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## Exports and Employment in Indonesia: The Decline in Labor-Intensive Manufacturing and the Rise of Services

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## ADB Economics Working Paper Series



### Exports and Employment in Indonesia: The Decline in Labor-Intensive Manufacturing and the Rise of Services

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Haryo Aswicahyono, Douglas H. Brooks, and Chris Manning  
No. 279 | October 2011





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# **Exports and Employment in Indonesia: The Decline in Labor-Intensive Manufacturing and the Rise of Services**

**Haryo Aswicahyono, Douglas H. Brooks, and Chris Manning**  
October 2011

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## **Abstract**

Employment generation has been a challenge in Indonesia since the Asian financial crisis, especially in labor-intensive manufacturing. Drawing on work by James and Fujita (2000), this paper examines the impact of exports on jobs, based on an analysis of input–output tables over the period 1995–2005. It finds that fewer jobs were created through exports in manufacturing industries in 2005 than before the crisis, because of slower growth in manufacturing exports and a shift away from light industry. The slowdown is potentially costly due to the endemic elastic supply of unskilled labor. However, there was an increase in jobs in the services sector, partly because of indirect connections with the main export industries. This could be enhanced through greater domestic and international competition in services. The main constraints to job creation through exports appear on the supply side, especially those related to poor infrastructure, an uncertain investment climate, and tight labor regulations.





# I. Introduction

Employment generation has been a major challenge for Indonesia since the Asian financial crisis in 1997–1998 (World Bank 2010b). Manufacturing in particular now plays a much smaller role in creating jobs than it did in the Soeharto era. The contrast is especially marked compared with the decade prior to the crisis. Fewer people have moved out of agriculture than before the crisis, and it has been left to services to pick up the slack created by the demise of manufacturing.

The problem of job creation in manufacturing has not been unique to Indonesia. Aswicahyono et al. (2011, 130) note, for example, that “..the Indonesian record [in manufacturing employment] is not that different from its neighbours ... the changes observed in this chapter are part of a generalized regional phenomenon ....” They go on to mention competition from the People’s Republic of China (PRC) as one key factor. At the same time, it is also recognized that job creation difficulties experienced in Indonesia have been partly home grown. Besides slower growth in manufacturing output, Aswicahyono et al. mention four other sets of factors that have been important: regulatory and policy uncertainty for investors, greater labor market regulation, infrastructure constraints, and real exchange rate appreciation.

While these problems are well documented in recent research, the extent to which slower export growth and the changing composition of exports has contributed to diminished job creation has not been examined in the postcrisis period.<sup>1</sup> This is the main focus of our paper. The subject was addressed in several earlier papers by Fujita and James (1997), who addressed employment generated by export growth in manufacturing in the later Soeharto years.<sup>2</sup> This paper looks at developments since the Asian financial crisis. In addition, it looks at indirect effects and the growing role of services in employment creation. The paper also seeks to place the findings in the context of changes in the investment climate, and labor market trends and regulations in Indonesia since the crisis, particularly as they relate to the exports of manufacturing.

The (input–output) data we use only allow us to examine the impact of exports on employment through to 2005. However, it is contended that this was a crucial period in Indonesia’s recent economic history for domestic reforms and international competitiveness. Several of the institutional changes introduced at this time continue to

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<sup>1</sup> Unless otherwise specified, the “crisis” mentioned in this paper refers to the Asian financial crisis of 1997–1998, not the global financial crisis of 2008–2009.

<sup>2</sup> See especially Fujita and James (1997) and James and Fujita (2000).

have an impact on the relationship between exports and employment. At the same time, we provide information on total employment and total exports through to the end of the 2000s, and speculate on how the relationship might have changed since the middle of the decade, again focusing on the role of manufacturing and services.

The paper is divided into five sections. Sections II and III look briefly at the main issues dealt with in the paper, and then at recent growth and investment before and after the crisis, which has underpinned changes in manufacturing output and export performance. In Section III, the paper also discusses several labor market issues that are relevant to the relationship between exports and employment in Indonesia. This sets the stage for the main empirical analysis of export–employment linkages in Section IV. In Section V, we conclude and suggest some implications of the empirical findings for policy.

## II. Background and Some Key Issues

In the first 2 decades of the Soeharto government (1966–1986), policies to support job creation were heavily focused on restoring macroeconomic stability and promoting sectors oriented to the domestic market. The emphasis was on food production and import substitution in manufacturing (Manning 1998, Hill 2000). For the most part, this was made possible by the windfall gains from the oil boom in the 1970s and early 1980s. The oil boom financed raw material and capital goods imports, improvements in infrastructure, and social capital, which in turn enticed new investment and drove improvements in productivity and expansion of employment.

A crisis point was reached in the mid-1980s, however. Declining marginal benefits from import substitution policies, and a dramatic decline in world oil prices, meant that a new approach was needed if the economy was to continue to grow rapidly. More liberal trade policy and foreign investment laws were introduced, although these came quite late in Indonesia compared with neighboring countries (and almost 2 decades after the first wave of trade and investment reforms under Soeharto; see Hill 2000).

The response took many observers by surprise. In the decade prior to the crisis, Indonesia made an unexpectedly quick transition to export-oriented manufacturing. In an analysis of employment creation based on the input–output tables for 1980, 1985, and 1990, Fujita and James noted that “Indonesia has undergone a remarkable structural adjustment and change particularly since trade and industrial policy liberalization in the late 1980s” (Fujita and James 1997, 114). They showed that growth of manufactured exports, particularly in labor-intensive light industries, were the driving force behind employment gains at this time.<sup>3</sup> In this, Indonesia followed in the footsteps of the newly

<sup>3</sup> However, Fujita and James also cautioned that premature rises in minimum wages above market rates may “undermine” this important development for a sustained improvement in employment and wages.

industrialized economies (NIEs) and several Southeast Asian countries such as Malaysia and Thailand. There were high hopes for a similar sustained impact on employment and labor markets, which had driven substantial improvements in living standards in several of these countries (Fujita and James 1997, Manning and Posso 2010).

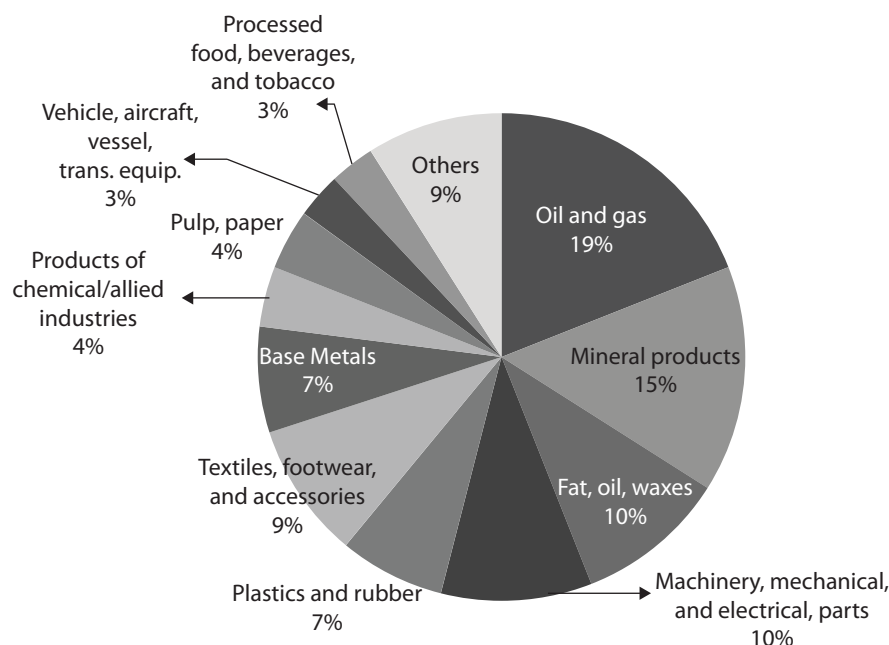
However, the momentum for sustained policy intervention aimed at promoting exports slackened (Hill 2000). After the main trade and investment reforms were introduced during the period 1985–1991, further reforms consisted of brief episodes only.<sup>4</sup> In a later paper written just after the crisis, James and Fujita noted ominously that “The fear that Indonesia was losing competitiveness in labor-intensive industries was oft expressed in the period prior to the crisis.... At present there is an obvious need to generate as much employment as possible in the private business sector. A logical manner of doing so would be through a combination of trade, investment and labor market reforms. Unfortunately, such reforms appear to face strong resistance among interest groups and officialdom” (James and Fujita 2000, 10).

During and immediately after the crisis, this lack of momentum was initially counterbalanced by incentives to export implicit in the subsequent huge depreciation of the rupiah that had occurred during the crisis (Soesastro and Basri 1998). We take up the story from this point. Our paper looks at experience in exports and their impact on employment in the postcrisis period, updating the estimates made by James and Fujita (2000) for the 1980s through to the mid-1990s. It adopts a similar approach to James and Fujita, examining direct and indirect impacts on employment based on analysis of the input–output tables. We focus on manufacturing during the period 1995–2005 in particular, for which input–output data are available, and extend the discussion to developments in the last part of the decade to 2009.

While export growth has remained steady, buttressed by the resources boom in recent years, labor-intensive sectors have declined in relative terms and in some cases absolutely. In 2008–2010, for example, they accounted for a relatively small share of total exports, as can be gleaned from the 9% share from textiles, footwear, and accessories, Indonesia’s major labor-intensive exports (Figure 1). This contrasts with one third of all exports coming from oil and gas, and from mineral products. One objective of the paper is to examine the impact that a decline in the share of these labor-intensive exports has had on employment and the labor market. A second aim is to investigate the extent to which other sectors such as agro-processing or services have taken up the slack in terms of job creation, counterbalancing the decline in labor-intensive manufacturing. Finally, we seek to suggest some explanations for the changing employment patterns in these sectors in the post-Asian financial crisis period.

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<sup>4</sup> For example, James and Fujita (2000, 2) note that Indonesia unilaterally adopted significant tariff cuts in May 1995, after the Jakarta meeting of the Asia Pacific Economic Cooperation in 1994. Effective protection of non-oil manufacturing fell from 80% in 1987 to 35% in 1990, and 25% in 1995.

**Figure1: Composition of Exports by Value, 2008–2010**

Source: Bank Indonesia website, available: [www.bi.go.id/web/en](http://www.bi.go.id/web/en), accessed 4 April 2011.

### III. The Context: Economic Performance, Policies, and the Labor Market

Post-Asian crisis governments have maintained the convention of pursuing macroeconomic stability as a key plank of government policy to promote growth and welfare. They have been less successful in microeconomic management, including labor market policies. This is widely viewed as one factor contributing to the slow growth in jobs.

While economic performance has faltered compared with the precrisis period, by international standards it has nevertheless been quite respectable, for a country experiencing a major transition to democracy (Pritchett 2011). Nevertheless, domestic policies have not provided the stimulus that many had hoped might sustain the growth of labor-intensive exports and associated labor market transition, which was experienced prior to the crisis (Manning 1998). Two broad developments provide a context for understanding slower growth of labor-intensive exports.<sup>5</sup> First, overall economic growth, investment, and productivity across the board have been sluggish by East

<sup>5</sup> See especially OECD (2010), Asian Development Bank (2010), and McLeod (2011). Not only has the shift to democracy meant less cohesive policy making than under the former autocratic regime, it has also been accompanied by a very large decentralization of political and fiscal authority.

Asian standards. Second, a range of microeconomic policies, especially in the areas of infrastructure, labor, and governance, have tended to discourage investment in industry.

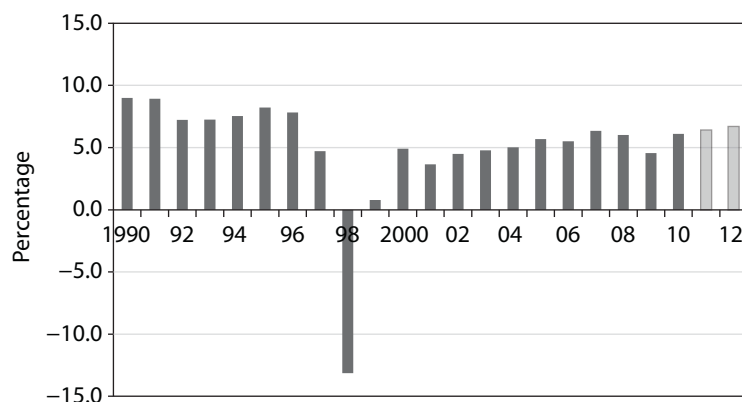
## **A. Growth and Investment**

Prior to the AFC, Indonesia enjoyed several decades of steady growth based on structural transformation, development of the manufacturing sector, urbanization, and expanding exports of non-oil products (Hill 2000). This diversification helped the country enjoy a stable macroeconomic environment, even after the end of the oil price boom in the 1980s. Postcrisis, however, growth rates have been more modest. After plummeting during the crisis, growth did not top 5% until 2005, and only averaged slightly above 5% in the subsequent 5 years to 2010 (see Figure 2). Similarly, investment and savings rates recovered only very slowly after falling sharply during the crisis (Figure 3). Productivity remains low and quite stagnant, although some recovery in growth suggests that economic fundamentals have improved. The most dramatic turnaround in growth was in mining and manufacturing in the postcrisis period, the growth rates of which more than halved in 2000–2008 compared with the 1990s, before the crisis (Table 1).

Economic growth rates and investment are still well below that of the PRC, India, and Viet Nam, and closer that of the Philippines in the East Asian context. While new trade opportunities have opened up for Indonesia with the rapid growth of the PRC, the PRC and Viet Nam, both newcomers, have particularly attracted much of the new investment in labor-intensive industries, partly because of the more certain and more favorable investment climate (OECD 2010).

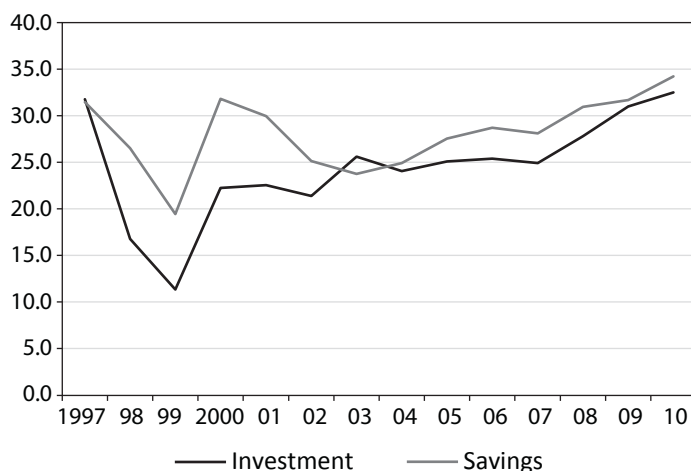
## **B. Economic Policies**

Postcrisis, macroeconomic stability has been sustained through prudent fiscal policies, initially under tight control by the International Monetary Fund, which brought inflation under control in the aftermath of the crisis of 1998. It was supported by a conservative monetary policy by third world standards, promoted by an independent central bank, and a flexible exchange rate.

**Figure 2: Annual GDP Growth in Indonesia, 1990–2010**

Note: 2011 and 2012 are projections.

Sources: *Key Indicators* (ADB 2010) and *Asian Development Outlook* (ADB 2011).

**Figure 3: Savings and Investment as a Percentage of GDP**

Source: Asian Development Outlook Database (ADB 2011), accessed 11 April 2011.

**Table 1: Annual Growth of GDP by Major Sector, Pre- and Post- Asian Financial Crisis, 1990–2008 (percent per annum)**

	1990–1996	2000–2008
Agriculture	3.1	3.9
Mining and Utilities	5.3	1.5
Manufacturing	11.2	5.2
Construction	13.7	6.5
Wholesale Trade	8.9	5.8
Transport	8.2	10.1
Other Activities	6.4	5.8
Total	7.9	5.3

Source: ADB Statistical Database System, available: [//sdb.aadb.org/sdb/index.jsp](http://sdb.aadb.org/sdb/index.jsp), downloaded 11 April 2011.

Macroeconomic policy has broadly encouraged investment, even though inflation has been higher than among many of Indonesia's trading partners, and modest appreciation of the exchange rate has probably not helped export competitiveness in the past 5–7 years (McLeod 2011). Cautious macroeconomic policy bore fruit when Indonesia was only marginally affected during the global financial crisis of 2008–2009.<sup>6</sup> Resilience at this time can be attributed to strong macroeconomic fundamentals, private consumption, government spending, and less dependence on external demand (ADB 2010, OECD 2010, IMF 2010).

While macroeconomic strategy has been broadly pro-growth, the same cannot be said of microeconomic policies. Besides the uncertain investment climate in a more democratic polity, it is widely agreed that failure to improve infrastructure and its management in key areas—especially roads, ports, and electricity supply—has discouraged private sector investment, despite government attempts to attract foreign and domestic investors to in these areas (Manning and Roesad 2006, OECD 2010).

Labor market policies are discussed in detail below. However, it is noteworthy that the timing of more protective labor policies was important in negatively affecting investment climate. A bundle of tight labor regulations were introduced precisely at a critical time (2000–2003) when Indonesia was seeking to retain investor interest in export-oriented industries after the Asian crisis and regime change in Indonesia. Many investors who were looking for opportunities in low-wage industries had turned toward the PRC and Viet Nam. The World Bank employment rigidity index for Indonesia has been high by international and regional standards ever since. It was assigned a value of 40 in 2008 and 2009, well above the 16.6 average score of developing countries in East Asia and the Pacific for the same years.<sup>7</sup>

Indonesia's investment climate has also been ranked low by the IFC annual reports. Indonesia passed a new, more liberal investment law in 2007 (and a new law governing investments in minerals in 2009), which provided for national treatment for foreign investments and clarified the country's negative list. However implementation has lagged, in part due to domestic interest group pressures to protect local investors. Issues of governance also continue to bedevil the tax office, despite efforts to streamline tax payments made by large investors and to punish corrupt tax officials.

Some of these issues have a regional dimension, given the decentralization of major expenditure functions from 2001. It is generally agreed that investor uncertainty has increased with the decentralization of some decision making over investment approvals and to the regions, and sometimes *ad hoc* regional government intervention in trade and arrangements (Von Luebke 2009).

<sup>6</sup> Compared to the Asian financial crisis, the impact of the recent global financial crisis on Indonesia's economy was benign. GDP growth did slump in 2009 but quickly recovered the following year, as apparent in Figure 2.

<sup>7</sup> The index takes a value of 100 for the most restrictive or rigid employment policies. Indonesia's severance pay score is also second highest in the region at 34.7, surpassed only by the Lao People's Democratic Republic (World Bank 2010a).



## C. Labor Markets and Employment<sup>8</sup>

The employment record in manufacturing and in relation to exports needs to be set in the context of the overall structure of the labor force, employment, and wages. The Indonesian labor market it is still very much in transition, from that of a low-productivity rural economy with an elastic supply of unskilled workers, to one dominated by higher output per worker in industry and services (World Bank 2010b). Most jobs are found in low skilled and low productivity areas of agriculture and the informal sector.<sup>9</sup> Tradable goods sectors (agriculture, mining, and manufacturing) account for around half the total.

Unemployment is mainly experienced by young, more educated workers and was a little under 8% in 2009. In contrast, underemployment was more common among older workers, both for involuntary underemployment (employees seeking more hours) and voluntary underemployment (part-time work) (see Figure 4). Underemployment was especially high in agriculture and the informal sector in 2009. Both unemployment and underemployment are high among females, and are well above average by regional standards, suggesting excess supply as one defining characteristic of the labor market.

Manufacturing workers were more likely to be young and female, compared with workers in other sectors. While average productivity and wages were much higher in manufacturing than in agriculture, they were lower than in services (and much lower than in mining); services employ a much higher proportion of more educated workers, especially in the public sector.

During the period 2000–2005 (the main focus of the analysis of the trade–employment nexus to be described later) the record on formal sector employment was especially poor.<sup>10</sup> Economic growth was still low and recovering from the crisis and political change. The index of wage employment in regular wage jobs (as against casual jobs) declined through to the middle of the decade. Unemployment rose from around 8% in 2001 to 11% in 2005, and rose much higher among young people (Figure 5). The movement of workers out of low-productivity agriculture stalled, and the informal sector (including casual wage employees) absorbed most of the increase in employment.

After recovering for a short period in the early 2000s, real wages also stagnated through to the middle of the 2000s, both for females as well as males (World Bank 2010b). These developments stood in stark contrast to the period before the crisis, when employment

<sup>8</sup> A separate note prepared by Manning (2011) for this project provides details on labor market structure in 2009 and the changes in the labor market in the post-Asian crisis period through to 2009, mainly based on data compiled in the National Labor Force Surveys.

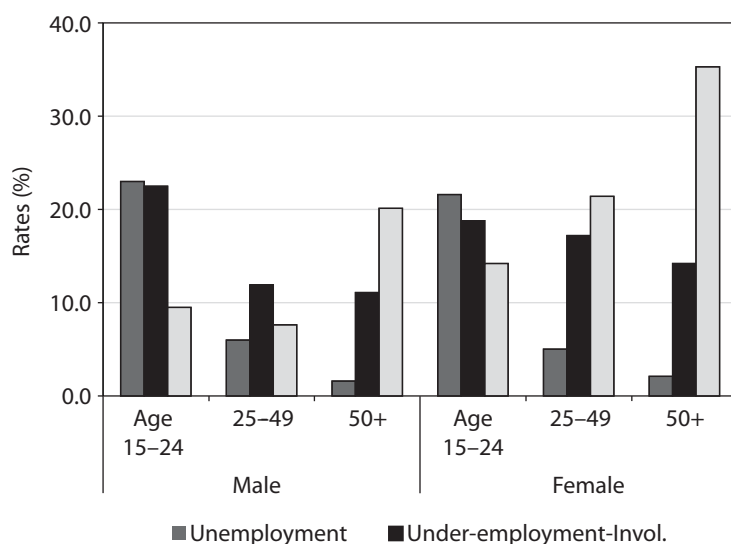
<sup>9</sup> Just over 40% of all employment is in agriculture and 60% of all nonagricultural employment were in the informal sector in 2009.

<sup>10</sup> As the figures show, labor market conditions improved somewhat in the second half of the 2000s (see also World Bank 2010b).

and wage increases in the formal sector outside agriculture had driven real wage increases and declines in poverty (Manning 1998).

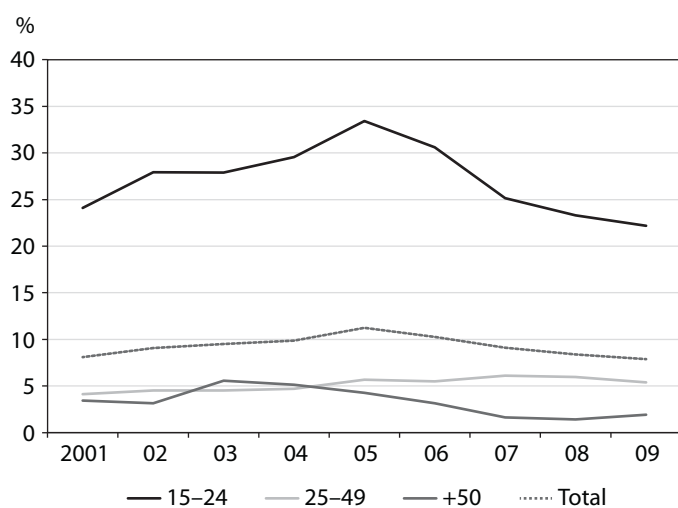
As noted in the introduction, employment in the manufacturing sector was much slower after the Asian financial crisis. Aswicahyono et al. (2011) show that the composition of jobs changed significantly, away from larger, more labor-intensive, and export-oriented industries, such as garments and footwear, in the period 1996–2006.

**Figure 4: Unemployment, Involuntary and Voluntary Underemployment by Age and Sex, 2009**



Source: National Labor Force Survey (BPS 2009).

**Figure 5: Unemployment Rate by Age Group, Indonesia 2001–2009 (percent)**

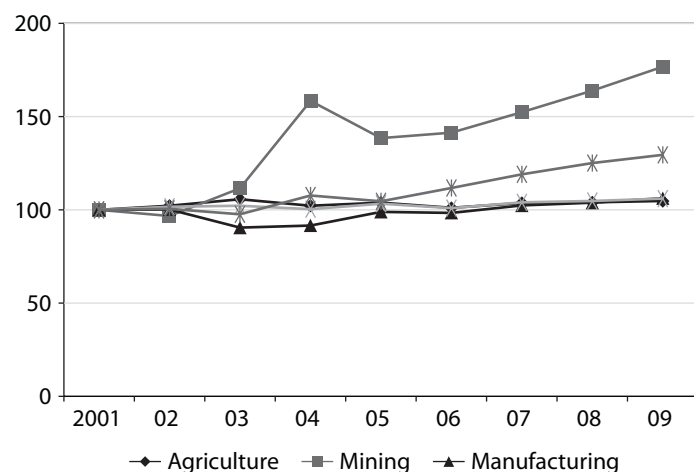


Source: National Labor Force Survey, August rounds 2001–2009 (BPS, various years).

Figure 6 provides supporting information on the stickiness of manufacturing employment compared with employment in other sectors in Indonesia 2001–2009. Like in agriculture, manufacturing jobs hardly rose during this period, actually falling in the first part of the decade and then recovering slightly from around the middle of the decade. Insofar as there was an improvement in jobs, it came from the nontradable, service industries and construction. The contrast could not be greater with the precrisis period when manufacturing employment growth was more rapid than total employment growth from the 1970s (Manning 1998).

Data from the annual Large and Medium Manufacturing Surveys confirm Aswicahyono et al.'s (2011) contention that the main contributor to this poor record in manufacturing employment has been the slowdown in jobs in labor-intensive industries (textiles, clothing and footwear, furniture and other wood products). All these industries experienced a dramatic turnabout in jobs from 2000, and the share of total employment in these industries fell steeply from just under 50% to less than one third in 2009 (Table 2). Several other industries grew strongly, such as food products and beverages, electronics, and transport equipment. But the rise of the latter was not sufficient to offset the decline in jobs in the large, more labor-intensive industries. A key question raised in this paper is the extent to which this turnabout in employment in manufacturing can be attributed to trends in exports, rather than in output destined for the domestic market. We return to this subject after discussing labor regulations.

**Figure 6: Index of Employment by Major Industry, 2001–2009 (2001 = 100)**



Source: National Labor Force Survey, August rounds 2001–2009 (BPS, various years).

**Table 2: Index and Share of Employment in Selected Industries in Large and Medium Firms in Manufacturing, 1990–2009**

	Index of Employment (2000 = 100)				Share of Employment (%)		
	1990	2000	2005	2009	1990	2000	2009
Food Products and Beverages	69	100	107	141	15.4	13.7	18.9
Selected Light industries							
Textiles	63	100	86	56	15.6	15.2	8.3
Garments	51	100	94	80	9.1	11.1	8.7
Wood and wood products	84	100	80	69	12.3	9.0	6.1
Furniture and other	39	100	93	120	12.3	9.0	6.1
					49.1	44.3	31.2
Selected Heavy Industries and Chemicals							
Chemical and chemical products	70	100	108	81	5.1	4.5	3.6
Rubber and plastics products	85	100	115	180	9.3	6.7	11.9
Other nonmetallic mineral products	68	100	98	77	4.3	3.9	2.9
Electronics and communications	19	100	91	118	1.1	3.6	4.1
Motor vehicles and related	76	100	145	118	1.4	1.1	1.3
Other transportation equipment	71	100	86	118	1.8	1.6	1.8
					23.0	21.4	26.6
All Manufacturing	61	100	98	102			

Source: Survey of Large and Medium Manufacturing (BPS, various years).

## D. Labor Regulations

On paper, the Indonesian labor market is highly regulated. Post-Soeharto governments totally revamped the regulatory framework governing conditions of work, social protection, workers rights, and industrial relations and labor courts (see Manning and Roesad 2007). Regulations in three areas deserve special mention in the context of labor market flexibility, standards, and job creation:

- (i) *Minimum wages.* Minimum wage policy combines a degree of regional variation with a degree of rigidity, in levels of minimum wages, de facto, which are set close to average wages in most provinces and districts. This makes wage adjustments to shocks problematic (Suryahadi et al. 2003). Wages in both provinces and districts are set annually. They are based on tripartite negotiation taking into account the cost of a “decent” standard of living, determined by the price of items included in a set consumption bundle of goods.<sup>11</sup>
- (ii) *Severance Pay.* Rates of severance play a central role as a social safety net for displaced and retiring workers, given that Indonesia does not have a

<sup>11</sup> In 2009, minimum wages were increased on average around 10% across various provinces as a result of spiraling prices during 2008 (driven by both fuel and rice price increases). The Jakarta minimum wage was set at just over 1.1 rupiah (Rp.) million in 2010 or approximately \$120 per month (\$1 = Rp. 9,000), similar to that in the only free trade zone in Batam, compared with approximately Rp. 500–600,000 per month in several of the lower wage provinces and districts (high minimum wages are offset by the higher cost of living in the capital and areas like Batam and Papua).

national system of unemployment benefits. Rates are based on years of service (calculated in terms of multiples of the level of workers' monthly wages at the time of separation from the firm). They are high by international standards and rose steeply in the early postcrisis years (2000–2002), as a result of both significant increases in rates as well as minimum wage increases (Manning and Roesad 2007). Costs are borne entirely by the employer.<sup>12</sup>

- (iii) *Fixed Term Contracts (FTCs) and Outsourcing.* By international standards, the Manpower Law places tight restrictions on FTCs, which are limited to a maximum of 3 years (2 years plus a 1-year extension). The legislation permits FTCs only for certain activities such as temporary or one-off activities, seasonal and temporary work, and jobs associated with new products on trial. Subcontracting or outsourcing is only permitted for the enterprise's "noncore" activities.<sup>13</sup>

These new regulations stand in contrast to international trends, which moved in the direction of improving labor market flexibility from the 1990s, through greater individual and collective bargaining, especially in Latin America. After the reform period, there has also been greater pressure for observance of the laws. Even if implementation often lags,<sup>14</sup> it has been argued that protective legislation has provided an improved environment especially for workers represented by the now freer and smaller unions, which are unable to match employers in collective bargaining (Caraway 2004).

It is the combination of these tight labor regulations with slower rates of economic growth and job creation that provide the context for the discussion of export performance and employment. We now turn to this subject.

## IV. Exports and Employment

This section examines which export sectors and commodities have grown rapidly and which ones have slowed down, and what has been their impact on employment. The analysis of direct and indirect links between exports and the labor market covers the 20-year period 1985–2005 for which data are available from the input-output tables. These

<sup>12</sup> For example, the law mandates a severance payment equivalent to over 20 months of monthly wages in the case of the dismissal of a regular worker for economic cause, after 10 years of service.

<sup>13</sup> By law, a firm is permitted to outsource (or subcontract) certain components of production and hire certain services from specialized enterprises (such as catering or cleaning or security). In all cases, protection of workers and working conditions is the responsibility of the supplier firm, and must be at least of the same standard as in the "core" firm.

<sup>14</sup> While the Indonesian labor market is highly regulated by law, low levels of both government and union oversight of the laws, and pressures of excess supply from unskilled labor, contribute frequent noncompliance with official legislation, especially in smaller firms. Tighter regulation may have encouraged a wider use of flexible labor arrangements in recent years, especially the employment of contract and casual workers (Chandra 2008, Tjandraningsih and Nugroho 2008).

data, combined with aggregate manufacturing output and employment data through to 2009 (shown above), enable us to explore what role exports might have played in the jobs revival through to the end of the decade.

The much faster growth of output for exports than for the domestic market, and the import of raw materials, capital goods, and embodied technology has triggered a transformation of labor markets in several countries in East Asia. Following the experience of Japan, manufacturing exports, initially labor-intensive and later more capital- and skill-intensive, drove growth in jobs and labor market transformation. This proceeded first among the four Northeast Asian Tigers in the 1960s and 1970s, then later in several Southeast Asian countries including Indonesia, and most recently in the PRC and Viet Nam from the 1990s (e.g., see World Bank 1993, Manning and Posso 2010).<sup>15</sup> A feature of the link between exports and employment in most of these economies has been a relatively unregulated labor market, and limited opportunities (“space”) for trade unions to bargain up the price of labor in the early stages of development.

What has been the experience of Indonesia, especially in the postcrisis period? We start the discussion by looking at the structure of exports by groups of products and services, and then turn to their employment effects.

Following the work of James and Fujita (2000), exports are classified into five major sectors based on the 66 sector classification in the Indonesian input–output tables: primary sectors, food processing, light industry, heavy industry, and services.<sup>16</sup> The analysis focuses on a comparison of trends for two periods: prior to the crisis (1985–1995), and the period spanning the crisis and postcrisis years (1995–2005). The latter period covers both the period of crisis and recovery through to 2000, and a period of more normal growth in 2000–2005.<sup>17</sup>

## **A. Export Growth and Structure**

Annual growth rates in the value of exports were only slightly higher than those of GDP in the postcrisis period at 6% per annum, lower than the 10% recorded in the decade before the crisis (see Figure 2 above for GDP figures). Three key points stand out, as shown by the data on export trends (Table 3 and Figure 7). First, there were big compositional shifts between industry groups. High growth rates (8%–9%) from 1995 in three industry groups: primary sectors, food processing, and heavy manufacturing/chemicals, in contrast to much lower growth in services and light manufacturing. Most important, the pronounced shift toward manufacturing in the pre-Asian crisis period of 1985–1995 did not last after

<sup>15</sup> The PRC is the classic example. It is argued that the growth in manufacturing exports had a major impact on the country’s capacity to move toward a “turning point” in labor markets in the 2000s (Garnaut 2010).

<sup>16</sup> We extend the James and Fujita (2000) estimates the employment impact of exports in each of the five sectors to the period 2000–2005. For comparability, we retain their classification of industries, although there are some problems in equating their category of “light industry” with labor-intensive industries.

<sup>17</sup> Data are not yet available from the 2010 input–output tables.

the crisis. The manufacturing share of exports fell back to 40% of all exports by 2005, after total manufacturing rose from a 15% share to account for half of all exports in the decade before the crisis.

This was largely due to the disappointing export performance of light manufacturing industries: A large share of manufacturing exports now consisted of capital-intensive and chemical products rather than light industry, while machinery and electrical goods accounted for almost one quarter, eclipsing the previously dominant textiles, clothing, and footwear (TCF) industries.

Second, the share of primary exports, after declining precipitously in the period 1985–1995, rebounded from 1995 to just under one third of the total by 2005.<sup>18</sup> This time, the surge was partly led by coal and other mineral exports, in addition to petroleum and natural gas, which had driven growth in the early decade. To some extent, the trend from 2000 was again toward greater dependence on natural resources; but for these products the direct impact on employment was likely to be small. Within the primary sector, the share of “traditional” agricultural commodity exports (rubber, coffee, and tea), and estate products remained small, as did timber and fisheries exports: in total, these two groups together barely recorded more than 5% of total exports in 2005.

Third, there are some important developments among the other two groups of food processing and services. The former grew strongly from a low base after the crisis: 15% annually in 2000–2005. This rapid growth was largely due to the rapid expansion in processed oils, mostly palm oil, which accounted for over half this category in 2005. Among the service categories, trade was by far the largest contributor, followed by restaurants and hotels, the latter presumably closely associated with the tourist industry centered in Bali.

## **B. Exports and Employment**

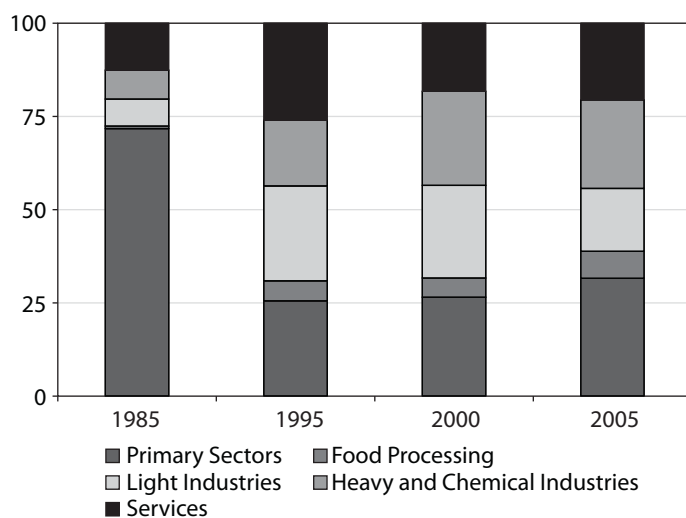
How has this changing structure of exports affected employment? First we show the impact of exports on total employment before and after the Asian crisis (Table 4). According to these calculations, employment created by exports reached a peak at just below 18 million in 2000. This amounted to just under 20% of total employment, at a time when incentives for exporting were at an all time high, associated with the large exchange rate depreciation during the Asian crisis. Note that the estimated contribution of exports to total employment declined quite markedly subsequently to only 17% in 2005, partly as a result of a slowdown in export growth, and partly related to a change in the composition of exports away from light industry.

<sup>18</sup> The share of primary products in total exports declined steeply from 72% in 1985 to only one quarter of total exports a decade later.

**Table 3: Value of Exports and Growth of Exports by Industry Group, 1985–2005**

	Value of Exports (\$ billion)				Annual Growth Rates (%)			
	1985	1995	2000	2005	1985–1995	1995–2000	2000–2005	Total
Primary Sectors	14.5	13.9	17.9	31.8	–0.5	5.1	11.5	8.3
Food Processing	0.1	2.9	3.5	7.3	30.0	3.8	14.6	9.2
Light Industries	1.5	13.9	16.8	17.0	22.5	3.8	0.2	2.0
Heavy and Chemical Industries	1.6	9.6	17.1	23.9	18.0	11.5	6.8	9.1
Services	2.6	14.2	12.4	20.7	17.1	–2.7	10.3	3.8
Total	20.3	54.4	67.6	100.7	9.9	4.3	8.0	6.2

Source: Input-Output Tables, 1985–2005 (BPS, various years).

**Figure 7: Share of Total Export Values by Industry Group, Manufacturing, 1985–2005**

Source: Input-Output Tables, 1985–2005 (BPS, various years).

The data presented in Table 4 also show that employment induced per unit value of exports declined significantly in the first half of the 2000s; in 2000, it was similar to that achieved during the height of the manufacturing export boom in 1990 (not shown in the table), but at \$1 million value of exports, employment declined sharply, from around 260 in 2000 to 160 persons in 2005.



**Table 4: Employment Induced by Total Exports, 1985–2005**

	1985	1995	2000	2005
Total Employment (m.)	66.5	87.3	93.3	95.5
Employment induced by exports (m.)*	4.7	10.3	17.8	15.8
Percent	7.1	11.8	19.0	16.6
Export (billion Rupiah)	22,523	122,360	569,490	977,105
Exchange rate	1,111	2,249	8,422	9,705
Deflator	0.797	0.875	1.000	1.033
Export (million dollar, current)	20,272	54,406	67,619	100,681
Export (million dollar, constant)	25,444	62,207	67,619	97,420
Employment Induced/US\$ 1 million, current	234	189	263	157
Empl. Induced/US\$ 1 million, constant	186	166	263	162

Source: Input-Output Tables and National Labor Force Data (BPS, various years).

Table 5 provides a more detailed breakdown of employment created by exports by major sector for 1985–2005. Two patterns stand out. In contrast to the modest contribution of services to the value of exports, a high proportion of jobs were created in services, and many of which were indirect (created by exports from other sectors). As Table 5 shows, for example, some seven million jobs were created in services in 2005 but only a little under five million of these were created directly by services exports (not shown in the table). The balance was due to exports from other sectors with linkages to services. It is not surprising, therefore, that while jobs in the services sector accounted for almost half of all jobs generated through exports in 2005, they only accounted for 20% of the total value of exports in the same year. The table underpins the importance of looking at both direct and indirect effects of exports in discussing their employment impacts.

Second, besides jobs in services, employment generated by exports occurred mainly in primary sectors and in light manufacturing, with relatively little in food processing and heavy and chemical industries. While the percentage of jobs created in primary sectors was similar to their share of exports, it was higher in light industry, reflecting more jobs created per unit value of exports. In contrast, the two other manufacturing sectors (food processing, heavy and chemical [H&C] industries) accounted for a small share of total jobs, much smaller than their share of the total value of exports.

Over time, there have also been some significant changes in the distribution of jobs and the number of jobs created per unit of export value. The share of jobs rose in primary industry and services. Following trends in the value of exports discussed above, employment registered a recovery in primary industry, in contrast to the sharp decline in jobs in this sector before the Asian crisis. The share of jobs provided by the services sector also rose, although many of these jobs were the result of linkages with other exporting sectors. A lot of these services sector jobs were associated with manufacturing exports, as shipping and trading services activities expanded. In contrast, the light industry share of employment that had risen steeply before the Asian crisis fell slightly,

although not nearly as much as the decline in its share of exports after 1995. Besides services, this sector still created the most jobs per unit value of exports.

**Table 5: Employment, Exports, and Employment per \$1 Million Worth of Exports by Major Sector, 1985–2005**

	1985	1995	2005
Percent of All Jobs Created			
Primary sector	39.6	22.1	26.0
Food processing	0.8	2.3	1.9
Light industries	18.8	24.6	22.0
Heavy and chemical industries	3.8	4.9	5.3
All manufacturing	22.6	29.5	27.3
Services	37.0	46.0	44.7
Total	100	100	100
Million	4.74	10.30	15.83
Percent of Exports			
Primary sector	71.7	25.5	31.6
Food processing	0.7	5.3	7.2
Light industries	7.2	25.5	16.9
Heavy and chemical industries	7.8	17.6	23.8
All manufacturing	15.0	43.1	40.7
Services	12.6	26.0	20.6
Total	100.0	100.0	100.0
\$ Billion	20.3	54.4	100.7
Jobs per \$1 Million Worth of Exports			
Primary sector	129	164	130
Food processing	261	82	42
Light industries	610	183	205
Heavy and chemical industries	113	53	35
All manufacturing	678	318	181
Services	686	334	341
Total	234	189	157

Source: Input–Output Tables, 1985–2005 (BPS, various years).

Significant job increases were not recorded in all growing export sectors, however. Despite their increasing share of total exports, food processing and H&C industries have not registered much of a rise in employment.<sup>19</sup> While the share of the value of H&C exports tripled, from 8% to 24% from 1985 to 2005, the share of jobs created in these export sectors only rose marginally from 4% to 5%. In both these industries, exports were more capital- or technology-intensive than in other sectors. For example, the H&C industries only created 35 jobs per \$1 million of exports in 2005, only one tenth the number of jobs per unit value of exports in services (341 jobs), and only slightly more compared to light industry (205 jobs). In contrast, the higher implied employment elasticity of exports in services is probably related to the creation of many jobs in small-scale

<sup>19</sup> In food processing, the share of jobs actually declined after the crisis, despite a significant rise in export values. Most of the new jobs were in relatively capital-intensive palm oil processing plants.

trading and service activities, where technological change is likely to have had less impact on employment.

Nevertheless, the number of jobs created by increased unit values of exports has fallen in all industries. For example, they fell almost threefold even in light industries: from over 600 jobs per \$1 million of exports in 1985 to just over 200 in 2005. The declining number of jobs generated per unit of exports was also apparent in services although it was less marked than in other sectors.

### C. Manufacturing Exports and Employment

For manufacturing, the paper examines how much employment was created in various subsectors and speculate on the likely determinants of these patterns and trends. Table 6 and Figure 8 show the growth of manufacturing output and employment in the main industries in the sector, distinguishing between the main light industry and heavy and chemical industries.

**Table 6: Growth Rates of Exports and Employment in Light and Heavy Manufacturing, 1985–2005 (percent per annum)**

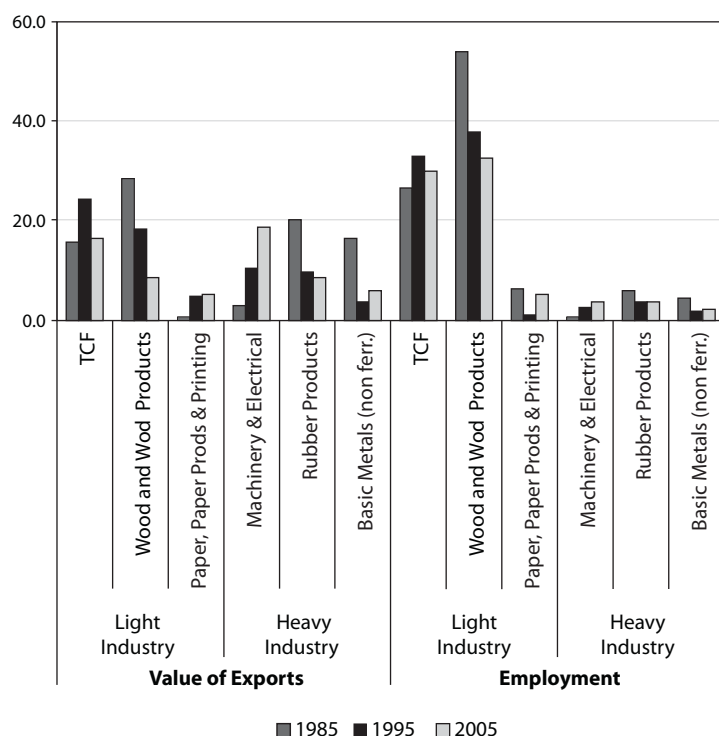
Industry Groups/ Industries	Value of Exports*		Employment		Growth of Output/ Employment	
	1985–95	1995–2005	1985–95	1995–2005	1985–95	1995–2005
Light Industry						
TCF	25.5	2.0	12.9	5.2	2.0	0.4
Wood and wood products	16.7	–1.4	7.3	5.4	2.3	–0.3
Paper/paper products and printing	41.5	7.5	22.7	20.1	1.8	0.4
Spinning industries	40.9	6.4	15.3	10.2	2.7	0.6
Other	32.3	3.1	30.2	6.3	1.1	0.5
Subtotal	22.5	2.0	10.8	6.1	2.1	0.3
Heavy Industry						
Machinery and electrical	34.3	37.8	22.2	28.8	1.5	1.3
Rubber products	13.7	7.0	6.2	3.4	2.2	2.1
Chemical industries	22.1	19.8	9.2	9.6	2.4	2.1
Nonferrous basic metal industries	6.0	8.5	0.8	5.6	7.1	1.5
Transport equipment, manufacturing/repair	27.1	11.1	17.7	8.1	1.5	1.4
Nonmetallic minerals	37.4	16.4	30.2	11.6	1.2	1.4
Others (NEC)	21.4	10.1	23.3	14.5	0.9	0.7
Subtotal	18.0	17.5	11.3	9.9	1.6	1.8
Total**	21.1	12.6	10.8	6.6	2.0	1.9

\* Growth in the US\$ value of exports (current prices).

\*\* Includes processed foods.

TCF = textiles, clothing, and footwear.

Source: Indonesian Input–Output Tables, 1985–2005 (BPS, various years).

**Figure 8: Share of Exports and Employment, Selected Light and Heavy Industry Products, 1985–2005**

Source: Indonesian Input-Output Tables, 1985–2005 (BPS, various years).

Two main patterns are apparent. First, the slowdown in light industry job creation was experienced across the board except for paper and printing. In part, this was a consequence of slower growth. Exports in TCF hardly grew and they declined in the wood-based industries (including furniture) from 1995 to 2005.<sup>20</sup> Nevertheless, employment growth was still significant in both these industries, suggesting that some labor-intensive segments were still able to compete in world markets. For example, even though TCF and wood industries contributed less than 5% of the increase in the value of manufacturing exports in 1995–2005, they provided 40% of all jobs associated with exports in this period. These figures once again highlight the importance of labor-intensive activities for total employment in relatively labor-abundant countries like Indonesia.

Second, the potential for a range of H&C industries to create jobs was limited. Thus, the leading manufacturing export industries have had much less impact on the labor market in more recent years. Among major sectors, employment generated by exports in machinery and electrical products and nonmetallic minerals grew quite strongly from a low base. However, these increases were counterbalanced by much slower growth

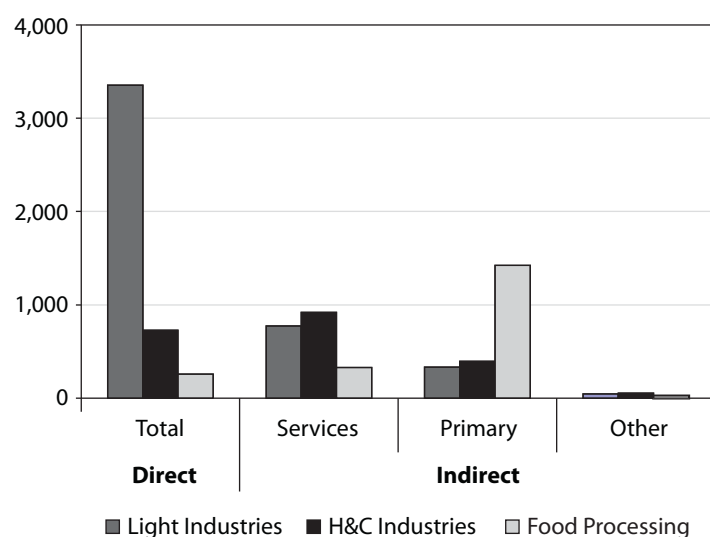
<sup>20</sup> The value of exports continued to rise slowly in the TCF industries in 2000–2005, while they fell in the wood-based industries.

in employment in rubber products and chemicals, despite quite impressive growth in the value of exports in these two sectors. The share in the value of the H&C industries exports rose quite steeply while their employment share hardly changed. In contrast, the share of the value of exports of TCF and wood-based industries declined quite steeply in the main export sectors in light industry, yet their share of total employment also still remained relatively constant.

Two caveats need to be added to this picture of limited employment creation associated with H&C exports, compared with light industry. First, in line with international patterns, we can expect the skill composition of jobs to be significantly higher in the H&C industries than in light industry.<sup>21</sup> Thus, the contribution to overcoming unemployment of skilled workers and to human capital formation is likely to be greater. Average wages are also higher in H&C. Second, H&C exports created significantly more jobs indirectly in upstream industries, rather than through direct hires (Figure 9). The number of jobs generated indirectly was larger in H&C than in light industries, even though total employment created was two times higher in light industry, as a result of stronger direct employment effects. The majority of jobs created indirectly in other sectors were in services (transport, trade, and related industries).

A significant number of jobs were also generated by H&C industries in primary sectors, which supplied inputs to heavy industries, such as petroleum and coal. This indirect impact on primary sector jobs was even more apparent in food processing industries, where the large majority of jobs created were indirect in various primary activities—around one third of which were in oil palm and a further 10% in coconut and maize (see Figure 9).

**Figure 9: Total Number of Jobs Created by Exports, Direct and Indirect, in Light and Heavy/Chemical Industries and Food Processing, Indonesia 2005**



Source: Indonesian Input–Output Tables, 1985–2005 (BPS, various years).

<sup>21</sup> This topic, while important, is beyond the scope of this paper. The input–output tables do not provide direct evidence on skills composition of employment generated.

## V. Concluding Remarks and Policy Implications

This paper has drawn on the framework developed by James and Fujita (2000) to study the relationship between exports and employment, using the input–output tables produced in Indonesia, and extending the analysis through to 2005. It is set in the context of the general slowdown in manufacturing employment in Indonesia after the Asian financial crisis, which has been attributed to both slower overall industrial growth and smaller employment elasticities with respect to output: employment becoming less responsive to output growth within sectors in recent years (Aswicahyono et al. 2011).

We found that one factor behind Indonesia's poor employment record in manufacturing in the period after the Asian financial crisis has been fewer jobs created in export-oriented industries than before the crisis. It was shown that the slowdown in employment was a consequence of two sets of factors: the slower growth of manufacturing exports postcrisis and the change in composition of exports away from light industry and toward the more capital-intensive food processing industry, and the heavy and chemical industries.

However, we also found that food processing and H&C industries created more jobs indirectly, through linkages with primary industry and services. Indirect employment through jobs created in service industries, especially trade and transport, was an important finding from the analysis. Overall, associated with exports, almost half of all additional jobs were created in this sector in 2005, and the share of services sector employment, much of it indirect, also increased over time.

This paper also found that the number of jobs created per unit of export has also declined over time, implying low elasticities of employment with respect to exports. From the standpoint of a balanced industrial and labor market transition (Ranis 2004), it can be argued that the compositional change toward more capital-intensive products and industrial upgrading within industries is premature in Indonesia. This contrasts with similar transitions in other East Asian economies, where technological upgrading has partly been in response to shortages of unskilled labor. We present data to suggest that the country still has a relatively elastic supply of unskilled labor, as evidenced by a large share of the workforce concentrated in low-productivity agriculture and the informal sector, high rates of unemployment and underemployment, and relative stagnation of real wage rates in the decade of the 2000s.

Why have export sectors, especially light industry, created fewer jobs in the postcrisis period? Part of the explanation lies in the four factors highlighted by Aswicahyono et al. (2011) in their discussion of the poor performance of employment in manufacturing in general: regulatory and policy uncertainty for investors, greater labor market regulation, very significant infrastructure constraints, and real exchange rate appreciation from the

mid-2000s.<sup>22</sup> All of these factors are likely to have been important for exports of light industry products such as textiles, clothing, and footwear. Most notable has been the failure to maintain public spending and attract private investment for the development of much needed infrastructure (roads, ports, and electricity supply), which are critical for the timely supply of products in these highly competitive industries.<sup>23</sup>

The paper has also highlighted the impact of introduction of more restrictive labor regulations on employment in Indonesia. This occurred precisely at a time of greater economic uncertainty after the Asian crisis and regime change in Indonesia. In contrast, the PRC and Viet Nam were both offering greater certainty, less regulation of employment, and special arrangements for foreign investors in low-wage industries in industrial and export-processing zones.

Although not easy to measure, it is also likely that labor regulations had a greater impact on investors in the TCF industries, in particular, those that employed large numbers of relatively unskilled workers. In these sectors, international competitiveness is particularly dependent on the flexible deployment of Indonesia's most abundant resource: relatively cheap unskilled labor.

We add three qualifications in regard to these findings on employment trends and prospects. First, the employment record in Indonesia improved in the second half of the 2000s, a period not covered by the analysis of input-output tables in this paper. However, we have also noted that output and employment continued to lag in the second half of the 2000s in the labor-intensive industries that had performed so well in the precrisis period. While the jobs situation has improved and unemployment fallen, manufacturing has only played a minor part in this turnabout.

Second, as Aswicahyono et al. (2011) note, slower growth in manufacturing employment is not only a problem in Indonesia, but also in several neighboring countries, faced with competition from the PRC, India, and Viet Nam. This is undoubtedly true. Nevertheless, we argue that it is not a reason for inaction. Unlike Indonesia, other Southeast Asian countries such as Malaysia and even Thailand have already long passed the phase of highly labor-intensive manufacturing growth. Arguably, they could no longer compete with the PRC or Viet Nam because of higher market-driven wage costs precrisis. They now continue to grow with levels of per capita income and wages well above Indonesia's.

<sup>22</sup> Athukorala (2006a) refers to major infrastructure constraints that have inhibited exports in more labor-intensive industries and agro-processing compared with neighboring countries, especially Thailand and Viet Nam.

<sup>23</sup> Pricing issues are also important for guaranteeing that supply capacity can meet demand. This is especially true in the case of highly subsidized electricity supply, the slow growth of which has contributed to increasingly erratic supply of power to households and firms in recent years (Jotzo and Narjoko 2007).



Indonesia's case is different. All indicators suggest that unskilled labor is still abundant. Rather, the poor investment climate has discouraged investment in more labor-intensive industries. Insofar as actual or perceived rising labor costs have discouraged investment, we have suggested that this may be partly attributed to more stringent labor regulations and a less flexible labor market, rather than demand-induced wage growth, as in other Southeast Asian countries.

The implication of lower investment and exports in labor-intensive industries is thus more severe for Indonesia. The country has hitherto largely missed out in the global production networks in electronics and automotive industries, the most rapidly growing sector in manufacturing in East Asia (Athukorala 2006b). Compared with neighboring countries, job creation has been small in these sectors. This also means missing out in connecting to the PRC locomotive, which has driven much of East Asian trade since the Asian crisis, in countries like Malaysia, Thailand, and Viet Nam (Athukorala 2009).<sup>24</sup>

The final qualification relates to the greater role that services appear to have begun to play in employment, both in relation to exports and more generally. This is a positive development, and one which Indonesia can respond to. Although much more information is needed on this important trend, it seems likely that more skill-intensive service employment in areas such as telecommunications, transport, and finance are now much more closely integrated with commodity exports and global integration. They are likely to play a much greater role in the economy in the future.

What policies might Indonesia adopt to reverse the disappointing recent record in employment creation related to trade, and especially exports? We suggest four potential areas for reform. First, the main constraints for Indonesia have been on the supply side (including the institutional context), rather on the demand side of both commodity and labor markets. The major issues are “behind-the-border” in production, trade, and labor regulations. Here we would argue that the crucial issue for job creation nationally is not just building corridors to connect different markets at home, as envisaged in national blueprints. Rather it is focusing on those that create most jobs for blue collar workers, and hence have greatest potential to reduce poverty. These are likely to be in labor-intensive export-oriented sectors where Indonesia still has a comparative advantage in terms of an abundant and well-educated workforce for a country at its current stage of economic development.

Second, the constraints to infrastructure development, including the slow rate of release of land for construction, are well known (OECD 2010). We have argued that solving these are especially important for generating more jobs. Deregulation of both government

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<sup>24</sup> Viet Nam is an outstanding example of a country where the link between very rapid export expansion, economic growth, and employment has been especially strong, led by labor-intensive industries such as garments, footwear, electronics, furniture, and some agricultural commodities (coffee and cashew nuts), which mostly remained competitive even during the global financial crisis (Manning 2009).



regulations and private sector monopolies are also pressing needs to improve efficiency and reduce costs in this area.

Third, in the area of labor, the highly regulated labor market appears to be an obstacle for more flexible employment relationships, especially in larger firms in the formal sector. One option is to consider a new package of reforms that might be more acceptable to labor unions than earlier rather blunt efforts at reform. The World Bank's (2010a) suggestion to revise some regulations, especially the high rates of severance, in return for better social security is one option. A carefully sequenced introduction of more comprehensive social security coverage for wage workers is one promising approach.

Fourth, we have also highlighted the role of jobs in the service sectors in relation to exports. As in several other Asian economies, many services are highly protected. This contributes to high domestic costs and a low quality of services, which impact on Indonesia's competitiveness. Greater international openness in areas such as business services and construction are likely to reduce business costs and create more jobs.<sup>25</sup> In the medium term, deregulation in the health and education sectors could be expected to generate employment through impacts on productivity and welfare, as has occurred in neighboring Malaysia, Singapore, and Thailand.<sup>26</sup>

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<sup>25</sup> In food processing, where Indonesia also has a comparative advantage, reforms relate to improving health and sanitary standards to meet the international requirements. Improved logistics (lower cost and more timely land and sea transport) are likely to be particularly important for growth of this sector (Athukorala 2006a).

<sup>26</sup> In the longer term, improving the low quality of education at all levels in is a major challenge (e.g., extremely low scores in Indonesia on international Trends in International Mathematics and Science Studies, see Suryadarma 2011).

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### About the Paper

Employment generation has been a challenge in Indonesia since the Asian financial crisis, especially in labor-intensive manufacturing. Haryo Aswicahyono, Douglas H. Brooks, and Chris Manning examine the impact of exports on jobs based on an analysis of input-output tables over the period 1995–2005. They find that fewer jobs were created through exports in manufacturing industries in 2005 than before the crisis. However, there was an increase in service sector jobs, partly because of indirect connections with the main export industries, which could be enhanced through greater domestic and international competition in services.

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