflects the fact that while the infant industry argument may be at work, on the other hand too much protection can result in the creation of excessive long term rents for domestic producers. In addition industries using inputs from protected sectors may be negatively affected if the latter are less competitive than international markets.

Indonesia during the 1970s and beginning of the 1980s also followed some form of ISI in manufacturing, first in consumer goods and then in intermediates (Pangestu et al., 2015). During this period the government pursued a programme of heavy industrialization through increases in tariffs and more importantly non-tariff barriers (NTBs). While the country eventually pursued a more open and competitive trading regime, ISI has remained one of the policy options on the table to develop the manufacturing sector. Some policy measures over the last years have been consistent with an ISI strategy. In particular Indonesia recently passed a Trade Law (Law No. 7, 2014) and an Industry Law (Law No. 3, 2014), which marked a shift towards more inward-looking trade policy and protective industrial policy (Wihardja and Negara, 2015).<sup>4</sup>

Import tariffs remained relatively low after their substantial reduction over the 1990s and the 2000s. However the government has started to raise import tariffs since 2012, including on intermediates (figure 2), and more recently in July 2015 with substantial hikes on 1,151 tariff lines concentrated in consumer products (World Bank, 2015). The government is currently discussing about extending these tariff increases to other consumer products and, in order to ensure tariff harmonization across sectors, also to intermediates.<sup>5</sup>

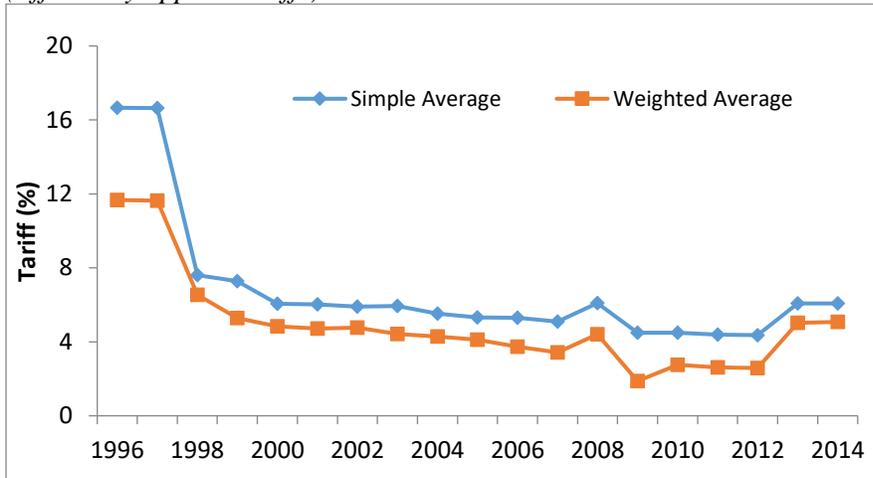
Indonesia has also progressively increased the protection of the intermediate sector, in line with that of other sectors of the economy, through the use of NTMs, such as quotas, import licenses and import monopolies. Figure 3 shows the increased share of imports covered by NTMs across intermediate sectors since 2008, drawing on a new dataset based on a data collected in 2015 by ERIA and UNCTAD. The sector producing food and beverage for industry (nr. 121 according to the BEC classification) has experienced the most abrupt escalation of NTMs among intermediates with a coverage of almost 90% of the imports covered by at least one NTM; while the increase for the auto-part industry (BEC 530) has been the least severe.

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<sup>4</sup> This stance is made explicitly in the words of the government: "The Trade Law affirms our standpoint that Indonesia does not fully embrace free trade," and "with the implementation of the newly approved Industrial Law, Indonesia will have a strong legal base to promote import substitution as well as downstream industries in efforts to reduce the manufacturing sector's heavy reliance on imports of components and machinery." (Jakarta Post, 2014).

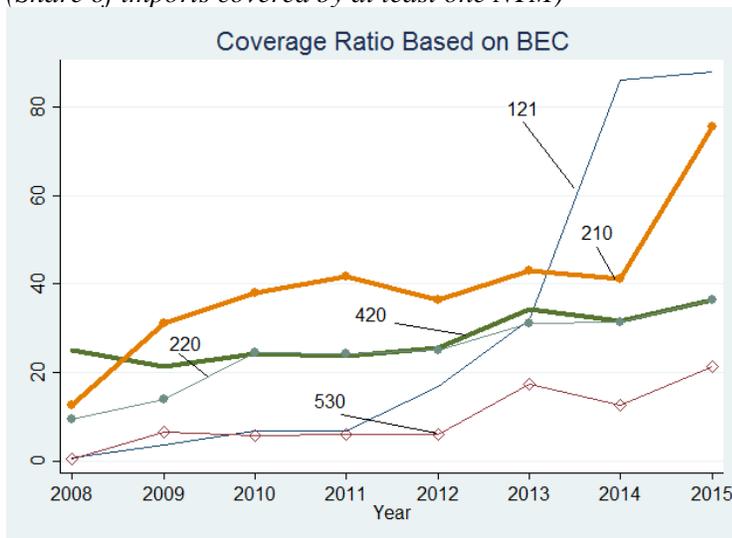
<sup>5</sup> This program of 'tariff harmonisation' was introduced by the government in 2005 with the objective of adopting a uniform tariff rate (Bird et al., 2008). Team Tariff, an inter-ministerial team housed in the Ministry of Finance is responsible to implement the program.

**Figure 2: Tariffs on intermediates have been declining since the 1990s, except in the last years**  
(Effectively applied tariffs)



Source: Staff estimates on COMTRADE data

**Figure 3: The increasing use of non tariff measures (NTMs)**  
(Share of imports covered by at least one NTM)



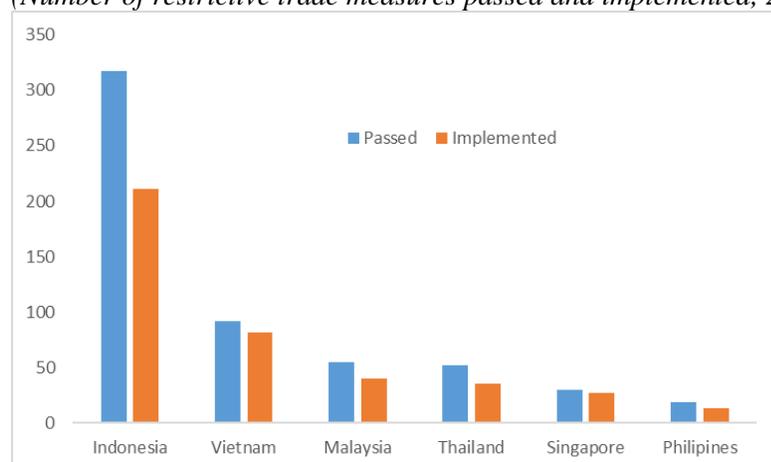
Note: BEC Sectors: 121: Food and beverages, processed, mainly for industry; 210: Industrial supplies, nec, primary; 220: Industrial supplies, nec, processed; 420: Parts and accessories of capital goods (except transport equipment); 530: Parts and accessories of transport equipment.

Source: World Bank staff estimation on the basis of ERIA database

Indonesia's level of NTM restrictiveness is among the highest in the region. According to ERIA (2012) Indonesia had the highest Core NTMs Restrictiveness Index in 2009 among ASEAN member states. This primacy is confirmed by more recent data collected by the Global Trade Alert on the number of trade restrictive measures implemented since 2009 (Figure 4).<sup>6</sup>

<sup>6</sup> To be sure there have been some very recent signs of an incipient slowing down or even a reversal of this protectionist trend (World Bank, 2016a), but it is too early to understand whether this will be sustained.

**Figure 4: Indonesia dominates the use of restrictive trade measures in the region**  
(Number of restrictive trade measures passed and implemented, 2009-August 2016)



Source: World Bank staff estimates on Global Trade Alert data

In line with this protectionist stance, Indonesia in recent years has also introduced performance requirements for investments, which aim to promote domestic industries, such as local content requirements in telecommunications, automotive and energy and mining.<sup>7</sup>

Given the current policy environment is important to assess the possible outcome of an IS strategy for Indonesian intermediates industry. To that end the rest of this note analyzes the performance of the Indonesian intermediate sector and relates it to the changes in the level of protectionism over time. On the basis of the results and of some of the lessons of industrialization successes in other countries, it then suggests possible policy directions for Indonesia to promote manufacturing development, including of intermediates.

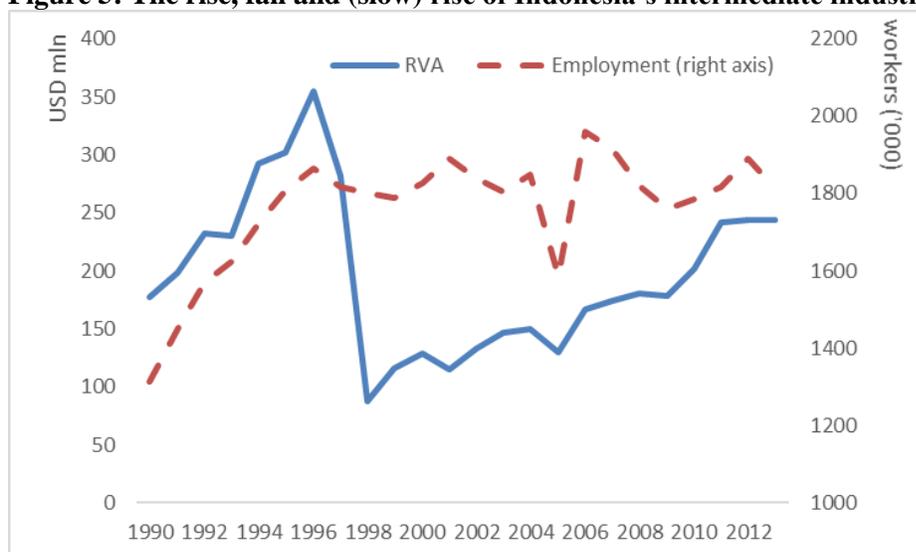
### **How has the Indonesian intermediate industry performed in the last two decades?**

The intermediates industry has largely followed the pattern of the broader manufacturing sector. According to data from the annual manufacturing survey intermediates grew very rapidly in terms of real value added (RVA) and employment during the 1990s before collapsing during the 1997-98 crisis (figure 5).<sup>8</sup> While RVA lost three quarter of its value, the reduction in employment was much more modest. Employment is quite sticky among medium and large firms. Hence, the ensuing growth of the industry was mainly in terms of RVA while employment was relatively unaffected hovering around the same pre-crisis level. However the pace of growth in intermediates' RVA in the 2000s has been slower than that in the 1990s and the RVA in 2013 was still lower than 1996. In fact the 2011-13 period – a period of increasing tariffs and non tariff barriers - has seen no growth in RVA at all.

<sup>7</sup> These performance requirements have been introduced through various pieces of regulations: Permen ESDM No. 15/2013 (Ministry of Energy) on upstream oil and gas industry; Permenperin No. 80/2014 on Automotive industry (Ministry of Industry); Permenkominfo No. 27/2015 (Ministry of Communication) and Permenperin No. 68/2015 (Ministry of Industry).

<sup>8</sup> The survey covers enterprises of 20 employees and above, which cover the vast majority of output and the majority of employment in manufacturing.

**Figure 5: The rise, fall and (slow) rise of Indonesia's intermediate industry**



Source: World Bank staff estimates on Statistics Industry data

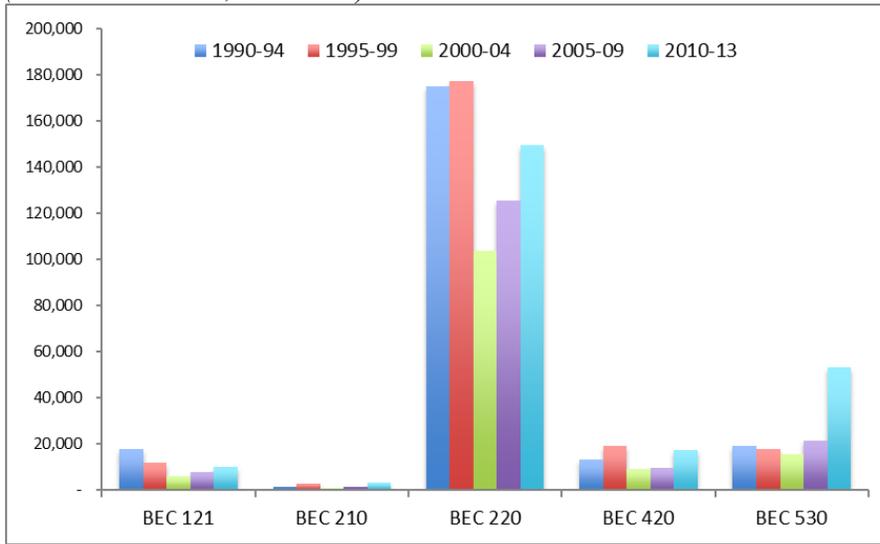
The performance of the intermediates' industry over the past two decades mimics that of its largest sector, i.e. processed industrial supplies (nr. 220 according to the Broad Economic Category – BEC - classification) (Figure 6). This sector includes large sub-sectors such as manufacture of textiles, of wood and wood products and of paper and paper products, which have all experienced a decline in RVA since the 1990s with a flat trend in the 2000s, (Table A1 in the Appendix). The last years have also seen the rapid growth of the automotive parts and accessories sector (BEC 530). The RVA of this sector has grown more than five-fold between 2000 and 2013, an impressive performance relatively to the rest of the industry. None of the other intermediate sectors was able to even double their RVA.

While the cross-sectoral differences are less pronounced, the picture is similar also for employment. The auto-parts and the primary industrial supply (BEC 210) sectors have had the most rapid employment growth since 2000 (Figure 7a), even though the latter sector is extremely small (Figure 6) and its labor productivity growth has been sluggish since 2000 (Figure 7b). On the other hand auto-parts is the intermediate sector with the fastest growth in labor productivity since 2000 with a dramatic jump since 2009 (Figure 7b). Other intermediate sectors, including processed industrial supply and processed food and beverages for industry, also show a healthy growth of labor productivity since 2000.

The heterogeneity in the performance of the intermediate industry is reflected also in the export data.<sup>9</sup> Auto-parts and primary industrial supply exports have grown the most among intermediate exports since 2000 (figure 8a), but only auto-parts has increased its market share in world's exports (Figure 8b), confirming the dynamism of this sector relative to the other intermediates.

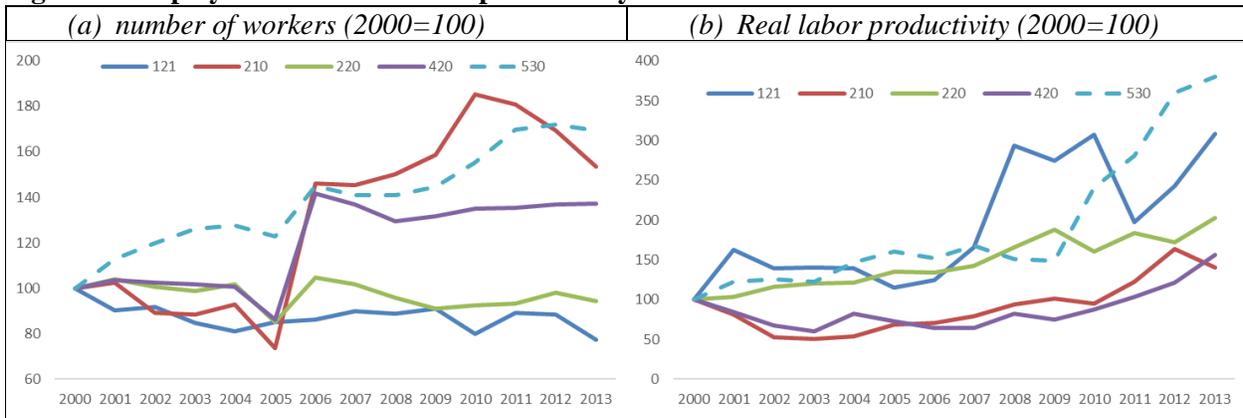
<sup>9</sup> Note that BEC 121 is excluded from the export analysis as in the export data this sector includes also sectors which are not covered in the annual manufacturing survey, thus biasing the cross-sectoral comparison.

**Figure 6: Performance across intermediate industries**  
(Real Value Added, USD '000)



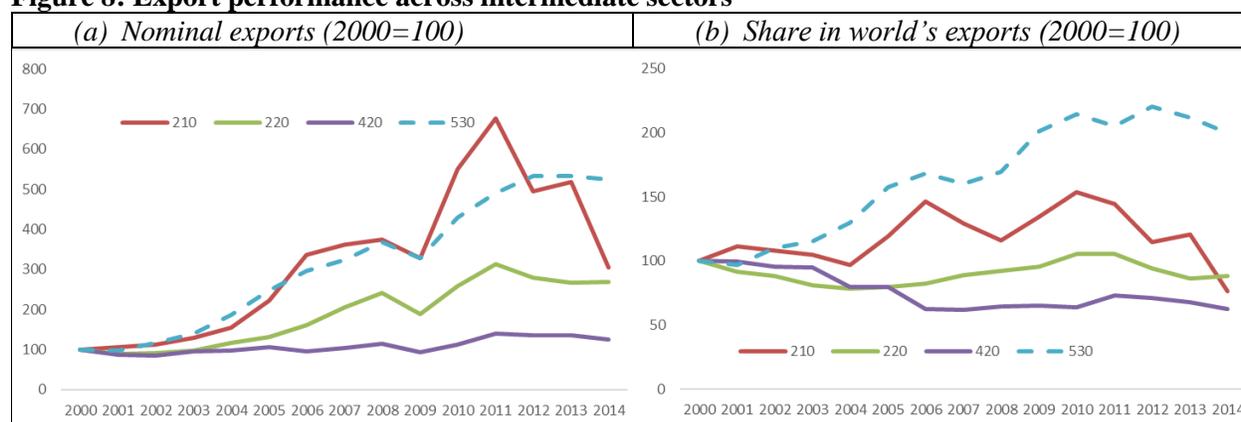
Note: BEC Sectors: 121: Food and beverages, processed, mainly for industry; 210: Industrial supplies, nec, primary; 220: Industrial supplies, nec, processed; 420: Parts and accessories of capital goods (except transport equipment); 530: Parts and accessories of transport equipment. Source: Staff estimates on the basis of annual manufacturing firms' surveys

**Figure 7: Employment and real labor productivity across intermediate industries**



Note: BEC Sectors: 121: Food and beverages, processed, mainly for industry; 210: Industrial supplies, nec, primary; 220: Industrial supplies, nec, processed; 420: Parts and accessories of capital goods (except transport equipment); 530: Parts and accessories of transport equipment. Source: Estimates on the basis of manufacturing firms' surveys

**Figure 8: Export performance across intermediate sectors**



Note: BEC Sectors: 210: Industrial supplies, nec, primary; 220: Industrial supplies, nec, processed; 420: Parts and accessories of capital goods (except transport equipment); 530: Parts and accessories of transport equipment.  
Source: Author's elaboration on WITS

### How does protectionism affect intermediates' performance?

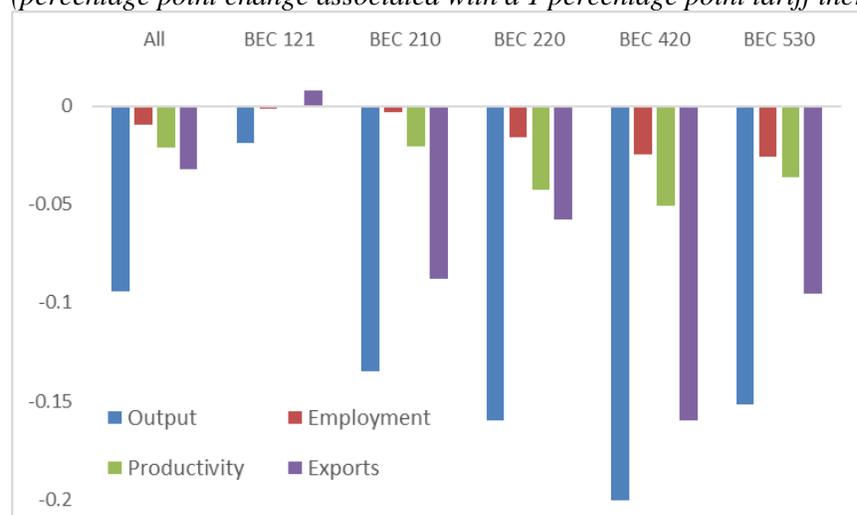
Next we examine to what extent the performance of intermediates is related to the changes in trade protectionism over time. To do so we use the manufacturing firms' survey (Statistik Industri) and examine the relationship between performance of intermediate industries and import tariff protection at the 5 digit ISIC for every year since 1990.<sup>10</sup> We focus on import tariffs as we do not have reliable estimates on tariff equivalent for non tariff measures.

The analyses suggest that tariff protection is associated with worse performance, regardless of whether that is measured in terms of output, employment, productivity or exports (Figure 9). This result applies to the entire intermediate industry as well as to the main individual BEC sectors, with the exception of processed food and beverages, which does not display any significant correlation. The magnitude is far from negligible: an increase in tariff of 10 percentage points is associated with a 1% reduction in output across all intermediates, with peaks of 2% for parts and accessories of capital goods and 1.5% for processed industrial supplies and auto-parts. These elasticities are similar in magnitude for exports and smaller but still significant for employment and labor productivity. They are also larger in the post-1997 crisis period (Figure A1 in the Appendix), which underscores the importance of tariff setting for intermediates' performance in the current period.

These results are consistent with at least two hypotheses. First import competition can allow to improve performance by inducing domestic firms in the sector to innovate more (Bloom et al., 2016; Bloom et al., 2014). This mechanism may also be key to explain the negative association between import tariffs and performance of the domestic sector for consumer products (figure A2 in the Appendix).

<sup>10</sup> This is implemented by regressing various measures of industrial performance at the year-industry level on the import tariff rate for the same year-industry pair, while controlling for all time invariant industry specific factors as well as the share of foreign ownership and skill intensity of the industry and for year specific effects.

**Figure 9: The negative relation between output tariffs and intermediates' performance**  
(percentage point change associated with a 1 percentage point tariff increase in the sector)



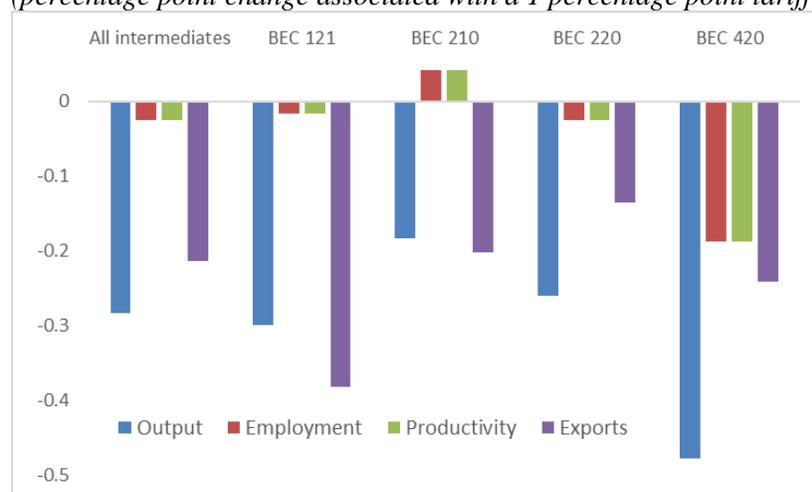
Note: BEC Sectors: 121: Food and beverages, processed, mainly for industry; 210: Industrial supplies, nec, primary; 220: Industrial supplies, nec, processed; 420: Parts and accessories of capital goods (except transport equipment); 530: Parts and accessories of transport equipment. Source: Estimates on the basis of manufacturing firms' surveys and TRAINS data for tariffs

Second, intermediates within the same sector can be used as inputs for that sector's production. For example car tires require bell tire wheels as inputs, which belong to the same industry group. Hence protecting firms in a sector through higher import barriers can have the unintended consequence of stifling their use of inputs and hence their production and productivity. Given that firms that use imported inputs are exceptional performers in Indonesia (Rahardja and Varela, 2014), these restrictions could be particularly harmful to the entire sector.

This input channel is confirmed by further analysis using Statistik Industri data, which shows that import tariffs have a negative relation with the performance of the intermediate sectors that use inputs subject to those tariffs (Figure 10). In particular an increase in the average tariff of the inputs used by an Indonesian intermediate sector reduces the output in that sector by almost 3% (with a peak of 5% for parts and accessories for capital goods). This result again applies to almost all measures of performance and across BEC sectors. Such negative effect is consistent with previous evidence on Indonesia (Amiti and Konings, 2007; Rahardja and Varela, 2014).

Restrictions to trade are not the only forms of restrictions aiming to promote domestic firms. In recent years Indonesia has been adopting a mixture of performance requirements for firms and restrictions on foreign equity participation across various sectors, including also on intermediates. Besides sectoral regulations, the main tool through which the Indonesian government has been discriminating against foreign firms has been the 'Negative Investment List' (DNI), first introduced in 2007 and amended in 2010, 2014 and 2016. This sets restrictions on the share of foreign equity allowed in specific sectors and on performance requirements favoring domestic firms [add stuff from the DNI as soon as we have the data]. While a systematic assessment of the impact of such restrictions on the domestic industry is not available, the existing evidence suggests that these measures may be counterproductive for the development of the domestic industry.

**Figure 10: The negative relation between input tariffs and intermediates' performance**  
(percentage point change associated with a 1 percentage point tariff increase in the inputs sector)



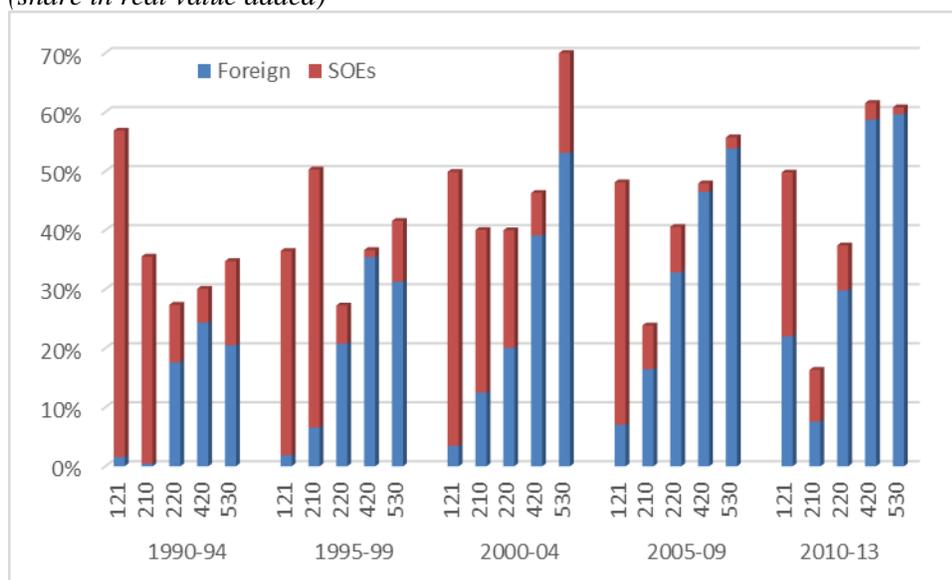
Note: BEC Sectors: 121: Food and beverages, processed, mainly for industry; 210: Industrial supplies, nec, primary; 220: Industrial supplies, nec, processed; 420: Parts and accessories of capital goods (except transport equipment). Source: Estimates on the basis of manufacturing firms' surveys and TRAINS data for tariffs.

First, among intermediates, foreign ownership is highest in the auto-part sector (figure 11), which has consistently been the most dynamic intermediate sector in Indonesia since 2000, as highlighted above. The share of foreign ownership in auto-parts has grown substantially after the 1997-98 crisis, the period coinciding with the boom of the sector. This stylized fact is consistent with international evidence, which shows that foreign owned firms are typically more productive than domestic firms and can boost the productivity of the acquired firms (Arnold et al., 2011).

Second, the growth of the auto-parts industry has been associated with an increased use of locally produced inputs by the industry (Figure 12). In the early stages of its development in early 2000s, the auto-parts sector in Indonesia was able to use substantial amounts of imported inputs (around 60% of total inputs). Subsequently this growth seems to have generated positive spillovers to domestic input producers, which by 2010 were providing three quarter of the inputs used by auto-parts. This was a much faster rate of growth in inputs' share than for the rest of the intermediate sector (Figure 12) and it was achieved in the absence of any local content requirements imposed by the Indonesian government. In fact it is plausible to think that such requirements may have prevented the development of the industry in the early stages when imported inputs were so important.

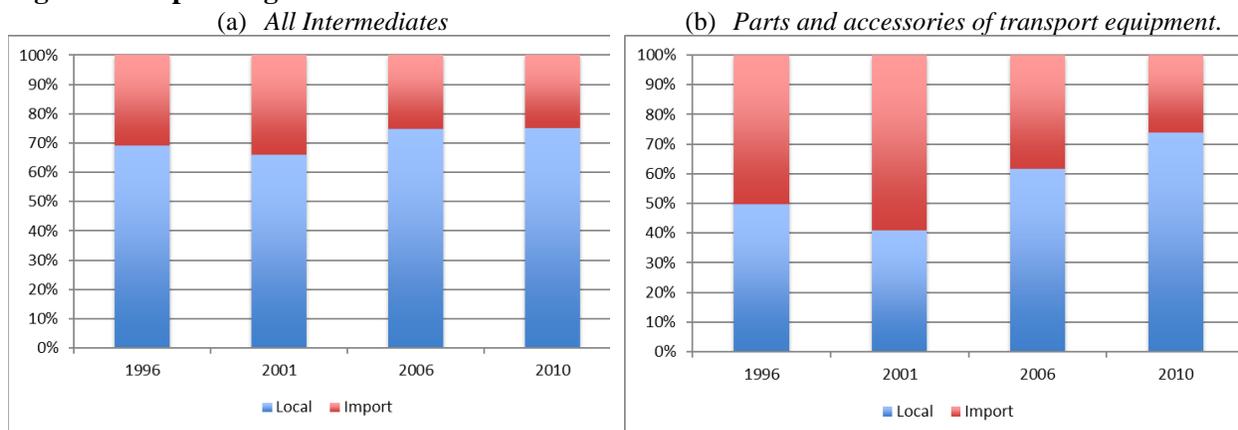
Finally, restrictions on the presence of foreign firms tend to disproportionately harm downstream sectors which use inputs from such firms. For example restrictions on the entry of foreign services providers in Indonesia reduce the productivity of manufacturing firms which use those services (Duggan et al., 2013). It is plausible that such argument would also apply to restrictions on the entry of foreign intermediates producers.

**Figure 11: Ownership structure across intermediate sectors**  
(share in real value added)



Note: BEC Sectors: 121: Food and beverages, processed, mainly for industry; 210: Industrial supplies, nec, primary; 220: Industrial supplies, nec, processed; 420: Parts and accessories of capital goods (except transport equipment); 530: Parts and accessories of transport equipment. Source: Estimates on the basis of manufacturing firms' surveys.

**Figure 12: Input usage in intermediate industries: BEC 530 vis-à-vis others**



Source: Estimates on the basis of manufacturing firms' surveys.

## Implications for policy

### 1. Protecting domestic producers from competition typically back-fires

The evidence presented strongly suggests that import protection is not an effective way to spur the growth and competitiveness of domestic producers of manufacturing, including of intermediates, in Indonesia. If anything the protection is likely to hurt producers as it reduces their incentives to innovate and as it raises the costs of their inputs. Hence any plans to increase

tariffs and non tariff barriers with the view of promoting domestic producers is misplaced at best. In fact even the case to raise tariffs for the purpose of tariff harmonization does not withstand further scrutiny in light of the adverse effect of tariff increases and of the unclear benefits of tariff harmonization.<sup>11</sup>

The analysis also suggests that other measures that try to protect domestic producers, such as local content requirements and foreign equity restrictions, typically back-fire as they raise the costs of inputs and/or decrease their quality for domestic producers. That is especially the case if the rents they generate for domestic producers are not re-invested to raise the productivity and the quality of their production, which is typically the case. In addition, with faltering private investments (World Bank, 2016b), foreign direct investments are an important source of much needed capital, new technology and access to export markets.

Therefore maintaining an open regime to trade and investments, especially but not only in intermediates, should be a key part of Indonesian strategy of developing manufacturing, including intermediates. This message is particularly salient in the 21<sup>st</sup> century, when the greater interconnectedness of production across countries has considerably increased the cost of protectionism especially for manufacturing vis-à-vis the years of ISI in the second half of last century.

### *2. More positive forms of support to firms may be more effective than protectionism, as long as they address market failures*

The successful late industrialization of South Korea and Taiwan shows that more positive forms of assistance to firms, such as subsidies to investments, exports and to production inputs and the development of productive infrastructure, rather than selective protectionism, played the key role in spurring industrialization. By addressing existing market failures, these measures raised private returns to capital, thereby stimulating an investment boom which was at the root of the economic take-off (Rodrik, 1995). At the same time imports – especially of intermediates - were instrumental to develop new sectors and upgrade existing production.

### *3. Disciplining domestic producers receiving support is a key to success*

The experience of ISI across the globe shows that it is difficult to induce domestic producers to invest the rents created by protection and direct support in achieving high competitiveness standards. When this happened, as in the case of South Korea and Taiwan, the state was able to rationalize industries and discipline firms (Hausmann and Rodrik, 2003). A case in point is South Korea, which implemented a system of stringent performance standards, such as export targets, which the firms recipient of subsidies and protection were subject to (Amsden, 1992). This helped ensure that competitiveness was not compromised – and in fact was rather promoted – during periods of market-distorting policies. On the other hand, Latin American governments under ISI did not exert much discipline on firms, generating an industrial structure that was too

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<sup>11</sup> Besides the lack of empirical evidence on the benefits of tariff harmonization, a further complicating factor is that NTMs are not harmonized across products, thus preventing the realization of harmonized import protection across products.

diversified with too many low productivity firms alongside the high performers (Hausmann and Rodrik, 2003).

*4. Firms rather than sectors should be the target of government assistance; and that requires an efficient mechanism to screen recipients*

The disciplining of recipients of state support would imply that the target of support would be the firm rather than the sector. This point resonates also with the evidence of the wide dispersion of productivity across firms in developing countries even within narrowly defined sectors (Hsieh and Klenow, 2009), a finding also common to Indonesia (Fitriani et al., 2012). Hence supporting a specific sector may translate into supporting firms of very different productivity level, which would give rise to an inefficient allocation of resources. In addition many forms of assistance such as subsidized credit and inputs are meant to support specific business ideas of entrepreneurs rather than the development of an entire sector. Ideas worth supporting may emerge in any sectors, so that confining support to certain sectors only may prevent the realization of important untapped gains.

Identifying firms and ideas worth supporting and disciplining recipients of support requires a system, which is relatively impermeable to firms' lobbying and which has efficient screening and monitoring capabilities. These features are clearly hard to develop in any countries, including in Indonesia, but experiences such as those of South Korea and Singapore may be meaningful in this respect.<sup>12</sup> Such system would also have the additional advantage of helping the state to elicit information from the private sector to uncover the most significant market failures in the economy and what type of interventions are most likely to remove them. According to Rodrik (2004) gathering this information should even be the key objective of modern industrial policy.

*5. Targeted support to firms is not a substitute for horizontal interventions*

The targeted support to firms should not crowd out more horizontal policies, which should benefit competitiveness across sectors. After all that is where a large chunk of market failures in modern economies lie. Indonesia is no exception, with constraints such as high logistics costs, under-developed economic infrastructure and unproductive labor, which mar the prospect of the entire productive sector. This points to a fundamental long-term agenda, which Indonesia needs to invest in if it aims to achieve a sustained industrial development path.

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<sup>12</sup> For example the close cooperation with private sector partners is one of the key factors for the effectiveness of Singapore's enterprise development agency (SPRING) in providing targeted support to domestic firms, which aims to address various market failures, such as access to credit, technology and markets.

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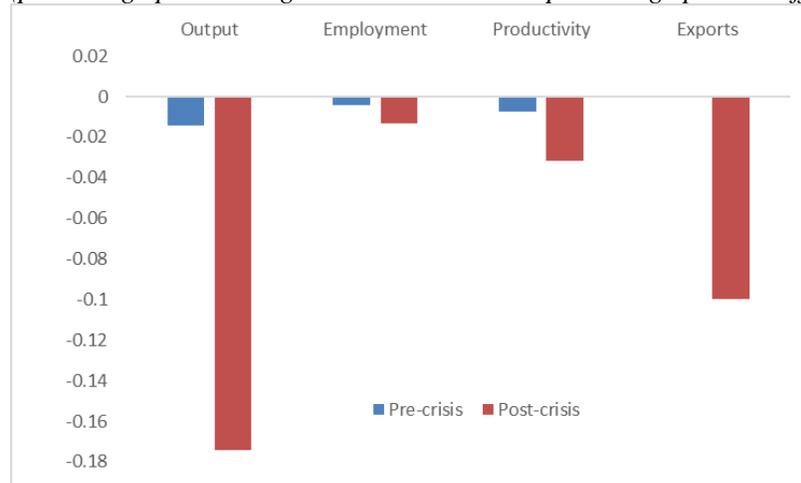
## Appendix 1

**Table 1. Real Value Added for the 3 top sub-sectors in BEC 220 (USD '000)**

ISIC Rev.2	1990-94	1995-99	2000-04	2005-09	2010-13
321	7,298	9,036	6,616	7,550	6,530
331	1,058	8,955	2,906	6,336	4,664
341	0,767	3,088	9,532	9,150	10,220

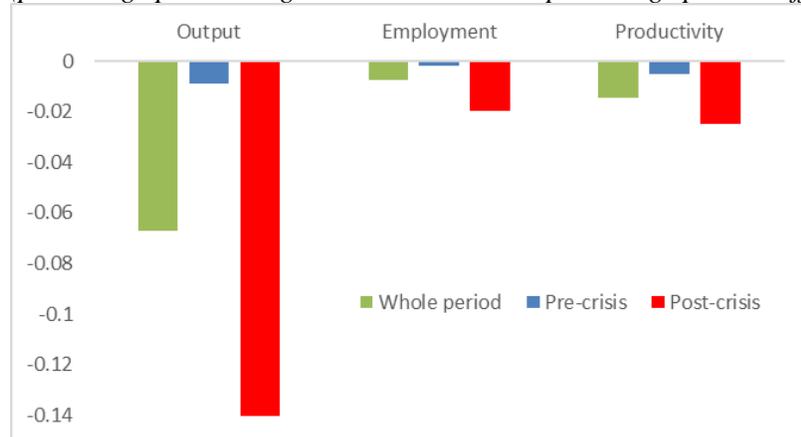
*Note: the values indicate periods' averages for ISIC 321 (Manufacture of Textiles), ISIC 331 (Manufacture of Wood and Wood Products), and ISIC 341 (Manufacture of Paper and Paper Products). Source: Medium and Large Manufacturing Plants Survey, Central Statistics Agency, formulated by authors.*

**Figure A1: Tariff protection and intermediates' performance pre- and post-1997 crisis**  
(percentage point change associated with a 1 percentage point tariff increase in the sector)



*Source: Staff estimates on the basis of annual manufacturing firms' surveys and TRAINS data for tariffs*

**Figure A2: Tariff protection and performance of consumer products sectors**  
(percentage point change associated with a 1 percentage point tariff increase in the sector)



*Source: Staff estimates on the basis of annual manufacturing firms' surveys and TRAINS data for tariffs*