Arndt-Corden Department of Economics
Crawford School of Public Policy
ANU College of Asia and the Pacific

Australian National University

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Nurina Merdikawati

Crawford school of Public Policy
Australian National University

Sarah Xue Dong

Crawford School of Public Policy
The Australian National University

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Labour Regulation Shifts and Labour Intensive Manufacturing

Nurina Merdikawati and Sarah Xue Dong*

Abstract: This paper analyses the relationship between a significant shift to more stringent labour market regulations in Indonesia in the early 2000s and changes in employment patterns in the manufacturing sector. While this regulation shift has been associated with a notable decline in employment in labour intensive production in Indonesian manufacturing in the last two decades, there is little rigorous evidence to support the association. This study compares plants in labour intensive and non-labour intensive manufacturing industries over time, and use difference-in-difference method to analyse different employment trends between these two groups around the time of the labour regulation change. The findings indicate that that employment in plants in labour intensive manufacturing declined by 4 to 14 percent relative to plants in non-labour intensive manufacturing around the time of the labour regulation change. This pattern is robust to using different measures of labour intensity, and to controlling for other policies that can affect different industries differently during the same period including trade liberalisation, China's ascension to WTO and changes in Multi Fibre Agreement.

Keywords: Large and medium manufacturing; labour intensive manufacturing; labour regulations; employment; difference-in-difference

JEL codes: D22; J08; J21; L60; O14

* All correspondence to Sarah Dong, Crawford School of Public Policy, College of Asia and the Pacific, JG Crawford Building, Lennox Crossing, The Australian National University, Canberra ACT 2601, Tel: +61 2 6125 8282, E-mail: sarah.dong@anu.edu.au.

1. Introduction

Export oriented labour-intensive manufacturing has been the driver of growth and poverty alleviation in many developing countries. As China gradually loses its comparative advantage in labour-intensive production in face of increasing labour cost, policy makers in other labour abundant developing countries are assessing the possibility of becoming the next labour-intensive manufacturing hub. The implications of labour market regulations, which drive labour cost, are central to this policy discussion. There is, however, a dearth hard empirical evidence on how labour market policies affect the manufacturing sector, especially labour-intensive manufacturing, in a developing country context.

There is a substantial literature on the effect of labour market regulations in developing countries. Cross-country studies generally find negative relationship between stringency of labour market regulations and employment (Heckman and Pages 2003; Bertola, Blau and Kahn 2007; Feldmann 2009; Caballero et al. 2013). These studies have relied on comparable measures of labour market regulation stringency across countries, which are subject to the limitation of ignoring country-specific heterogeneity. Another strand of literature uses variation across regions within a country in terms of labour market regulations. They also in general find a negative relationship between stringent labour market regulations and employment and regional development, but need to argue for the exogeneity of cross-region variation in labour market regulations (Besley and Burgess 2004; Hasan, Mitra and Ramaswamy 2007; Rita and Carneiro 2009; Khamis 2013; Almeida and Poole 2017). This approach also makes it hard to assess the overall impact of a significant shift in labour market regulations at the national level.

The third approach is to compare across firms that face different degree of labour market regulations. For example, there is comparison between big and small firms (Leonardi and Pica 2013; Garicano, Lelarge and Van Reenen 2016) and comparison between formal and informal firms (Wahba and Assaad 2017). This approach requires the regulations to stipulate different treatment in terms of firm size or in terms of firm registration status. These stipulations do not exist in labour regulations in many countries. In terms of how labour market regulations affect firms in different industries differently, especially on how they

affect labour-intensive industries relative to non-labour-intensive industries, there is little empirical evidence.[1]

This paper examines the implications of the labour regulation shift in the early 2000s for manufacturing employment in Indonesia. After the Asian Financial Crisis in 1997/1998, the thirty-year rule of President Suharto ended and Indonesia transitioned into a more democratic government with decentralized governing system. At the same time labour market regulations were significantly tightened as union power increased. While trade union activity was repressed during the Suharto period, trade union freedom was guaranteed in Trade Union Law No. 21 issued in 2000. Dismissal protection regulations were amended in 2000 to significantly increase severance payment rates. In 2003, Indonesia enacted Manpower Law No. 13 which provides a more comprehensive and much stronger legal basis for more restrictive labour market in Indonesia.

Many studies have claimed that this series of labour regulation change has made the labour market environment much less pro-business and has caused the stagnation of the manufacturing sector, especially labour-intensive manufacturing, from the early 2000s.[2] This claim is mostly based on the observation that labour-intensive manufacturing has grown at double digit level in the 1980s and early 1990s and have been stagnant in output and declining in employment since 2000. There is limited rigorous analysis, however, to support this claim or to assess the trend of labour-intensive manufacturing relative to a suitable comparison group.

This paper examines the relationship between labour market regulation change and the changes in the manufacturing sector more rigorously. This is a difficult task as the regulatory changes apply to all firms regardless of industry and size, and to all regions. Also, the series of regulation change happened during a period of three years, and it is hard to pin down which time point is before regulation change and which time point is after regulation change. These difficulties may explain why there is little study on the regulation change during this period. Due to the importance and the magnitude of the labour regulation environment change, however, we attempt to evaluate its impact as best as we can.

[1] For a literature review on the effect of labor regulations in developing countries, refer to Heckman and Pages (2003), Djankov and Ramalho (2009) and Freeman (2010).

[2] See for example Aswicahyono, Hill, and Narjoko (2010).

Our approach is to compare plants in labour intensive manufacturing with plants in non-labour-intensive manufacturing overtime. We believe this comparison is valuable for the following reasons. First, labour-intensive manufacturing has been an important driver of growth and poverty reduction in many countries, including Indonesia, and therefore it is valuable to evaluate the relationship between labour regulations and outcomes in this particular sector. Second, labour-intensive manufacturing would be affected by stringent labour policies more compared with non-labour-intensive manufacturing as percent of labour cost in total cost is higher in labour-intensive manufacturing. Third, the best available firm level data in Indonesia is the annual census of manufacturing plants with twenty and more employees. Rather than comparing in terms of firm size or in terms of formal/informal status, this data is more suitable for cross-industry comparison. The comparison between labour intensive and non-labour intensive industries when assessing labour regulation effects is also used in Dougherty, Robles and Krisha (2011).

We follow the difference in difference (DID) literature and estimate the standard DID at plant level with labour intensive dummy interacted with year effects. We employ a long period of data from 1991 to 2005 to assess the trends before and after the regulation change. The definition of being in labour-intensive industry is the key for this estimation. The concept of labour intensity varies in the literature and different scholars use different measures of labour intensity. We use four different labour intensity measures following the literature to assess the robustness of our results.

Another methodological issue is the possibility that other policy change that happened around the same time may also affect labour intensive and non-labour intensive manufacturing differently. We try to control for other policies in the early 2000s that can provide alternative explanations including trade liberalisation, China's ascension to WTO in 2001, and changes in the Multi Fibre Agreement (MFA). We also control for foreign direct investment (FDI) and wholesale production index to account for potential influence of foreign investment and industry prices on employment.

Our results in general show that before 2000, the change in employment over time differ little between labour-intensive and non-labour-intensive manufacturing. After 2000, however, employment in labour-intensive manufacturing starts to decline relative to employment in non-labour-intensive manufacturing. This decline persists until the end of our estimation period, which is 2005. By 2005, employment in labour-intensive plants declined between 4 to 14 percent compared with employment in non-labour-intensive plants. Controlling for other

important policy changes around the same time does not change our results. These results point more to the hypothesis that the significant shift in labour regulations have contributed to the decline of labour-intensive manufacturing compared with non-labour-intensive manufacturing.

The rest of the paper is organised as follows. Section 2 describes the change in labour market regulations in the early 2000s. Section 3 explains the conceptual framework of our analysis and the empirical strategy. Section 4 discusses the data and summary statistics. Section 5 shows the estimation results. Section 6 presents robustness checks analysis. Section 7 concludes.

2. Labour regulation change in the early 2000s

A series of changes in the labour regulations in the early 2000s have significantly tightened the regulatory environment of the labour market in Indonesia. These changes happened in the context of a regime change following the Asian Financial Crisis. From 1965 to 1998 Indonesia was under the authoritarian rule of Suharto. The labour market was governed by Law 1/1951 and Law 14/1969 and regulations were largely unchanged during this period. A few ministerial decrees have increased severance pay in 1986 and 1996, and there was significant increase in minimum wage in the early 1990s. Nevertheless, the regulatory environment was relatively flexible and union movement was largely suppressed.

In the height of the Asian Financial Crisis in 1998 Suharto stepped down and a more democratic government was formed. As a consequence, trade union activities that were suppressed during the Suharto rule started to be more active. The trade union movement put pressure on the government to reform several laws related to the regulation of labour. In 2000, trade union freedom was guaranteed in the Trade Union Law No. 21/2000. In the same year, Ministerial Decree 150/2000 increased severance pay significantly. After a few years of discussion and negotiation, Manpower Law No.13/2003 was introduced in 2003. The 2003 Manpower Law provided a new legal framework for the regulation of the labour market. It has 193 articles and significantly increased labour protections in many aspects. The most important among them were the increase in severance pay, the restriction on fixed-term contracts and outsourcing, and the change in minimum wage setting.

From Table 1 below we can see that severance pay was significantly raised in 2000 by a ministerial decree especially for workers who have more than 10 years of service. In 2003

this rate was raised again by the Manpower Law. As a result of these changes, by 2003 Indonesia has one of the highest severance payment in developing countries. The increase in severance pay was also exacerbated by the sharp increase in minimum wage between 2000 and 2003, since the monthly salary in severance pay calculation is largely based on minimum wage. For example, for a worker that has 10 years of service that is dismissed due to economic reasons, real severance payment increased by 170% between 2000 and 2003.

Table 1. Severance payment rates (in months of salary)

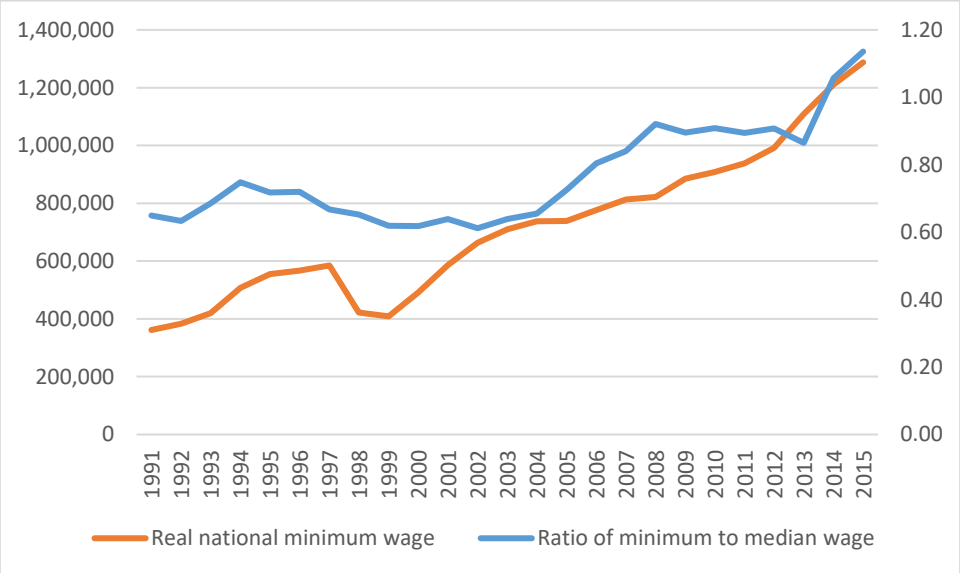
	Ministerial decree No. 4/1986		Ministerial decree No. 3/1996		Ministerial decree No. 150/2000		Manpower Law No. 13/ 2003	
Years of service	Basic	Double[a]	Basic	Double[a]	Basic	Double[a]	Basic	Double[a]
3	4	4	4	8	6	10	6	10
5	5	5	7	12	8	14	8	14
10	6	6	8	13	11	18	13	22
20	8	8	10	15	14	21	16	25
Maximum	9	9	11	16	17	24	19	28

Note: [a] Entitlement of twice the basic rate for severance pay is commonly applied to dismissals due to firms' rationalisation measures to increase efficiency, change of firms' status or relocation where firms do not offer employment to existing employees or separation from the firm on retirement.

The Manpower Law enacted in in 2003 put more restrictions on fixed term contract work and outsourcing work. Fixed term contracts can be a maximum of three years under the new law, while it was six years in previous legislations. The new law also restricts sub-contracting to a small set of activities. As a result, businesses have much less flexibility with tasks that are temporary or seasonal, and less opportunities to connect to cottage industries. The high severance cost and the restrictions on contract work and outsourcing greatly reduces the flexibility of businesses in terms of staffing. The Manpower law also set up a new framework for the determination of the minimum wage. Before the new law the setting of minimum wage was based on minimum living needs, and minimum wage was determined mostly by the central government for different provinces. The 2003 Manpower law changes the basis of the minimum wage to 'decent' standard of living. At the same time the decision on minimum wage was decentralized from the central government to the district government. These changes do not necessarily mean minimum wage will grow faster after the new law, but do provide more flexibility for the minimum wage to grow. Figure 1 below shows that real minimum wage grew rapidly between 2001 and 2006, after it recovered from the financial crisis. In fact, real minimum wage grew rapidly for the entire period since 2000, while the

ratio of minimum to median wage also grew significantly. These changes would also add to the increased cost of labour for businesses in Indonesia.[3]

Figure 1. Trends of real minimum wage and ratio of minimum wage to median wage



Note: The national minimum wage is unweighted average of all provincial minimum wages from the central statistical bureau (BPS). The median wage for all salaried workers is from *Sakernas*, collected by BPS. The national CPI (2010=100) is from the World Bank.

3. Conceptual framework and empirical strategy

3.1. Conceptual framework

Restrictive labour regulation increases the cost of employing workers through relative price effect, as argued by Besley and Burgess (2004). Considering a Cobb-Douglas production function of $Y = AL^{\alpha}K^{1-\alpha}$ for each manufacturing industry, we derive the marginal cost function following Dougherty, Robles, and Krishna (2011), $c = \left(\frac{1}{A}\right)\left(\frac{wR}{\alpha}\right)^{\alpha}\left(\frac{r}{1-\alpha}\right)^{1-\alpha}$. We denote w and r as the prices for labour and capital input. Labour regulation is captured through the constant R, which will be multiplied by wages to reflect the effective cost of labour. In the Indonesian context, the magnitude of R varies between the period before and after 2000 when the labour regulation started to become more restrictive, so $R_{after2000}$ is

[3] For a more detailed discussion of the regulatory change in labour market in the early 2000s, refer to Manning and Roesad (2007)

likely to be above 1. We can then calculate the percentage change in the marginal cost with respect to R: $\frac{\partial logc}{\partial \log R} = \frac{\alpha}{R}$, which is positive and increasing in α. Thus, more restricted labour regulation imposes higher marginal cost for the labour-intensive industries with a relatively higher α than the non-labour-intensive industries. The existence of R above 1 further amplifies the labour cost incurred by the labour-intensive industries than in the situation when such restrictive regulation is not in place.

3.2 Estimated equation

Following the conceptual framework, our empirical strategy focuses on comparing labour intensive industries and non-labour intensive industries in the large and medium manufacturing sector before and after the regulation change. This comparison is possible due to availability of quality data on the large and medium manufacturing in Indonesia. From the 1980s Indonesia has been conducting the Census of Large and Medium Manufacturing (plants with more than twenty employees). As a result, we have a panel of large and medium manufacturing plants long before and after the regulation change we study. We follow the difference-in-difference literature and estimate the following equation at the plant level:

$$y_{ijt} = \alpha\, LabourIntensive_j + \sum_{z=1991}^{2005}(\beta_z 1\{z = t\} * LabourIntensive_j) + \delta_i + \delta_t + \delta_{pt} + \mu + \varepsilon_{ijt} \quad (1)$$

where y_{ijt} is log of employment at plant *i* in industry *j* at time *t*. The first term on the right hand side of equation (1) is the labour intensity measure. It is equal to one if the industry *j* is labour intensive and zero otherwise. The second term is interaction of the labour intensive dummy and full set of year dummies. β_zs estimate the difference in trends between labour intensive and non-labour intensive industries. Instead of assigning a before period and an after period, we choose to estimate the coefficients in front of interaction of treatment with the full set of year dummies. This approach helps us to assess the parallel trend assumption more rigorously and also leaves the timing of the treatment more flexible. As discussed in the policy change section, as several labour regulations changed from 2000 to 2003, we believe this approach will help us assess when the regulation change likely started to have an effect. δ_i is plant fixed effect. δ_t is year fixed effect. δ_{pt} is the provincial fixed effects interacted with time fixed effects to capture different trends in regional development. μ is the constant,

and ε_{ijt} is the error term. The standard error is clustered at the five-digit industrial code, as labour intensity is defined at the industry level.

3.3 Measuring labour intensity

A crucial part of this analysis is to measure labour intensity and assign plants and industries to labour intensive vs. non-labour intensive groups. First of all, we take the approach that we measure labour intensity and assign the labour intensive dummy at the industry level. This is based on the assumption that different industries have different production technologies that take time to change. For example, apparel and footwear have remained labour intensive until today while automobile have always been capital intensive. Therefore, labour intensity at the industry level is relatively stable over time and is more suitable for assigning labour intensive vs. non-labour intensive groups.

To measure labour intensity at the industry level, we first measure labour intensity of the plants in each industry, and take the median of the labour intensity of all plants in the same industry as the labour intensity at the industry level. To measure labour intensity of each plant, we follow the literature to construct three measures. The first is the shares of wages out of value added (Jinjarak and Naknoi 2011), which is used to calculate the elasticity of value added with respect to labour in Aswicahyono (1998) and Timmer (1999). We use the values of total wage bill for all workers divided by total value added, all in nominal terms. Second, we use the same ratio but only account for production worker wages, who are relatively low-skilled and more likely to be affected by stringent employment regulations. Third, we take the ratio of employees divided by real sales following Dewenter and Malatesta (2001). We use the wholesale production index as the deflator for nominal sales of produced goods and manufacturing services.[4]

These three labour intensity measures at the plant level are derived from the variables that are available in the census of manufacturing plants. Then we assign a labour intensive dummy to each industry and plant according to the following procedure: First, we calculate the median labour intensity for each plant across years (1991-2005). Then we calculate the median of

[4] We thank Sadayuki Takii for sharing his data on WPI in Indonesia. His dataset are aggregated at four-digit industrial code. We take the simple average of the corresponding WPI if there are more than one four-digit industrial codes belonging to one family of industry.

labour intensity for each industry across plants. Then we calculate the median of labour intensity across industries. If an industry's labour intensity is equal to or higher than the median, we define this industry as labour-intensive, and if an industry has lower than the median, we define this industry as non-labour-intensive. If a plant belongs to a labour-intensive industry, we define it as labour-intensive, and if a plant belongs to a non-labour-intensive industry, we define it as non-labour-intensive.[5]

We also follow another approach to assign industries into labour intensive and non-labour intensive groups. We follow Tadjoeddin, Auwalin, and Chowdhury (2017) which assigns two-digit industry codes into labour-, resource-, and capital-intensive groupings based on their factor intensity of production. We assign a dummy of 1 for plants belonging to labour-intensive group and zero to others. Table A1 in the appendix provides the details of the classification. This approach of classifying the industries into different groupings based on their relative factor intensities dated back to Krause (1982) which classifies traded commodity groups into natural resource, technology, unskilled labour, and human capital intensive groupings. Groupings into unskilled labour-intensive is based on the lowest value added per worker while technology and human capital-intensive categories are based on the ratios of research and development expenditures to value added. By using the groupings already defined in Tadjoeddin, Auwalin, and Chowdhury (2017), it is possible that they do not accurately reflect the relative factor intensities of the existing manufacturing plants in Indonesia.

3.4 Alternative explanations

The major challenge in interpreting the estimates from Equation 1 as driven by labour regulation change in the early 2000s is that other policy changes or events that happened around the same time may also affect labour intensive vs. non-labour intensive industries differently. Based on our understanding, several changes around the same time could potentially have these effects. The first one is China's entry into WTO in 2001. As China also had a comparative advantage in labour intensive manufacturing in the early 2000s, its entry into WTO can pose a competition to Indonesia's labour intensive manufacturing. The second one is Indonesia's trade liberalisation in terms of tariff reductions. In the early 2000s

[5] We exclude plants whose labour intensity measures switch between labour to non-labour intensive in equal number of years. By doing so, we lose at most 1% of total firms or 0.6% of total observations.

Indonesia continued with its trade liberalisation and reduced tariffs by industry. If industries that were more labour intensive had higher tariff reductions, they may also face higher foreign competition. The third is the change to the Multi Fibre Agreement, which sets import quotas for US, EU, Canada and Turkey of clothing and textile. From 1995 to 2005 these quotas were gradually abolished. The abolition of the quota should promote the growth of the associated industries.[6] Therefore we control for each of these events at the industry level, by adding industry level policy controls $\boldsymbol{X}'_{jt}$ in Equation 2 below:

$$y_{ijt} = \alpha\, LabourIntensive_j + \sum_{z=1991}^{2005}(\beta_z 1\{z = t\} * LabourIntensive_j) + \boldsymbol{X}'_{jt}\gamma + \delta_i + \delta_t + \delta_{pt} + \mu + \varepsilon_{ijt} \quad (2)$$

To control for China's entry into WTO, we follow Majlesi (2016) to measure exposure of Chinese competition in the US market, one of the leading export destinations of Indonesia's manufacturing goods, at the industry level. If China and Indonesia had many common products exported to the US market, the industries experiencing a higher growth of China's import share in the US market would be affected more negatively. Therefore, we control for the import share of China in the total imports of industry *j* in year *t* in the US. As mentioned in Majlesi (2016) and other papers using similar measures as a proxy for Chinese competition, using China's import shares in the respective market can lead to endogeneity problem. For instance, if the changes in Chinese import shares are due to increase demand for specific Chinese goods in the US, this can have similar positive effects on Chinese and Indonesian industries. We follow the same instrumental variable strategy as used in Majlesi (2016) and Utar and Torres Ruiz (2013). We instrument the Chinese import shares in the US

[6] Starting in 1995, the textile and clothing quotas imposed by the US, European Union, Canada, and Turkey would be eliminated in four phases beginning in early 1995, 1998, 2002, and 2005. Those represented 16, 17, 18, and 49 percent of their 1990 import volumes, respectively. The goods chosen to be included in each phase were determined in 1995. Phase IV of quota elimination in 2005 tends to be the most binding as the importing countries often choose to liberalise their most sensitive textile and clothing products in the final phase (Brambilla, Khandelwal, and Schott 2010).

by the share of Chinese imports in the total world imports interacted by the 1999 Chinese import penetration rate in the US, before China's entry into WTO.

To control for the effect of trade liberalisation on different industries, we use the average of applied output and input tariff from UN Comtrade for each industry. For the output tariff, it is the simple average of six-digit HS goods that are linked to four-digit Indonesia's industrial classification system. The concordance between six-digit HS goods and four-digit industrial codes is provided by the Indonesian Central of Bureau of Statistics (BPS).[7] The input tariff is the weighted average of output tariff, with the weights vary across four-digit industry based on different types of goods used as the inputs. The information for the weights, the input shares of industry *j* in the production of goods, is from input-output table published by the BPS every five years. For 1991-1994 data, we use 1990 input-output table. For 1995-1999, we use 1995 input-output table. For 2000-2004, we use 2000 input-output table, and for 2005, we use 2005 input-output table.

To construct controls for the change in the Multi Fibre Agreement, we use dataset from Brambilla, Khandelwal and Schott (2010) consisting of textile and apparel products subject to MFA removal in four phases. For each product affected by the Multi Fibre Agreement, we have information on their phase of quota expiration and their import weighted tariff fill rate by year. The fill rate equals to exports from Indonesia as a percentage of adjusted base quota, with value between zero and one. Fill rate is our measure of quota restrictiveness with one being the most restrictive. It is calculated for each textile import category system reported by the US Office of Textiles and Apparel (OTEXA) which we then correlate to the harmonised tariff schedule system using concordance also from Brambilla, Khandelwal and Schott (2010).

Following the approach that we use for our tariff and trade variables, we aggregate the fill rates data to the industry level so the fill rate for each industry is the average fill rates of 6-digit HS products that are linked to Multi Fibre Agreement products. For Phase I products beginning in 1995, the measures are set to the fill rates observed in 1994 for the period

[7] We are unable to construct the concordance from HS into five-digit industrial codes as the dataset provided by the UN Comtrade only release information on applied tariff, export, and import up to six-digit HS codes. At least, we need information on nine-digit HS codes in order to accurately construct the concordance to five-digit industrial code.

between 1994 and 1996. For Phase II products beginning in 1998, the measures are set to the fill rates observed in 1997 for the period between 1997 and 2000. For Phase III products beginning in 2002, the measures are set to the fill rates observed in 2001 for the period between 2001 and 2003. For Phase IV products beginning in 2005, the measures are set to the fill rates observed in 2004 for the period between 2004 and 2005. For the period before 1994, the measures are set to zero as the industries were yet to be exposed to the Multi Fibre Agreement quota reductions. The measures are also set to zero for other industries not affected by the Multi Fibre Agreement.

We also include Foreign Direct Investment (FDI) value reported by the Investment Coordinating Board (BKPM) as a control variable, to account for possible changes in FDI policies. The BKPM reported the FDI data annually in US dollar at two-digit industry code. We calculate the real FDI value in Rupiah using the deflator from the World Bank's Wold Development Indicators. Additionally, we control for changes in industry prices by using the wholesale production index.

We also check if there is another policy change that coincides with the timing of more stringent labour market regulations and may explain the decline in the performance of labour intensive manufacturing plants. We find that there is a change in the negative investment list issued as Presidential Decree No. 96 in 2000, but we do not include it as a possible alternate explanation as there is no specific change targeted to manufacturing sector.

4. Data and summary statistics

4.1 Data

We use a census of manufacturing plants in Indonesia from 1991 to 2005 collected by BPS. This dataset track the manufacturing plants employing at least 20 workers, which is classified by the BPS as medium and large manufacturing plants. During the period between 1991 and 2005, the industrial classification scheme changed from KLUI 1990 (ISIC Rev. 2) to KBLI 2000 (ISIC Rev. 3) and then subsequently to KBLI 2005 (ISIC Rev. 3.1). There is no significant difference between KBLI 2000 and KBLI 2005, so the industrial classification using KBLI 2000 can be easily concorded to KBLI 2005. The difficulty lies in concording the industrial classification from KLUI 1990 to KBLI 2005.

To ensure consistent industry definitions in our sample period, we use the approach from Pierce and Schott (2012) to create "families" of five-digit and four-digit ISIC codes that are consistent over time. We also make sure that the sample only includes activities that are consistently classified as manufacturing over the period of 1991 to 2005. We exclude plants whose industrial classification is recycling of metal and non-metal waste and scrap (ISIC 3710 and 3720) as they are not classified as manufacturing activity based on KLUI 1990. In total, we have 297 (70) families of industries in comparison to 368 (128) five-digit (four-digit) industrial code based on KBLI 2005. We end up with smaller number of families of industries as a result of certain cases of 1:n and n:n relationships between two different versions of industrial codes.[8] Unless otherwise noted, our references to "industry" in this paper refer to these families. For 1,679 observations where the original dataset do not provide information on five-digit industrial code, we rely on their trends to pin down their five-digit industry code and subsequently families of industry. We exclude 15 plants which we cannot infer their five-digit industry code.

4.2 Summary statistics

Table 2 provides summary statistics of the labour intensity measures calculated using the Large and Medium Manufacturing Census. By using the median of labour intensity measures at the industry level as the cut-off to assign plants into labour-intensive (treatment) and non-labour-intensive (control) group, we find that around 70% of manufacturing plants in our dataset can be classified as labour-intensive plants. For the labour intensity measure based on the factor intensity grouping suggested by Tadjoeddin, Auwalin, and Chowdhury (2017), we have 117,642 observations classified as labour-intensive (39%) and the remaining 184,228 as non-labour-intensive plants.

Table 2. Summary statistics of labour intensity measures

Labour intensity measure	Measure 2 Share of wages for all workers divided by value added	Measure 3 Share of wages for production workers divided by value added	Measure 4 Ratio of employees divided by real sales

[8] For instance, there are two possibilities for converting industry 3222 based on KLUI 1990 into KBLI 2005, which are either 1810 or 1820. In this situation, the industries 1810 and 1820 are grouped as one family to account for the 1:n relationship.

Percentile across industries			
10%	0.269	0.156	0.006
25%	0.347	0.215	0.015
50%	0.443	0.299	0.031
75%	0.527	0.391	0.051
90%	0.592	0.478	0.077
Mean	0.436	0.306	0.040
SD	0.132	0.122	0.043
Number of plants that are: Labour intensive Non-labour intensive	209,718 90,356	216,911 83,067	218,389 81,757

The labour intensity measures 2, 3, and 4 derived from the variables in the dataset are highly correlated, as shown in Table 3. The reported pair-wise correlation among them is above 0.60. The correlation among labour intensity measure 1, 3 and 4 is close to 0.27, while the correlation between labour intensity measure 1 and 2 is 0.24.

Table 3. Pair-wise correlation among four labour intensity measures

Labour intensity	Measure 1 Plants whose 2-digit ISIC codes are 17, 18, 19, 20 and 36	Measure 2 Shares of wages for all workers out of value added	Measure 3 Shares of wages for production workers out of value added	Measure 4 Ratio of employees divided by real sales
Measure 1	1.000			
Measure 2	0.240	1.000		
Measure 3	0.273	0.744	1.000	
Measure 4	0.273	0.596	0.623	1.000

Table A2 in the appendix provides the list of families of industry and their corresponding five-digit industrial code based on KLUI 1990 and KBLI 2005. It also includes additional columns comprising the continuous and binary values of the four labour intensity measures at the industry level.

The summary statistics for all variables that we use in the regression are provided in Table 4. There are 36811 plants in our sample. On average we can follow a plant for eight years during the 1991-2005 period we look at. We can see that across plants and years each plant on average has 199 employees. The number of employees ranges from 20 to 116052. Number

of employees varies greatly across plants and also within plants over the years. In terms of labour intensive dummy, we can see that around 40 percent of plants are labour intensive according to measure 1, and around 70 percent of plants are labour intensive according to measure 2-4.

In terms of industry-level variables, we can see that we have 297 industries in our data, and for most industries we can follow them for the whole 1991-2005 period. All industry level variables vary both across industries and within industries over time.

Table 4. Summary statistics

		Mean	Standard Deviation	Min	Max	Observations
		Plant level variables				
Total employment	overall	199	713	20	116,052	N=301,870
	between		507	20	39584	n=36,811
	within		331	-17,366	107,910	T-bar=8.20
Labour intensive (Measure 1)	overall	0.39	0.49	0.00	1.00	N=301,282
	between		0.49	0.00	1.00	n=36,699
	within		0.00	0.39	0.39	T=8.21
Labour intensive (Measure 2)	overall	0.70	0.46	0.00	1.00	N=300,074
	between		0.45	0.00	1.00	n= 36,478
	within		0.00	0.70	0.70	T=8.23
Labour intensive (Measure 3)	overall	0.72	0.45	0.00	1.00	N=299,978
	between		0.43	0.00	1.00	n=36,453
	within		0.00	0.72	0.72	T=8.23
Labour intensive (Measure 4)	overall	0.73	0.45	0.00	1.00	N=300,146
	between		0.43	0.00	1.00	n=36,492
	within		0.00	0.73	0.73	T=8.22
		Industry level variables				
China competition	overall	0.09	0.12	0.00	0.82	N=4,241
	Between		0.11	0.00	0.71	n=297
	within		0.05	-0.38	0.38	T-bar=14.28
Input tariff	overall	0.07	0.09	0.01	2.24	N=4,241
	between		0.05	0.01	0.39	n=297

	within		0.08	-0.25	1.93	T-bar=14.28
Output tariff	overall	0.15	0.73	0.00	23.62	N=4,241
	between		0.28	0.00	3.30	n=297
	within		0.68	-3.13	20.47	T-bar=14.28
MFA	overall	0.09	0.26	0.00	1.00	N=4,241
	between		0.22	0.00	0.80	n=297
	within		0.14	-0.64	0.47	T-bar=14.28
Real FDI (in billion Rupiah)	overall	7,480	34,700	0.00	281,000	N=4,241
	between		9,820	0.00	29,500	n=297
	within		33,300	-21,200	262,000	T-bar=14.28
Whole sale price index	overall	80.13	40.23	15.45	415.08	N=4,241
	between		12.56	44.55	156.07	n=297
	within		38.76	-27.83	366.22	T-bar=14.28

5. Results

Regression results from Equation 1 and Equation 2 are reported in Table 5. For each labour intensity measure, we report the baseline results without any control variables based on Equation 1 (columns 1a, 2a, 3a, and 4a) and the results with full set of control variables based Equation 2 with two-stage least square regression instrumenting for exposure to China's import competition in the US market (columns 1b, 2b, 3b, and 4b).

Figure 2 plots β_z from Equation 2, reported in columns 1b, 2b, 3b, and 4b of Table 5. The coefficients (solid line) are displayed visually along with their 95 percent confidence intervals (dashed line).

The results using labour intensity measures 2-4 are mostly consistent, while the results using labour intensity measure 1 is more different. Using labour intensity measure 1, employment in labour intensive plants increases faster than that in non-labour intensive plants in 1992 and 1993, and after 1993, the trends of employment in labour intensive plants and non-labour intensive plants are not different from zero. Although not statistically significant, we can see that the difference in trends between labour intensive and non-labour intensive plants becomes negative since 2002 and increased in magnitude until 2005.

Using labour intensity measure 2, before 2000, the difference in trends between labour intensive plants and non-labour intensive plants was not different from zero statistically and also small in magnitude. Starting from 2000, this difference starts to be negative statistically and also keeps increasing in magnitude. By 2005, employment in labour intensive plants was growing 12-13 percent slower than employment in non-labour intensive plants.

The results using labour intensity measure 3 is similar with the results using labour intensity measure 2. The difference is that the difference in trends starts to be negative statistically in 2002 or 2003. By 2005, employment in labour intensive plants was growing 9-10 percent slower than employment in non-labour intensive plants.

The results using labour intensity measure 4 are similar to the ones using labour intensity measure 2 and 3, but showing a divergence of trends between the two groups at an early date. Employment in labour intensive plants starts to grow slower than employment in non-labour intensive plants in 1995, and the difference in trend was between 4 to 6 percent between 1995 and 1999. Then this difference starts to increase in magnitude from 2000, and keeps increasing until 2005 to about 14 percent.

Although of different statistical significance, results using all four labour intensity measures show a similar pattern: employment in labour intensive plants starts to grow much slower than employment in non-labour intensive plants from 2000 onwards, and the difference in trends keeps increasing in magnitude until 2005. Results from all four measures of labour intensity also show that the difference in trends between labour intensive and non-labour intensive plants was much smaller before 2000. Results using labour intensity measure 2 and 3 indicate that there is no statistical difference in trends between these two groups before 2000.

Comparing the results without industry level controls and with industry level controls in Table 5, we can see that they are very similar. This means other alternative explanations of the divergence between labour intensive and non-labour intensive plants around the early 2000s do not explain the divergence in our data. In fact, most of these controls are not significant in explaining employment.

Overall, our results point to the possibility that the tightening of labour regulations in the early 2000s have resulted in slower growth of employment in labour intensive plants. We acknowledge that this is indirect evidence, but other explanations that may explain the same pattern we observe are not supported by the data.

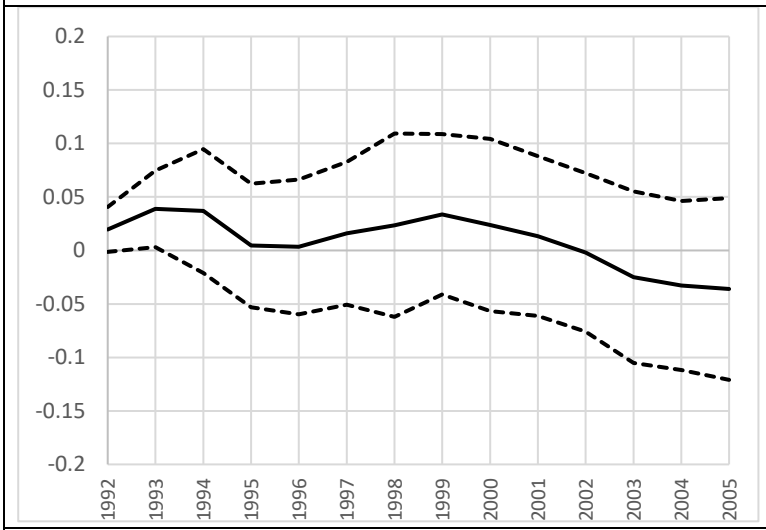
Table 5. Labour intensity and manufacturing employment

Labour intensity measures:	Log of total workers							
	(1) Plants whose 2-digit ISIC codes are 17, 18, 19, 20 and 36		(2) Shares of wages for all workers out of value added		(3) Shares of wages for production workers out of value added		(4) Ratio of employees divided by real sales	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
1{year=1992} x Labour Intensity$_j$	0.017*	0.020*	0.003	0.003	0.001	0.001	0.005	0.005
	(0.010)	(0.011)	(0.010)	(0.011)	(0.011)	(0.012)	(0.011)	(0.011)
1{year=1993} x Labour Intensity$_j$	0.034*	0.039**	0.010	0.013	0.012	0.016	-0.001	0.003
	(0.017)	(0.018)	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)
1{year=1994} x Labour Intensity$_j$	0.031	0.037	-0.002	-0.000	-0.006	-0.004	-0.022	-0.022
	(0.021)	(0.029)	(0.018)	(0.019)	(0.020)	(0.021)	(0.020)	(0.020)
1{year=1995} x Labour Intensity$_j$	-0.004	0.005	-0.013	-0.010	-0.020	-0.016	-0.039*	-0.038*
	(0.023)	(0.029)	(0.020)	(0.020)	(0.021)	(0.022)	(0.021)	(0.022)
1{year=1996} x Labour Intensity$_j$	-0.004	0.003	-0.024	-0.020	-0.031	-0.026	-0.056**	-0.054**
	(0.024)	(0.032)	(0.020)	(0.021)	(0.023)	(0.024)	(0.023)	(0.024)
1{year=1997} x Labour Intensity$_j$	0.005	0.016	-0.021	-0.018	-0.017	-0.013	-0.049**	-0.048**
	(0.026)	(0.034)	(0.021)	(0.022)	(0.024)	(0.024)	(0.023)	(0.024)
1{year=1998} x Labour Intensity$_j$	0.017	0.024	-0.032	-0.026	-0.035	-0.026	-0.051*	-0.044
	(0.033)	(0.044)	(0.025)	(0.026)	(0.027)	(0.028)	(0.027)	(0.029)
1{year=1999} x Labour Intensity$_j$	0.026	0.034	-0.026	-0.021	-0.019	-0.011	-0.044*	-0.039
	(0.028)	(0.038)	(0.025)	(0.025)	(0.026)	(0.028)	(0.026)	(0.027)
1{year=2000} x Labour Intensity$_j$	0.017	0.024	-0.045*	-0.038	-0.034	-0.025	-0.067**	-0.063**
	(0.032)	(0.041)	(0.027)	(0.028)	(0.029)	(0.030)	(0.029)	(0.030)
1{year=2001} x Labour Intensity$_j$	0.007	0.013	-0.059**	-0.053*	-0.047	-0.038	-0.082***	-0.078***
	(0.030)	(0.038)	(0.026)	(0.027)	(0.029)	(0.030)	(0.029)	(0.030)
1{year=2002} x Labour Intensity$_j$	-0.010	-0.002	-0.075***	-0.068**	-0.058**	-0.048	-0.093***	-0.089***
	(0.030)	(0.038)	(0.026)	(0.027)	(0.029)	(0.030)	(0.028)	(0.029)
1{year=2003} x Labour Intensity$_j$	-0.036	-0.025	-0.104***	-0.097***	-0.087***	-0.076**	-0.123***	-0.119***
	(0.033)	(0.041)	(0.028)	(0.028)	(0.031)	(0.032)	(0.028)	(0.030)
1{year=2004} x Labour Intensity$_j$	-0.044	-0.033	-0.119***	-0.112***	-0.099***	-0.088***	-0.135***	-0.131***
	(0.035)	(0.040)	(0.028)	(0.029)	(0.033)	(0.034)	(0.029)	(0.030)
1{year=2005} x Labour Intensity$_j$	-0.052	-0.036	-0.128***	-0.120***	-0.102***	-0.089**	-0.141***	-0.135***
	(0.037)	(0.043)	(0.031)	(0.032)	(0.036)	(0.037)	(0.031)	(0.032)
Output tariff$_{jt}$		0.082		0.039		0.047		0.037
		(0.052)		(0.047)		(0.046)		(0.045)
Input tariff$_{jt}$		-0.185		-0.158		-0.141		-0.142
		(0.123)		(0.129)		(0.125)		(0.125)
Import competition from China$_{jt}$		-0.171		-0.082		-0.136		-0.161
		(0.174)		(0.144)		(0.140)		(0.143)
MFA$_{it}$		-0.003		0.009		0.008		0.013
		(0.027)		(0.016)		(0.016)		(0.016)
Log of real FDI$_{it}$		0.001		0.000		0.000		0.001
		(0.000)		(0.000)		(0.000)		(0.000)
Log of wholesale production index$_{it}$		0.023		0.022		0.026		0.025
		(0.029)		(0.025)		(0.026)		(0.027)
Plant FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province-by-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared (within)	0.014	0.014	0.016	0.015	0.015	0.014	0.016	0.015
Number of plants	36,699	36,699	36,478	36,478	36,453	36,453	36,492	36,492
Observations	301,282	301282	300,074	300,074	299,978	299,978	300,146	300,146

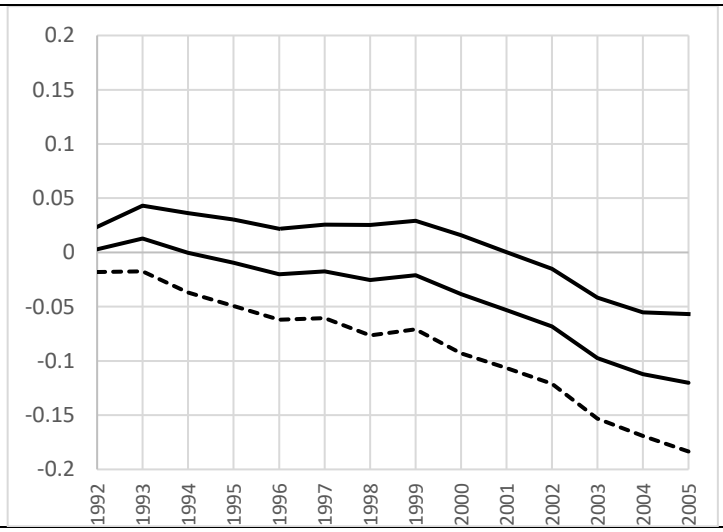
Note: *** p<0.01, ** p<0.05, * p<0.1. Standard error is clustered at five-digit industrial code.

Figure 2. Estimated 95% confidence interval for coefficients in front of the interaction between year dummies and labour intensive dummy

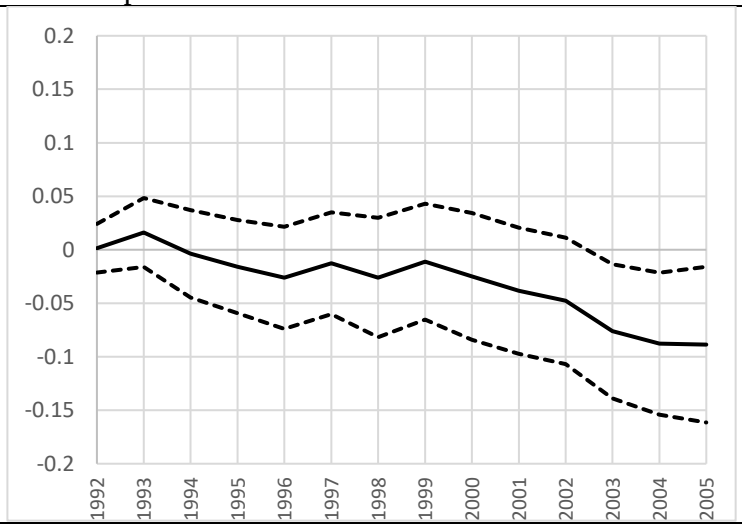
(1)
Labour intensity measure 1: Plants whose 2-digit ISIC codes are 17, 18, 19, 20 and 36



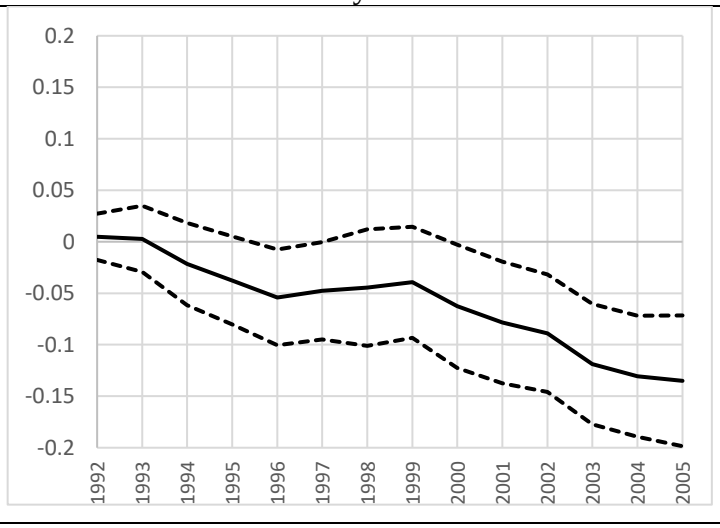
(2)
Labour intensity measure 2: Shares of wages for all workers out of value added



(3)
Labour intensity measure 3: Shares of wages for production workers out of value added



(4)
Labour intensity measure 4: Ratio of employees divided by real sales



Note: Figure 2 displays the 95 percent confidence level interval for the estimated DID coefficients for interactions of year dummies with labour intensity dummy from equation (2). All panels include all time-varying control variables comprising output tariff, input tariff, import competition from China, changes in MFA, log real FDI and log wholesale production index. All regressions include plant, year, and province-year fixed effects. Confidence interval is based on standard errors adjusted for clustering at the five-digit industrial code.

6. Robustness check

We conduct two robustness checks.[9] First, we restrict the data to a balance panel of plants for the years 1991 to 2005. The results (Table 6) generally align with that of reported in Table 5 when using the full dataset of unbalanced panel. Nevertheless, the statistically significant effects of declining manufacturing employment among labour-intensive plants relative to non-labour-intensive plants tend to appear in later years and their magnitudes are smaller than the estimates from the unbalanced panel.

In our baseline specification, we define labour-intensive and non-labour-intensive industries based on the median cut-off, assigning industries into treatment group if their labour intensity measure is equal to or above the median and assign the remaining industries into the control group. For the second robustness check, we examine if our results are sensitive to the different cut-off when defining the treatment definition. We tried to use the 33rd and 67th percentile as cut-off, and also tried to use the mean as cut-off. The results are presented in Table 7. We can see that using different cut-offs does not change our story.

In panel a in Table 7, we divide each industry-level labour intensity measure at the 33rd and 67th percentiles. Industries above the upper threshold are categorised as labour-intensive and industries below the lower threshold are in the non-labour-intensive group. We exclude industries whose labour intensity measures are between the two thresholds. Our findings show that the results are quite similar across different labour intensity measures. The parallel trends before the regulatory changes hold in most cases and the lower growth of employment of labour-intensive plants relative to non-labour-intensive plants started in 2003 and persisted until 2005. Panel b shows the result using the mean across industries as the cut-off. Again, the results are largely consistent with previous ones, although the divergence of trends start to be significant at an earlier time in 2001.

[9] The regressions for the robustness checks include all control variables and use the two-stage least squares instrumenting for China's import competition.

Table 6. Robustness check: using balanced panel

Labour intensity measures:	Log of total workers			
	Balanced panel			
	(1)	(2)	(3)	(4)
1{year=1992} x Labour Intensity$_j$	0.044**	0.007	0.019	0.014
	(0.017)	(0.014)	(0.014)	(0.014)
1{year=1993} x Labour Intensity$_j$	0.068***	0.022	0.045**	0.024
	(0.026)	(0.019)	(0.018)	(0.019)
1{year=1994} x Labour Intensity$_j$	0.089**	0.006	0.036	0.011
	(0.041)	(0.022)	(0.023)	(0.022)
1{year=1995} x Labour Intensity$_j$	0.070	-0.004	0.015	-0.002
	(0.044)	(0.025)	(0.026)	(0.025)
1{year=1996} x Labour Intensity$_j$	0.063	-0.013	0.008	-0.006
	(0.045)	(0.025)	(0.026)	(0.025)
1{year=1997} x Labour Intensity$_j$	0.065	-0.013	0.010	-0.012
	(0.044)	(0.025)	(0.026)	(0.025)
1{year=1998} x Labour Intensity$_j$	0.054	0.014	0.022	0.015
	(0.052)	(0.031)	(0.030)	(0.029)
1{year=1999} x Labour Intensity$_j$	0.083	0.020	0.035	0.022
	(0.050)	(0.031)	(0.030)	(0.028)
1{year=2000} x Labour Intensity$_j$	0.064	0.006	0.018	0.009
	(0.052)	(0.030)	(0.030)	(0.029)
1{year=2001} x Labour Intensity$_j$	0.049	-0.012	0.005	-0.003
	(0.049)	(0.031)	(0.030)	(0.030)
1{year=2002} x Labour Intensity$_j$	0.050	-0.026	-0.014	-0.012
	(0.047)	(0.030)	(0.030)	(0.030)
1{year=2003} x Labour Intensity$_j$	0.008	-0.045	-0.043	-0.027
	(0.048)	(0.032)	(0.032)	(0.031)
1{year=2004} x Labour Intensity$_j$	-0.005	-0.058*	-0.055*	-0.042
	(0.046)	(0.033)	(0.033)	(0.031)
1{year=2005} x Labour Intensity$_j$	-0.016	-0.075**	-0.072**	-0.056*
	(0.052)	(0.034)	(0.035)	(0.033)
R-squared (within)	0.031	0.030	0.031	0.030
Number of plants	6,676	6,676	6,676	6,676
Observations	100,140	100,140	100,140	100,140

Note: *** p<0.01, ** p<0.05, * p<0.1. Standard error is clustered at five-digit industrial code.

Table 7. Robustness check: different cut-offs to define labour intensive dummy

Labour intensity measures:	Log of total workers					
	Unbalanced panel, different cut off (33rd/67th)			Unbalanced panel, different cut off (mean)		
	(2a)	(3a)	(4a)	(2b)	(3b)	(4b)
1{year=1992} x Labour Intensity$_j$	0.019	0.001	0.009	0.000	0.003	-0.003
	(0.012)	(0.014)	(0.013)	(0.011)	(0.011)	(0.010)
1{year=1993} x Labour Intensity$_j$	0.020	0.027	0.015	0.008	0.018	0.011
	(0.020)	(0.019)	(0.019)	(0.016)	(0.016)	(0.015)
1{year=1994} x Labour Intensity$_j$	0.000	0.010	-0.010	-0.003	-0.003	-0.014
	(0.025)	(0.024)	(0.024)	(0.019)	(0.021)	(0.018)
1{year=1995} x Labour Intensity$_j$	-0.016	-0.002	-0.024	-0.011	-0.014	-0.033*
	(0.028)	(0.027)	(0.027)	(0.021)	(0.022)	(0.019)
1{year=1996} x Labour Intensity$_j$	-0.021	-0.013	-0.035	-0.018	-0.025	-0.048**
	(0.029)	(0.029)	(0.027)	(0.022)	(0.024)	(0.021)
1{year=1997} x Labour Intensity$_j$	-0.012	0.003	-0.024	-0.017	-0.012	-0.039*
	(0.028)	(0.029)	(0.028)	(0.022)	(0.024)	(0.022)
1{year=1998} x Labour Intensity$_j$	-0.004	0.019	-0.010	-0.023	-0.021	-0.030
	(0.034)	(0.034)	(0.034)	(0.026)	(0.028)	(0.026)
1{year=1999} x Labour Intensity$_j$	0.011	0.030	-0.002	-0.019	-0.008	-0.029
	(0.031)	(0.032)	(0.031)	(0.026)	(0.027)	(0.025)
1{year=2000} x Labour Intensity$_j$	-0.008	0.008	-0.023	-0.039	-0.022	-0.048*
	(0.034)	(0.035)	(0.034)	(0.028)	(0.030)	(0.028)
1{year=2001} x Labour Intensity$_j$	-0.028	-0.016	-0.042	-0.052*	-0.036	-0.064**
	(0.035)	(0.036)	(0.035)	(0.028)	(0.030)	(0.027)
1{year=2002} x Labour Intensity$_j$	-0.045	-0.029	-0.059*	-0.068**	-0.048	-0.071***
	(0.034)	(0.035)	(0.034)	(0.027)	(0.030)	(0.027)
1{year=2003} x Labour Intensity$_j$	-0.074**	-0.062*	-0.090**	-0.096***	-0.078**	-0.094***
	(0.036)	(0.036)	(0.036)	(0.029)	(0.032)	(0.029)
1{year=2004} x Labour Intensity$_j$	-0.096***	-0.082**	-0.109***	-0.112***	-0.090***	-0.099***
	(0.036)	(0.035)	(0.036)	(0.029)	(0.033)	(0.030)
1{year=2005} x Labour Intensity$_j$	-0.096**	-0.091**	-0.112***	-0.119***	-0.093**	-0.098***
	(0.039)	(0.039)	(0.039)	(0.033)	(0.037)	(0.032)
R-squared (within)	0.017	0.016	0.016	0.015	0.015	0.014
Number of plants	26,754	29,159	29,688	36,482	36,446	36,462
Observations	223,902	241,091	246,012	300,116	299,896	300,000

7. Conclusion and discussion

The regulatory changes relating to the labour market in Indonesia in the early 2000s was the most significant change in labour regulation environment of Indonesia in the last few decades. It significantly tightened the regulation environment and increased labour cost. These regulation changes coincided with the stagnation of the manufacturing sector until today, and the flat performance of the manufacturing sector since 2000 contrasted greatly with the phase of rapid expansion of manufacturing, especially labour intensive manufacturing, and poverty reduction in the 1980s and 1990s. This paper tries to look at the relationship between the regulation change and the changes in manufacturing sector in more

detail. Based on the argument that labour intensive manufacturing would be affected more than non-labour intensive manufacturing by a tightening of labour regulations and increase in labour cost, this paper compares employment in plants in labour-intensive manufacturing with employment in plants in non-labour intensive manufacturing over time. It finds that while the difference in growth in employment in labour intensive and that in non-labour intensive manufacturing was zero or small before 2000, employment in labour intensive manufacturing started to grow much slower than that in non-labour intensive manufacturing in the early 2000s. By 2005, the difference in growth was between 4 to 14 percent. Trying to control for other changes in the early 2000s that would affect labour intensive and non-labour intensive industries differently does not change the results.

The results suggest that the labour regulation changes contributed to the decline of labour intensive manufacturing relative to non-labour intensive manufacturing in the early 2000s. We acknowledge that this is not direct causal evidence, but we argue that our analysis contributes to our understanding of the dynamics within the manufacturing sector over the period surrounding the regulation change and shows clear difference in trends between different industries that can be explained by the regulation change. Further analysis is needed to further disentangle the effect of other changes that happened around the same time and the effect of more restrictive labour regulations, but our strategy of looking at labour intensive vs non-labour intensive industries is a valuable step towards this direction.

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Appendix

Figure A1. Macroeconomic trends

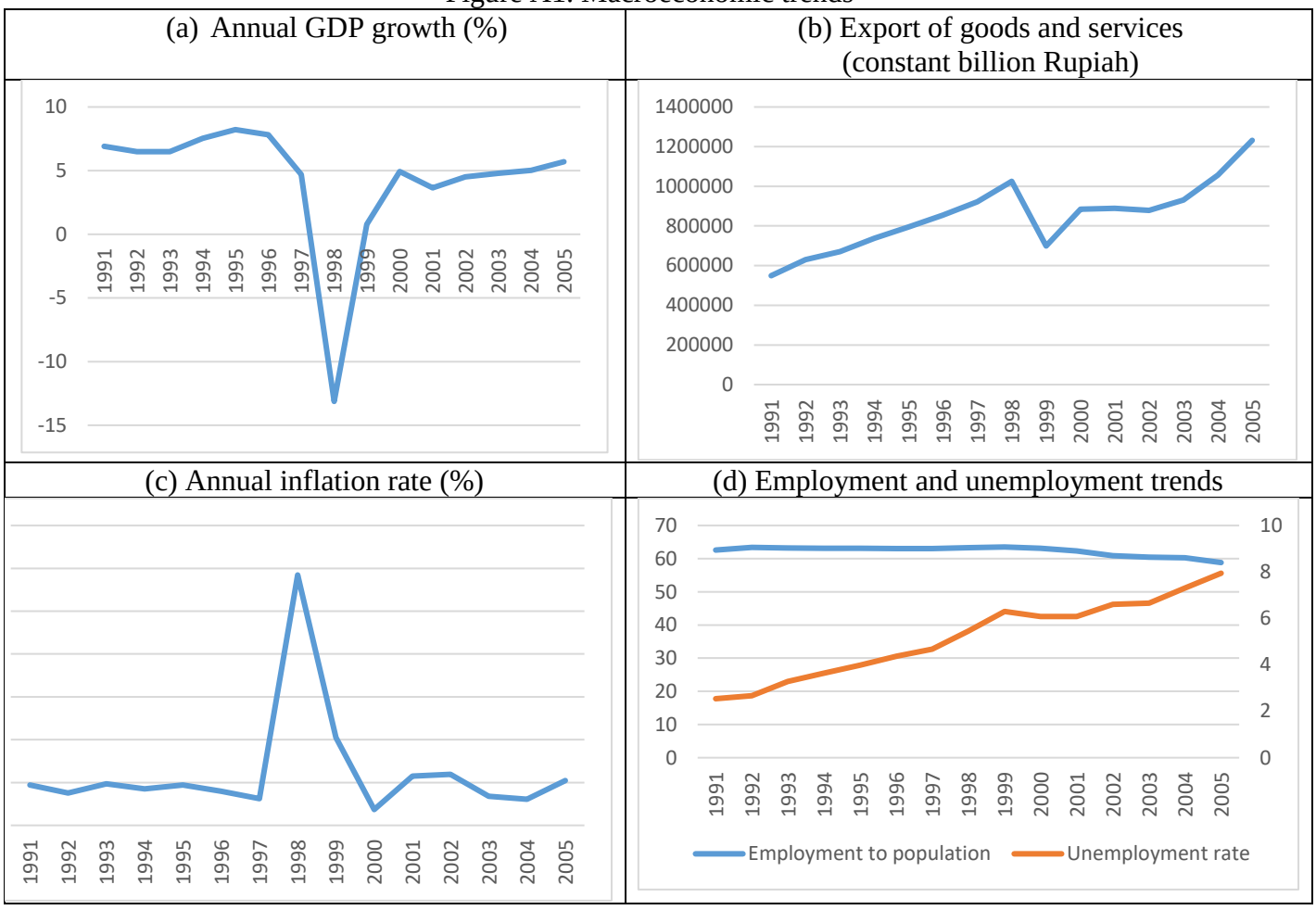

Table A1. Grouping of manufacturing sub-sector based on factor intensity

ISIC 2-digit	
Labour-intensive	
17	Manufacture of textiles
18	Manufacture of wearing apparel; dressing and dyeing of fur
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
36	Manufacture of furniture; manufacturing n.e.c.
Resource-intensive	

15	Manufacture of food products and beverages
16	Manufacture of tobacco products
21	Manufacture of paper and paper products
22	Publishing, printing and reproduction of recorded media
23	Manufacture of coke, refined petroleum products and nuclear fuel
24	Manufacture of chemicals and chemical products
25	Manufacture of rubber and plastics products
Capital-intensive	
26	Manufacture of other non-metallic mineral products
27	Manufacture of basic metals
28	Manufacture of fabricated metal products, except machinery and equipment
29	Manufacture of machinery and equipment n.e.c.
30	Manufacture of office, accounting and computing machinery
31	Manufacture of electrical machinery and apparatus n.e.c.
32	Manufacture of radio, television and communication equipment and apparatus
33	Manufacture of medical, precision and optical instruments, watches and clocks
34	Manufacture of motor vehicles, trailers and semi-trailers
35	Manufacture of other transport equipment

Source: Tadjoeddin, Auwalin, and Chowdhury (2017)

Table A2. Groupings of families of industries and their corresponding labour intensity measures

Family of industry	KLUI 1990	KBLI 2005	Measure 1	Measure 2		Measure 3		Measure 4	
				Median: 0.443		Median: 0.299		Median: 0.031	
			Binary	Binary	Continuous	Binary	Continuous	Binary	Continuous
1	31111	15111	0.00	0.00	0.43	0.00	0.24	0.00	0.026
2	31112	15112	0.00	0.00	0.43	0.00	0.23	0.00	0.016
3	31121	15201	0.00	0.00	0.20	0.00	0.10	0.00	0.004
4	31122	15202	0.00	0.00	0.22	0.00	0.09	0.00	0.005
5	31123	15203	0.00	1.00	0.51	0.00	0.28	0.00	0.027
6	31131	15131	0.00	0.00	0.37	0.00	0.26	0.00	0.030
7	31133	15132	0.00	0.00	0.39	1.00	0.32	1.00	0.062
8	31134	15133	0.00	1.00	0.49	1.00	0.31	1.00	0.038
9	31135	15134	0.00	1.00	0.46	0.00	0.25	0.00	0.021
10	31141	15121	0.00	0.00	0.35	0.00	0.23	0.00	0.018
11	31142	15122	0.00	1.00	0.45	1.00	0.39	1.00	0.041
12	31143	15123	0.00	0.00	0.27	0.00	0.19	0.00	0.012
13	31144	15124	0.00	0.00	0.32	0.00	0.22	0.00	0.008
14	31145	15125	0.00	1.00	0.45	1.00	0.44	1.00	0.035
15	31149	15129	0.00	0.00	0.43	1.00	0.35	0.00	0.031
16	31151	15141	0.00	0.00	0.16	0.00	0.10	0.00	0.004
17	31152	15142	0.00	1.00	0.87	1.00	0.35	0.00	0.008
18	31153	15143	0.00	0.00	0.35	0.00	0.18	0.00	0.012
19	31154	15144	0.00	0.00	0.12	0.00	0.08	0.00	0.002
20	31155	15145	0.00	0.00	0.32	0.00	0.17	0.00	0.008
21	31159	15149	0.00	0.00	0.37	0.00	0.18	0.00	0.003
22	31161	15311	0.00	0.00	0.35	0.00	0.26	0.00	0.013
23	31162	15312	0.00	0.00	0.35	0.00	0.20	0.00	0.008
24	31163	15313	0.00	1.00	0.54	0.00	0.27	1.00	0.064
25	31165	15316	0.00	1.00	0.47	1.00	0.41	1.00	0.045
26	31166	15317	0.00	0.00	0.22	0.00	0.12	0.00	0.005
27	31167	15318	0.00	0.00	0.37	0.00	0.27	1.00	0.103
28	31168	15321	0.00	0.00	0.31	0.00	0.14	0.00	0.001
29	31169	15322	0.00	0.00	0.41	1.00	0.32	0.00	0.027
30	31171	15440	0.00	1.00	0.61	1.00	0.55	1.00	0.078
31	31179	15410	0.00	1.00	0.53	1.00	0.42	1.00	0.055
32	31181	15421	0.00	0.00	0.28	0.00	0.18	0.00	0.018
33	31182	15422	0.00	1.00	0.64	1.00	0.32	1.00	0.209
34	31183	15423	0.00	1.00	0.61	1.00	0.30	1.00	0.348
35	31184	15424	0.00	1.00	0.46	1.00	0.31	1.00	0.047
36	31189	15429	0.00	0.00	0.44	1.00	0.39	0.00	0.015
37	31191	15431	0.00	0.00	0.22	0.00	0.11	0.00	0.012
38	31192	15432	0.00	1.00	0.53	1.00	0.41	1.00	0.063

39	31211	15323	0.00	0.00	0.44	1.00	0.33	1.00	0.034
40	31212	15324	0.00	1.00	0.53	1.00	0.42	1.00	0.057
41	31219	15329	0.00	1.00	0.55	1.00	0.37	0.00	0.025
42	31272	15498	0.00	1.00	0.51	1.00	0.43	1.00	0.058
43	31281	15331	0.00	0.00	0.17	0.00	0.10	0.00	0.003
44	31282	15332	0.00	0.00	0.23	0.00	0.10	0.00	0.004
45	31310	15510	0.00	1.00	0.48	0.00	0.27	1.00	0.066
46	31320	15520	0.00	1.00	0.48	0.00	0.26	1.00	0.041
47	31330	15530	0.00	1.00	0.46	0.00	0.22	1.00	0.048
48	31340	15541; 15542	0.00	0.00	0.41	0.00	0.25	1.00	0.056
49	31410	16001	0.00	1.00	0.48	1.00	0.44	1.00	0.315
50	31420	16002	0.00	0.00	0.38	0.00	0.29	1.00	0.053
51	31430	16003	0.00	0.00	0.28	0.00	0.17	0.00	0.006
52	31440	16004	0.00	1.00	0.53	1.00	0.45	1.00	0.122
53	31490	16009	0.00	1.00	0.61	1.00	0.53	1.00	0.135
54	32112	17113	1.00	1.00	0.56	1.00	0.36	0.00	0.022
55	32113	17121	1.00	0.00	0.36	0.00	0.27	0.00	0.019
56	32115	17122	1.00	1.00	0.51	1.00	0.38	1.00	0.035
57	32116	17123	1.00	1.00	0.48	1.00	0.35	0.00	0.026
58	32117	17124	1.00	1.00	0.58	1.00	0.54	1.00	0.090
59	32121	17211	1.00	1.00	0.56	1.00	0.49	1.00	0.070
60	32123	17214	1.00	1.00	0.63	1.00	0.51	1.00	0.059
61	32129	17215	1.00	1.00	0.59	1.00	0.54	1.00	0.142
62	32140	17220	1.00	0.00	0.38	0.00	0.29	0.00	0.022
63	32151	17231	1.00	1.00	0.58	1.00	0.46	1.00	0.042
64	32152	17232	1.00	1.00	0.55	1.00	0.39	1.00	0.042
65	32160	17400	1.00	1.00	0.61	1.00	0.52	1.00	0.075
66	32210	18101	1.00	1.00	0.57	1.00	0.49	1.00	0.064
67	32311	19111	1.00	0.00	0.28	0.00	0.19	0.00	0.016
68	32331	19121	1.00	1.00	0.51	1.00	0.42	1.00	0.057
69	32332	19122	1.00	0.00	0.27	0.00	0.20	0.00	0.017
70	32333	19123	1.00	1.00	0.51	1.00	0.37	1.00	0.054
71	32339	19129	1.00	1.00	0.70	1.00	0.47	1.00	0.079
72	32411	19201	1.00	1.00	0.48	1.00	0.39	1.00	0.044
73	32412	19202	1.00	1.00	0.46	1.00	0.37	1.00	0.031
74	32413	19203	1.00	0.00	0.41	1.00	0.33	1.00	0.033
75	33111	20101	1.00	0.00	0.41	1.00	0.31	1.00	0.040
76	33112	20220	1.00	0.00	0.40	0.00	0.28	0.00	0.026
77	33113	20211	1.00	0.00	0.27	0.00	0.21	0.00	0.011
78	33114	20212	1.00	0.00	0.37	0.00	0.27	0.00	0.018
79	33115	20213	1.00	0.00	0.43	1.00	0.32	1.00	0.031
80	33116	20214	1.00	0.00	0.31	0.00	0.27	0.00	0.024
81	33120	20230	1.00	1.00	0.54	1.00	0.44	1.00	0.047
82	33131	20291	1.00	1.00	0.58	1.00	0.51	1.00	0.077

83	33132	20292	1.00	1.00	0.55	1.00	0.52	1.00	0.158
84	33140	20293	1.00	1.00	0.61	1.00	0.52	1.00	0.103
85	33151	20102	1.00	0.00	0.39	0.00	0.29	1.00	0.032
86	33152	20103	1.00	0.00	0.29	0.00	0.23	1.00	0.057
87	33212	36102	1.00	1.00	0.59	1.00	0.48	1.00	0.052
88	33220	20294	1.00	1.00	0.56	1.00	0.47	1.00	0.064
89	33230	36109	1.00	1.00	0.46	1.00	0.31	1.00	0.034
90	34111	21011	0.00	0.00	0.09	0.00	0.05	0.00	0.003
91	34113	21015	0.00	0.00	0.39	0.00	0.29	0.00	0.020
92	34114	21016	0.00	0.00	0.36	0.00	0.26	0.00	0.014
93	34119	21019	0.00	0.00	0.37	0.00	0.24	0.00	0.013
94	34120	21020	0.00	0.00	0.38	0.00	0.26	0.00	0.014
95	34190	21090	0.00	0.00	0.40	0.00	0.29	0.00	0.020
96	35111	24111	0.00	0.00	0.28	0.00	0.16	0.00	0.006
97	35112	24112	0.00	0.00	0.28	0.00	0.13	0.00	0.019
98	35113	24113	0.00	0.00	0.44	0.00	0.24	0.00	0.021
99	35114	24114	0.00	0.00	0.28	0.00	0.16	0.00	0.011
100	35115	24115	0.00	1.00	0.48	1.00	0.35	1.00	0.051
101	35116	24116	0.00	0.00	0.33	0.00	0.16	0.00	0.006
102	35117	24117	0.00	0.00	0.21	0.00	0.05	0.00	0.001
103	35118	24118	0.00	0.00	0.18	0.00	0.07	0.00	0.003
104	35119	24119	0.00	0.00	0.24	0.00	0.11	0.00	0.008
105	35121	24121	0.00	1.00	0.62	1.00	0.50	1.00	0.091
106	35122	24122	0.00	0.00	0.28	0.00	0.17	0.00	0.003
107	35123	24123	0.00	0.00	0.28	0.00	0.17	1.00	0.031
108	35129	24129	0.00	0.00	0.41	0.00	0.29	1.00	0.037
109	35131	24131	0.00	0.00	0.21	0.00	0.13	0.00	0.005
110	35132	24132	0.00	0.00	0.38	0.00	0.24	1.00	0.032
111	35133	24302	0.00	0.00	0.25	0.00	0.17	0.00	0.004
112	35141	24211	0.00	0.00	0.42	0.00	0.16	0.00	0.006
113	35142	24212	0.00	0.00	0.36	0.00	0.26	0.00	0.015
114	35143	24213	0.00	0.00	0.23	0.00	0.19	1.00	0.047
115	35210	24221; 24222; 24223	0.00	0.00	0.30	0.00	0.15	0.00	0.013
116	35221	24231	0.00	0.00	0.28	0.00	0.16	0.00	0.008
117	35222	24232	0.00	0.00	0.41	0.00	0.15	0.00	0.012
118	35223	24233	0.00	1.00	0.56	1.00	0.31	1.00	0.072
119	35224	24234; 24235	0.00	1.00	0.46	0.00	0.29	1.00	0.058
120	35231	24241	0.00	0.00	0.43	0.00	0.27	0.00	0.028
121	35232	24242	0.00	0.00	0.40	0.00	0.21	0.00	0.026
122	35291	24291	0.00	0.00	0.19	0.00	0.09	0.00	0.003
123	35293	24293	0.00	0.00	0.27	0.00	0.12	0.00	0.004
124	35294	24294	0.00	1.00	0.48	0.00	0.26	0.00	0.023

125	35295	24295	0.00	1.00	0.73	1.00	0.54	1.00	0.038
126	35299	24299	0.00	1.00	0.51	0.00	0.28	0.00	0.022
127	35310	23201	0.00	0.00	0.30	0.00	0.17	0.00	0.019
128	35320	23202	0.00	1.00	0.55	0.00	0.18	0.00	0.008
129	35410	23203	0.00	0.00	0.30	0.00	0.18	0.00	0.017
130	35420	23204	0.00	0.00	0.23	0.00	0.09	0.00	0.011
131	35440	23100	0.00	0.00	0.41	0.00	0.27	1.00	0.031
132	35511	25111	0.00	0.00	0.31	0.00	0.24	0.00	0.016
133	35512	25112	0.00	0.00	0.39	0.00	0.25	0.00	0.020
134	35521	25121	0.00	1.00	0.62	1.00	0.34	1.00	0.060
135	35522	25122	0.00	0.00	0.43	1.00	0.32	1.00	0.031
136	35523	25123	0.00	0.00	0.31	0.00	0.19	0.00	0.005
137	35591	25191	0.00	1.00	0.50	1.00	0.37	1.00	0.035
138	35592	25192	0.00	1.00	0.49	1.00	0.35	1.00	0.043
139	35593	25199	0.00	1.00	0.53	1.00	0.40	1.00	0.052
140	35601	25201	0.00	0.00	0.37	0.00	0.24	0.00	0.016
141	35603	25202	0.00	0.00	0.44	1.00	0.32	0.00	0.027
142	35604	25203	0.00	0.00	0.26	0.00	0.14	0.00	0.010
143	35606	25205	0.00	1.00	0.48	1.00	0.37	0.00	0.027
144	35607	25206	0.00	0.00	0.40	0.00	0.28	0.00	0.024
145	35609	25209	0.00	1.00	0.47	1.00	0.34	1.00	0.032
146	36111	26201	0.00	1.00	0.59	1.00	0.46	1.00	0.091
147	36112	26202	0.00	0.00	0.28	0.00	0.19	0.00	0.015
148	36113	26203	0.00	0.00	0.31	0.00	0.16	0.00	0.009
149	36119	26209	0.00	1.00	0.60	1.00	0.56	1.00	0.123
150	36211	26121	0.00	0.00	0.39	1.00	0.32	0.00	0.030
151	36212	26122	0.00	0.00	0.35	0.00	0.22	0.00	0.012
152	36213	26123	0.00	1.00	0.47	1.00	0.33	0.00	0.019
153	36214	26124	0.00	1.00	0.65	1.00	0.46	1.00	0.072
154	36219	26129	0.00	1.00	0.49	1.00	0.34	1.00	0.037
155	36221	26111	0.00	0.00	0.32	0.00	0.21	0.00	0.019
156	36310	26411	0.00	0.00	0.17	0.00	0.09	0.00	0.003
157	36329	26421	0.00	0.00	0.36	0.00	0.30	1.00	0.041
158	36332	26422	0.00	0.00	0.39	1.00	0.39	1.00	0.067
159	36410	26321	0.00	1.00	0.60	1.00	0.52	1.00	0.100
160	36421	26322	0.00	1.00	0.58	1.00	0.52	1.00	0.164
161	36422	26323	0.00	1.00	0.66	1.00	0.62	1.00	0.183
162	36429	26324	0.00	1.00	0.50	1.00	0.37	1.00	0.041
163	36490	26329	0.00	1.00	0.57	1.00	0.48	1.00	0.208
164	36911	26503	0.00	1.00	0.49	1.00	0.37	1.00	0.062
165	36921	26501	0.00	1.00	0.66	1.00	0.55	1.00	0.147
166	36922	26502	0.00	0.00	0.38	0.00	0.29	1.00	0.038
167	36931	26601	0.00	1.00	0.50	1.00	0.34	0.00	0.029
168	36932	26602	0.00	0.00	0.39	1.00	0.32	1.00	0.065
169	36939	26609	0.00	1.00	0.76	1.00	0.51	1.00	0.034

170	36990	26900	0.00	0.00	0.43	1.00	0.31	1.00	0.033
171	37101	27101	0.00	0.00	0.29	0.00	0.18	0.00	0.007
172	37102	27310	0.00	0.00	0.28	0.00	0.21	0.00	0.013
173	37103	27102	0.00	0.00	0.27	0.00	0.15	0.00	0.004
174	37201	27201	0.00	0.00	0.23	0.00	0.13	0.00	0.004
175	37202	27320	0.00	0.00	0.35	0.00	0.24	0.00	0.022
176	37203	27202	0.00	0.00	0.28	0.00	0.17	0.00	0.006
177	37204	27203	0.00	1.00	0.48	1.00	0.32	0.00	0.016
178	38111	28931	0.00	1.00	0.58	1.00	0.47	1.00	0.056
179	38112	28932	0.00	1.00	0.52	1.00	0.40	1.00	0.040
180	38131	28111	0.00	1.00	0.49	1.00	0.35	1.00	0.040
181	38132	28112	0.00	0.00	0.36	0.00	0.24	0.00	0.019
182	38133	28113	0.00	0.00	0.34	0.00	0.23	0.00	0.014
183	38134	28120	0.00	1.00	0.52	1.00	0.32	0.00	0.022
184	38139	28119	0.00	0.00	0.40	0.00	0.23	0.00	0.016
185	38191	28993	0.00	0.00	0.34	0.00	0.24	0.00	0.014
186	38193	28994	0.00	1.00	0.46	1.00	0.33	0.00	0.025
187	38194	28995	0.00	0.00	0.26	0.00	0.14	0.00	0.006
188	38196	28996	0.00	1.00	0.58	1.00	0.41	1.00	0.039
189	38197	28997	0.00	1.00	0.62	1.00	0.42	1.00	0.068
190	38211	29111	0.00	1.00	0.82	1.00	0.56	1.00	0.036
191	38212	29112	0.00	0.00	0.29	0.00	0.17	0.00	0.003
192	38213	29113	0.00	1.00	0.54	1.00	0.36	1.00	0.033
193	38214	29114	0.00	1.00	0.48	1.00	0.33	0.00	0.026
194	38221	29211	0.00	1.00	0.49	1.00	0.42	1.00	0.040
195	38232	29222	0.00	1.00	0.48	1.00	0.30	1.00	0.055
196	38233	29223	0.00	0.00	0.36	0.00	0.25	0.00	0.028
197	38241	29263	0.00	1.00	0.52	1.00	0.33	1.00	0.033
198	38242	29291	0.00	1.00	0.52	1.00	0.33	1.00	0.033
199	38243	35115	0.00	0.00	0.33	0.00	0.22	0.00	0.008
200	38251	30001	0.00	0.00	0.24	0.00	0.18	0.00	0.020
201	38252	30002	0.00	0.00	0.33	0.00	0.25	0.00	0.014
202	38253	30003	0.00	0.00	0.35	0.00	0.19	0.00	0.025
203	38291	29262	0.00	1.00	0.59	1.00	0.33	0.00	0.028
204	38296	29130	0.00	1.00	0.49	1.00	0.31	0.00	0.027
205	38311	31102	0.00	0.00	0.40	0.00	0.18	0.00	0.010
206	38312	31101	0.00	1.00	0.63	0.00	0.29	0.00	0.007
207	38313	31103	0.00	0.00	0.42	1.00	0.30	0.00	0.028
208	38314	31201	0.00	0.00	0.37	0.00	0.24	0.00	0.017
209	38315	29224	0.00	1.00	0.47	0.00	0.12	0.00	0.006
210	38323	33112	0.00	0.00	0.19	0.00	0.18	1.00	0.044
211	38391	31402	0.00	0.00	0.34	0.00	0.17	0.00	0.018
212	38392	31401	0.00	0.00	0.44	0.00	0.28	0.00	0.005
213	38393	31501	0.00	1.00	0.54	1.00	0.31	0.00	0.027
214	38394	31502	0.00	0.00	0.25	0.00	0.13	0.00	0.017

215	38395	31509	0.00	0.00	0.31	0.00	0.21	1.00	0.032
216	38396	31300	0.00	0.00	0.35	0.00	0.23	0.00	0.009
217	38414	35113	0.00	0.00	0.41	0.00	0.29	1.00	0.035
218	38415	35114	0.00	0.00	0.24	0.00	0.17	0.00	0.004
219	38421	35201	0.00	0.00	0.41	0.00	0.17	0.00	0.012
220	38422	35202	0.00	1.00	0.68	1.00	0.57	1.00	0.116
221	38431	34100	0.00	0.00	0.29	0.00	0.17	0.00	0.007
222	38432	34200	0.00	1.00	0.46	1.00	0.31	1.00	0.037
223	38433	34300	0.00	0.00	0.35	0.00	0.20	0.00	0.016
224	38441	35911	0.00	0.00	0.07	0.00	0.05	0.00	0.004
225	38442	35912	0.00	0.00	0.40	1.00	0.30	1.00	0.033
226	38443	35921	0.00	0.00	0.39	1.00	0.31	1.00	0.038
227	38444	35922	0.00	1.00	0.61	1.00	0.45	1.00	0.075
228	38451	35301	0.00	0.00	0.44	0.00	0.26	1.00	0.036
229	38452	35302	0.00	1.00	0.50	1.00	0.41	1.00	0.035
230	38490	35990	0.00	0.00	0.39	0.00	0.27	1.00	0.033
231	38511	33121	0.00	1.00	0.56	1.00	0.42	1.00	0.050
232	38521	33201	0.00	0.00	0.44	1.00	0.32	0.00	0.029
233	38523	33203	0.00	1.00	0.78	1.00	0.47	0.00	0.028
234	38524	33204	0.00	0.00	0.28	0.00	0.20	0.00	0.003
235	38530	33300	0.00	1.00	0.47	1.00	0.32	1.00	0.051
236	39011	36911	1.00	1.00	0.80	1.00	0.55	1.00	0.230
237	39012	36912	1.00	1.00	0.56	1.00	0.47	1.00	0.072
238	39021	36921	1.00	1.00	0.59	1.00	0.32	1.00	0.111
239	39022	36922	1.00	0.00	0.21	0.00	0.16	0.00	0.026
240	39030	36930	1.00	1.00	0.46	1.00	0.39	1.00	0.070
241	39052	36992	1.00	1.00	0.45	0.00	0.30	1.00	0.034
242	39060	36993	1.00	1.00	0.60	1.00	0.53	1.00	0.118
243	31164	15314; 15315	0.00	1.00	0.45	0.00	0.25	0.00	0.027
244	32111	17111; 17112; 24301	1.00	0.00	0.34	0.00	0.24	0.00	0.013
245	32114	17114; 17115	1.00	1.00	0.55	1.00	0.46	1.00	0.043
246	32122	17212; 17213	1.00	1.00	0.50	1.00	0.34	0.00	0.027
247	32130	17301; 17302; 17303; 17304	1.00	1.00	0.53	1.00	0.43	1.00	0.046
248	32190	17291; 17292; 17293; 17294;	1.00	1.00	0.57	1.00	0.46	1.00	0.051

		17295; 17299							
249	32220	18103; 18202; 18203	1.00	1.00	0.46	1.00	0.40	1.00	0.035
250	32290	18102; 18104; 18201	1.00	1.00	0.58	1.00	0.53	1.00	0.093
251	32312	19112; 19113	1.00	0.00	0.34	0.00	0.25	0.00	0.022
252	33190	20104; 20299	1.00	1.00	0.45	1.00	0.37	1.00	0.054
253	33211	29261; 36101	1.00	1.00	0.58	1.00	0.48	1.00	0.050
254	34112	21012; 21013; 21014	0.00	0.00	0.37	0.00	0.23	0.00	0.014
255	34200	22110; 22120; 22130; 22190; 22210; 22220	0.00	1.00	0.49	1.00	0.34	1.00	0.041
256	35292	24292; 29270	0.00	1.00	0.50	1.00	0.47	1.00	0.114
257	35430	23205; 23300	0.00	0.00	0.42	1.00	0.31	0.00	0.018
258	35605	25204; 36103	1.00	1.00	0.53	1.00	0.39	1.00	0.038
259	36222	26112; 26119	0.00	1.00	0.50	1.00	0.34	0.00	0.021
260	36321	26423; 26429	0.00	1.00	0.50	1.00	0.37	1.00	0.072
261	36331	26412; 26413	0.00	1.00	0.58	1.00	0.50	1.00	0.066
262	36423	26311; 26319	0.00	0.00	0.36	0.00	0.25	0.00	0.027
263	38120	28992; 36104	1.00	1.00	0.51	1.00	0.36	1.00	0.035
264	38195	27103; 27204	0.00	0.00	0.30	0.00	0.17	0.00	0.007
265	38244	29299; 29301	0.00	1.00	0.44	0.00	0.29	0.00	0.025
266	38245	29191; 29192;	0.00	1.00	0.51	1.00	0.39	1.00	0.042

		29250; 29292							
267	38292	29141; 29150; 29230; 29240	0.00	1.00	0.45	0.00	0.25	0.00	0.017
268	38330	29302; 29309	0.00	1.00	0.48	1.00	0.31	0.00	0.017
269	38411	35111; 35120	0.00	1.00	0.54	1.00	0.47	1.00	0.073
270	38522	30004; 33202	0.00	0.00	0.44	0.00	0.28	1.00	0.042
271	39013	36913; 36914	1.00	1.00	0.49	1.00	0.38	1.00	0.078
272	39040	36941; 36942	1.00	1.00	0.60	1.00	0.48	1.00	0.080
273	39090	29264; 36999	1.00	1.00	0.56	1.00	0.43	1.00	0.057
274	31132; 31139	15139	0.00	0.00	0.29	0.00	0.15	0.00	0.020
275	31221; 31222	15491	0.00	1.00	0.46	0.00	0.29	1.00	0.038
276	31231; 31232	15492	0.00	1.00	0.48	0.00	0.27	1.00	0.043
277	31241; 31242	15493	0.00	1.00	0.50	1.00	0.38	1.00	0.051
278	31243; 31244; 31245	15494	0.00	1.00	0.49	1.00	0.41	1.00	0.033
279	31246, 31249	15495	0.00	1.00	0.50	1.00	0.41	1.00	0.053
280	31251; 31252	15496	0.00	1.00	0.57	1.00	0.51	1.00	0.072
281	31261; 31262	15497	0.00	0.00	0.30	0.00	0.16	0.00	0.014
282	31271; 31279	15499	0.00	1.00	0.57	1.00	0.45	1.00	0.067
283	32419; 32420; 35602	19209	1.00	1.00	0.54	1.00	0.43	1.00	0.056
284	36919; 36929	26509	0.00	1.00	0.51	1.00	0.41	1.00	0.077
285	37104; 37205	28910; 28920	0.00	1.00	0.51	1.00	0.34	0.00	0.029
286	38222; 38297	29212	0.00	1.00	0.48	1.00	0.32	1.00	0.045

287	38246; 38247	29221	0.00	1.00	0.52	1.00	0.37	1.00	0.048
288	38322; 38326	32200	0.00	0.00	0.39	0.00	0.21	0.00	0.012
289	38412; 38413	35112	0.00	0.00	0.40	0.00	0.28	1.00	0.042
290	39014; 39015	36915	1.00	1.00	0.67	1.00	0.55	1.00	0.098
291	39051; 39059	36991	1.00	1.00	0.57	1.00	0.44	1.00	0.041
292	38113; 38114	28933; 28991	0.00	1.00	0.54	1.00	0.45	1.00	0.042
293	38119; 38192; 38199	28939; 28998; 28999	0.00	1.00	0.55	1.00	0.45	1.00	0.046
294	38293; 38294; 38295	29120; 29142; 29193; 29199	0.00	1.00	0.47	1.00	0.32	0.00	0.022
295	38316; 38317; 38399	31202; 31900	0.00	0.00	0.42	0.00	0.30	0.00	0.024
296	38324; 38325	22301; 22302; 32100; 32300	0.00	0.00	0.38	0.00	0.26	0.00	0.014
297	38512; 38513; 38514	33111; 33113; 33119; 33122; 33123; 33130	0.00	1.00	0.47	0.00	0.26	1.00	0.031