Trade Liberalization and Demand for Skill in Brazil

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Trade Liberalization and Demand for Skill in Brazil

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Abstract
This paper examines the relationship between trade liberalization and the evolution of the demand for skill in Brazil during the past decade. We use matched employer-employee panel data to test the hypothesis that the reduction in input tariffs made it easier for Brazilian firms to acquire technologically-advanced inputs from abroad, which raised the demand for skilled labor. We find that input tariffs have a negative effect on skill-upgrading and that this effect is stronger in firms that use inputs that are complements with skilled-labor.

Key words: Relative demand for skills, economic opening, technological advances

JEL Classification: J23, J31
1. Introduction

Over the past three decades, labor markets in developing countries went through important changes both in terms of wage differentials and employment composition of their workforce. One of these changes was the fast rise in the supply of workers with intermediate levels of education, both in absolute terms and relative to the supply of high- and of less-educated workers. Moreover, the wage differentials between college-educated workers and those with intermediate levels of education have gone up, at the same time that the differentials between the latter and the workers with up to elementary education fell. These changes had important implications for poverty and inequality.¹

At the same time, many Latin-American countries went through trade liberalization processes in the 80s and 90s as part of a package of market-orientated reforms. These reforms induced important changes in the product markets, by changing relative prices and increasing the productivity of manufacturing firms, but also in the labor market, by increasing labor reallocation and transitions into the informal sector.² A significant body of research has been produced trying to link the changes in the wage differentials reported above to the trade liberalization process, following a literature that first examined the impact of trade liberalization on inequality in the U.S. and other developed countries.³

The theoretical framework used by most of these studies is the traditional Heckscher-Ohlin model. According to this model, since skill is a relatively scarce resource in most Latin-American countries, the opening up of trade with the more developed

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¹ See Sanchez-Paramo and Schady, (2003), and Gonzaga, Menezes-Filho and Terra (2006), for example.
³ See Acemoglu (2002) for a survey on the impact of trade liberalization in developed countries.
countries should bring about a rise in the prices of unskilled-intensive goods, thereby increasing their production and the demand for unskilled workers, which in turn should produce a decline in the skill premium. When confronted with the data, many researchers were thus surprised to find that the wage differentials between college-educated workers and those with up to secondary education in developing countries were actually rising.

The first set of explanations for this apparent rejection of the Heckscher-Ohlin model argued that in order to understand the impact of trade liberalization on the skill premium, one has to take into account that countries do not move instantaneously from a closed to an open economy, but from a pattern of high to one of low tariffs. Moreover, the changes in tariffs tend to vary substantially across sectors, depending on the structure of protection that prevailed before trade liberalization and in several cases this structure was unrelated to the pattern of comparative advantage across industries. Therefore, the changes in relative prices during a process of trade opening follow the changes in tariffs and the impact of trade liberalization on inequality depends on the correlation between the change in tariffs and skill-intensity across manufacturing sectors. Using this framework, Hanson and Harrison (1999) and Robertson (2004) found that trade liberalization was associated with the rise in wage inequality in Mexico, whereas Gonzaga, Menezes-Filho and Terra (2006) found that the predictions of the Heckscher-Ohlin model were actually consistent with the decline in the wage differentials between workers with high school education or more and workers with less than high school education in Brazil in the early 1990s.

An important limitation of these papers is that the framework they used only allowed for two skill groups, while the descriptive evidence summarized above has consistently pointed to the different movements in the wage differentials between skilled
and semi-skilled workers on the one hand, and between semi-skilled and unskilled workers on the other hand. How could trade opening explain the rise in returns to college education and the fall of the returns to upper secondary education that took place in many developing countries in the 1980s and 1990s? Two hypotheses were put forward to explain these facts. Firstly, it could be that these movements in wage differentials were reflecting the decline in the relative supply of college educated workers, which was not increasing as quickly as the supply of high school educated workers. Moreover, it could be that relative demand for college-educated workers was rising. Sanchez-Paramo and Schady (2004) found that relative demand for college-educated workers has indeed been rising in Argentine, Mexico, Chile, Colombia, with mixed results for Brazil. Fernandes and Menezes-Filho (2003) found that allowing for a more general pattern of substitutability between the three skill groups, the demand for college educated relative to semi-skilled workers has been rising in Brazil for the last couple of decades and so has the demand for the semi-skilled with respect to unskilled workers.

What could be reason for this process of skill upgrading in developing countries, especially in the case of college-educated workers? Theoretically, Acemoglu (2003) points out that trade creates a tendency for the price of skill-intensive goods to increase in developed countries, which increases the profitability of innovations directed to these goods and may raise the demand for skilled workers in developed countries and even in the developing ones, depending on how skill-abundant they are. Moreover, Thoenig and Verdier (2003) point out that trade liberalization could bias the direction of innovations in developed countries towards skill-intensive goods because of the threat of technological imitation, which would increase wage inequality in developed and developing countries as
well. Feenstra and Hanson (2001) argue that outsourcing of input production by firms in developed countries could rise the demand for skill in these countries and in developing countries as well, as the outsourced activities are low-skill-intensive from the developed countries’ point of view, but skill-intensive from the LDC’s perspective.

Empirically, Feenstra and Hanson (1997) found that foreign direct investment increased the relative demand for skill in Mexico and can account for a substantial fraction of the rise in skilled-labor wage share. Pavcnik (2003) found that capital-skill complementarities can in part explain the process of skill upgrading in Chile, while the share of imported materials, foreign technical assistance and patented technology are not statistically significant once plant fixed effects are controlled for. Sanchez-Paramo and Schady (2003) found that changes in the volume and R&D intensity of imports at the sector level tend to increase demand for skill in Chile, Colombia and Mexico.

In this paper we put forward a different hypothesis. With trade liberalization, the reduction in tariffs causes a decline in the prices of skill-intensive traded goods which are produced domestically, but it also impacts the price of goods that are used as inputs for the production of other goods, making these foreign inputs cheaper for domestic firms. If the foreign inputs embody more advanced technology, a process of technological diffusion will take place, with the production function of domestic firms shifting outwards. Evidence supporting this view has been produced by Schor (2003), Lisboa, Menezes-Filho and Schor (2003) and Fernandes (2006). Our hypothesis is that this process of diffusion of new technologies through capital and intermediate goods increases the relative productivity of more skilled workers. If skilled workers are gross substitutes with respect to the semi-skilled, this will in turn increase the relative demand for skilled workers as well.
The main aim of this paper is to test this prediction and in order to reach this aim it is organized as follows. Section 2 presents some background information on wage differentials and skill composition in Brazil, describes the process of trade liberalization and the data used in this paper. Section 3 presents evidence that the relative demand for college educated workers has shifted to the right in the period analyzed. In Section 4 we test the skill-biased technological diffusion hypotheses and section 5 concludes.

2. Data Description

2.1 The Brazilian labor market

As a background for the empirical exercises to be carried out below, it is worth presenting some stylized facts about the Brazilian labor market. Before describing the data we define our education groups. Workers with between 0 and 4 years of schooling are classified as unskilled; those with between 5 and 11 years as semiskilled; and those with over 11 years of study as skilled. This is the criterion commonly used in Brazil for division into three skill groups when the proxy for qualification is years of schooling.

Figure 1 presents the evolution of the relative supply of skilled workers with respect to the semi-skilled and of the latter with respect to unskilled workers. It shows that the relative supply of semi-skilled workers increased substantially, while that of skilled workers has remained stable or even declined slightly. Figure 2 shows that wage differentials between skilled and semi-skilled workers increased since 1992, while the opposite happened to wage differentials between semi-skilled and unskilled workers since 1990. Since the behavior of the wage differentials is consistent with that of supply, is there any role left for demand shocks? Fernandes and Menezes-Filho (2003) show that for any
plausible values of the elasticities of substitution between the skilled and the semi-skilled and between the semi-skilled and the unskilled (which are allowed to be different in their model), relative demand has in fact been rising in Brazil both for the skilled and for the semi-skilled.

Figure 3 compares the evolution of the relative unemployment rates for workers with different levels of skill. It shows that unemployment has in fact increased for all types of workers, with a somewhat higher rise for the semi-skilled. In traditional trade models there is no role for unemployment, but if there is any kind of rigidities or frictions in labor market, such as the difficulty in adjusting the aspirations to the new availability of jobs, semi-skilled labor wages would not adjust instantaneously to the rise in their supply and hence unemployment would follow.

In terms of the sector composition of the workforce, Figure 4 shows that manufacturing employment has been steadily declining over time, even before trade liberalization occurred, with a big chunk of employment moving to the services sector. This trend has occurred in several other countries and may be related to a secular rise of income or to the rapid rise in labor productivity that took place first in manufacturing. Since this paper uses only data from formal sector firms, it is important to describe what happened to the labor market as a whole. Figure 5 shows that the share of workers in the formal sector has also been shrinking steadily since 1990, with a corresponding rise in all other labor market states. Menezes-Filho and Muendler (2006) show that this can in part be explained by the process of trade liberalization.

2.2 Trade Liberalization
Until the end of the 1980s, Brazilian trade policy meant very high nominal tariffs and significant non-tariff barriers. Nominal tariffs were in general redundant, as the price wedge between domestic and international prices tended to be lower than that suggested by tariffs. Imports were restricted mainly by non-tariff barriers, such as lists of prohibited goods, difficult access to government import authorization and limits on imports for each firm. On the other hand, there were several exceptions that softened both tariff and non-tariff barriers to import some specific goods.

In 1988 there was the first attempt to rationalize trade policy in such a way that the tariffs would express the degree of trade protection already in place. Most of the non-tariff barriers were abolished and nominal tariffs were reduced slightly. In 1990 the newly elected government announced a move towards a more open trade regime. At first, all but a few non-tariff barriers were eliminated. Trade policy thereafter would rely mostly on tariffs and on the exchange rate management (although the exchange rate regime was much more flexible than before). Secondly, a four-year schedule of tariff reductions was announced. At the end of this period, tariffs would range between 0% and 40%. The government largely followed through in its announced promises and the average tariff declined from over 50% in 1989 to 14% in 1994.

The information on tariffs comes from Muendler (2003). Tariffs are available at the product level, so in order to construct the output tariffs we matched each product to the equivalent two-digit sector definition. To construct the input tariff series for each industry we used the information of the input-output tables for various years (i.e. each industrial sector’s purchases, per unit of output, of intermediate and capital goods from other sectors).
to construct weights and compute a weighted average of the tariffs prevailing in each of these sectors over time.

Figures 6 and 7 describe the distribution of the input and output tariffs across sectors in three periods of time: 1988, 1990 and 1994. Table A1 describes the list of sectors. One can see in Figure 6 that in 1988 the dispersion of input tariffs was quite high, the industries with highest input tariffs being automobiles (12), rubber (16), pharmaceuticals (20), other foods (31) and especially apparel (23), which had a tariff rate of 90%. Between 1988 and 1990 there was a small across-the-board tariff reduction, in the order of 10%. Between 1990 and 1994, the tariff reductions were massive, so that by 1994 most sectors had tariff rates fluctuating between 10% and 20%. The tariffs in the apparel sector, for example, were reduced from 70% to about 20% in this period.

2.3 Descriptive Statistics

The database constitutes one of the innovations of this study, as it makes possible to work with disaggregated data, which is crucial for the quality of the results. We used administrative data from the RAIS - Relação Anual de Informações Sociais (Annual Social Information Reports) from the Labor Ministry, and PIA - Pesquisa Industrial Anual (the Annual Industrial Surveys) from the Brazilian Institute of Geography and Statistics (IBGE), both covering the manufacturing sector in the State of São Paulo. Both databases cover the period from 1990 to 1998, except for a gap in 1991 for the PIA, because this survey was not conducted that year.

The data we use to examine the hypothesis of skill-biased technological transfer utilizes the intersection of the RAIS and PIA databases and requires information on both workers and establishments. The data from the PIA was assembled by Menezes-Filho,
Muendler and Ramey (2004) to meet the IBGE’s needs for confidentiality. Since the data from PIA are collected at the level of the firm, but this information is confidential, we put together cells of three to five firms, identifying which firms belong to each cell. Initially, the firms were separated into groups with some characteristics in common, namely: (i) years when the firm appears in the PIA; (ii) sector of industry (2-digit classification) to which the firm belongs; and (iii) state where the firm is located. The cells were then generated randomly within each group. The cells are invariant over time, i.e., they have data on the same firms in all years, which makes it possible, as we shall see shortly, to identify a fixed-effect per cell. Finally, we matched each RAIS firm to the cells of PIA firms. The cells that have variations in their composition due to information gaps in the RAIS were excluded from the sample.

3. Preliminary Evidence

Wages and employment per education group were obtained from RAIS, while data on output and capital stock were obtained from PIA. The information on tariffs was obtained from Muendler (2003). Table 1 below presents descriptive statistics at the cell level of the main variables used in the analysis. Figures 7 and 8 describe the evolution of relative employment levels by skill. They clearly show that both skill employment ratios increased in the period, from 0.26 in 1990 to 0.32 in 1998 in the skilled/semiskilled case, and from 1.39 to 3.73 in the semiskilled/unskilled case, which closely mimics the behavior of labor supply of the economy as a whole, especially in the semi-skilled case. Figures 9 and 10 show the evolution of relative wages by skill groups in the period. It can be seen that the wage ratio between skilled and semiskilled workers was generally growing (2.66 in 1990 and 3.04 in 1998) and that the ratio between the semiskilled and the unskilled was
practically stable (1.19 in 1990 and 1.18 in 1998). It seems therefore that the labor market trends in the formal sector were very similar to the stylized facts for the economy as a whole, which we described in section 2.

In order to better understand the evolution of the skill labor employment we next present the decomposition proposed by Berman et al. (1994):

\[
\Delta s = \sum_i e_i \Delta s_i + \sum_i s_i \Delta e_i
\]

where \( s \) is the share of skilled workers in the economy; \( e_i \) is the participation of firm \( i \) in total industrial employment; \( s_i \) is the share of skilled workers in total employment of firm \( i \); \( \Delta \) is the difference operator between two points in time; and the bar above the variable denotes their temporal mean in the period in question.

This expression decomposes the variation in the share of a determined skill group between two moments in time into two components: the variation within firms and the variation between firms. If the predictions from the traditional Heckscher-Ohlin model were valid to explain at least part of the alterations in employment composition described here, the “between” component should have a significant negative sign in the total variation since the economic opening would have caused establishments producing unskilled labor-intensive goods to increase their production their share in total employment.

Table 2 presents the results of this decomposition for the variation in relative employment between 1990 and 1998 of the skilled and of the semiskilled workers. The results show that the participation of skilled workers grew 8.19% between 1990 and 1998.
However, firms that use skilled labor more intensively decreased their relative participation in total employment, since the between term was negative (-2.88%). Therefore, the increased participation of skilled workers in manufacturing was driven by the variation within-firms (11.07%), which was in part counter-weighted by traditional Heckscher-Ohlin-type considerations.

The change in the between component for the semiskilled workers, on the other hand, is positive and corresponds to 25.36% of the total change. Here the between component acted in the opposite direction to the Heckscher-Ohlin prediction, unless we consider that Brazil is semi-skilled abundant as compared to its trade partners (see Gonzaga et al., 2006). The fact that most of the rise in skilled labor employment occurred within single firms is a remarkable finding, in line with the evidence from the more developed countries, and it strengthens the need for an explanation for the process of skill upgrading that took place in Brazil.4

5. Results

The approach used here closely follows that proposed by Machin and Van Reenen (1998), which minimizes a cost function that has wages (W), capital (K) and technology (TEC) as arguments. Including a non-correlated random error $\mu_t$, time dummies ($D$) and a firm-specific effect term $a_i$, we obtain the following equation:

\[ \text{The results of this decomposition are in principle consistent with Feenstra and Hanson (2001), who would argue that this process of skill upgrading is the result of outsourcing of input production among Brazilian firms.} \]
where \( q \) stands for skilled workers, \( s \) for the semi-skilled and \( n \) for the unskilled. Although not resulting directly from microeconomic theory, it is interesting to estimate the model with wages excluded from the explained variable, i.e., transforming it into the proportion of skilled worker in total labor force:

\[
W_{it}^{q/(q+s+n)} = \alpha + \beta_0 \ln Y_{it} + \beta_4 \ln K_{it} + \beta_5 \ln TEC_{it} + \beta_6 D_i + \alpha_i + \mu_{it} \tag{1}
\]

\[
L_{it}^{q/(q+s+n)} = \alpha_1 + \beta_6 \ln Y_{it} + \beta_7 \ln K_{it} + \beta_8 TEC_{it} + \beta_9 D_i + \alpha_i + \mu_{it} \tag{2}
\]

Including in equations (1) and (2) the technology proxy, namely tariffs on imported intermediate goods (\( T_{it}^{in} \)), we obtain the equations to be estimated:

\[
W_{it}^{q/(q+s+n)} = \alpha + \beta_0 \ln Y_{it} + \beta_4 \ln K_{it} + \beta_5 T_{it}^{in} + \beta_6 D_i + \alpha_i + \mu_{it} \tag{3}
\]

\[
L_{it}^{q/(q+s+n)} = \alpha_1 + \beta_6 \ln Y_{it} + \beta_7 \ln K_{it} + \beta_8 T_{it}^{in} + \beta_9 D_i + \alpha_i + \mu_{it} \tag{4}
\]

We also estimate similar equations for the semiskilled workers.

Because tariffs are the main variables in this analysis, it is worth commenting on the political economy of tariff reduction. From the policy point of view, the choice regarding which industries are more protected and which ones face more competition could be non-random. If this were the case, tariffs could be correlated with productivity performance before (and perhaps during) the trade liberalization period, so that

\[E[\mu_i / T_{it}^{in}] \neq 0 \text{ in (4)}.\] But, we argue that the government policy was to reduce all tariffs to
a common low level, so that the differences in the changes in tariffs across sectors were
driven mostly by the initial distribution of tariffs across sectors. But since the equation to
be estimated contains firm-specific fixed effects, the history of the political economy of
trade protection up to 1990 is controlled for.

The results for the entire period, 1990 to 1998, at the cell level (as explained in
Section 2) are shown in Table 3. The equations are initially estimated with weighted least
squares, weighting the observations by the share of each firm in total industrial employment
each year and then by a fixed-effect estimator. We focus first on the proportion of skilled
workers (columns 1, 2 and 3). The WLS regressions provide evidence of capital–skill
complementarity and, more importantly, that input tariffs are negatively correlated with the
share of skilled workers. The fixed-effect regressions confirm the above results, with
tariffs impacting the evolution of the share of skilled workers, even after controlling for
firm-specific heterogeneity. The estimated coefficient is statistically significant at
conventional levels. The third column includes tariffs on final goods (FG) only as a control
in the regressions, since this variable is likely to be correlated with tariffs on intermediate
goods, which would bias the coefficient of the latter. Interestingly, this has the effect of
increasing the coefficient of input tariffs, while output tariffs attract a positive coefficient. 5

Regarding the semiskilled workers, the WLS regressions suggest that a reduction in
input tariffs also increases their demand. The fixed-effect regressions, however, show that
this effect is not robust to the inclusion of firm-level heterogeneity, since the effect of input
tariffs is now insignificant. Interestingly, the coefficient on capital is negative and
significant across all specifications, suggesting that capital and semi-skilled labor are substitutes. The bottom panel presents the results of the regressions using the wage bill share as dependent variable. The results do not change qualitatively with respect to the employment share ones. Reductions in input tariffs raise the demand for skilled workers but do not have a significant impact on the demand for semi-skilled workers.

Table 4 implements a robustness test to strengthen our confidence that the effects of input tariffs on demand for skill are indeed capturing the impact of technological diffusion. If this were the case then we would expect this effect to be stronger in industries that use inputs that are more likely to be affected by technological innovation, such as computers, machines, etc. Therefore, we again use the input-output tables to construct input weights for each sector, but now compute a weighted average of years of education at the input side by industry and interact this variable with the input tariffs. The idea is that the impact of input tariffs on the demand for skill should be higher in firms that use inputs that are themselves produced in skill-intensive sectors. The results of Table 4 indicate that this is indeed the case, since the interaction term is negative and statistically significant, meaning that a decline in tariffs increases the demand for skill by more in sectors that use inputs that are more skill-intensive.

In Table 5 we test the robustness of the results using another proxy of skill. PIA has information on the workers’ occupation, defined as blue-collar and white-collar. Blue-collar workers are the ones who work directly in the production process, and can be used as a proxy for unskilled workers, as opposed to the white-collar workers, who are not directly

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5 It is important to stress output tariffs are introduced in the model just as a control, we do not intend to test any trade theory, since, this would have to take general equilibrium effects into consideration (see Gonzaga et al., 2006).
involved in the production process. Table 4 shows that the results of the regressions are very similar to the ones that used education as a measure if skills, that is, input tariffs are negatively correlated with skill, even after controlling for firm-specific fixed effects. Hence, it is possible to affirm with more credibility that technological shocks, caused by the fall in the tariff levels, are really skill-biased.

6. Conclusions

In this paper we examined the impact of trade liberalization on demand for skill in Brazil, by examining the impact of input tariffs on the employment share of college-educated workers, using matched employee-employer data. We find that the decline in input tariffs has as an important impact on skill-upgrading in Brazil, even after controlling for capital deepening, for output tariffs and for fixed effects. This effect is stronger in firms that use inputs that are themselves more skill-intensive, and therefore more likely to be affected by technological diffusion. It seems therefore that trade liberalization can have perverse impacts on inequality, counter-acting Heckscher-Ohlin type considerations, a problem that can only be solved with more investments in human capital.

7. References


Quarterly Journal of Economics, 109, pp. 367-397
Robertson, R. (2004)“Relative Prices and Wage Inequality: Evidence from Mexico”

Table 1

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Table 2 – Decomposition Within and Between Groups: 1990-98

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### Table 3
Demand for Skill Regressions

#### Dependent Variable: Proportion of Skilled Workers

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#### Dependent Variable: Wage Bill Share of Skilled Workers

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*Standard Errors between parentheses

*** significant at 1%
** significant at 5%
* significant at 10%
Table 4 - Demand for Skill Regressions

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<td>0.0003</td>
<td>-0.001***</td>
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<tr>
<td>ln(K)</td>
<td>0.001***</td>
<td>-0.002***</td>
<td>-0.0002</td>
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<td>0.028</td>
<td>-0.025</td>
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<tr>
<td>ln(Tariff IG) *</td>
<td>-0.1965***</td>
<td>0.063**</td>
<td>-0.254***</td>
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<td>(0.0260)</td>
<td>(0.0354)</td>
</tr>
<tr>
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<td>yes</td>
<td>yes</td>
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</tbody>
</table>

Standard Errors between parentheses

*** Significant at 1%
**  Significant at 5%
*   Significant at 10%

Table 5

Occupation as qualification proxy

<table>
<thead>
<tr>
<th></th>
<th>Proportion of Skilled Workers</th>
<th>Wage Bill Share of Skilled Workers</th>
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<tr>
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<td>Fixed Effect</td>
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<tr>
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<td>ln(K)</td>
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<td>0.001***</td>
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<td>0.086***</td>
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<td>ln(Tariff FG)</td>
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<td>0.022***</td>
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<td>yes</td>
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</tbody>
</table>

Standard Errors between parentheses

*** significant at 1%
**  significant at 5%
*   significant at 10%
Table A1 – Industry Definitions and Number of Firms

<table>
<thead>
<tr>
<th>Industry Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 – Mineral Extraction</td>
</tr>
<tr>
<td>3 - Oil Extraction</td>
</tr>
<tr>
<td>4 – Non-Metal Mineral Products</td>
</tr>
<tr>
<td>5 - Basic Metal Products</td>
</tr>
<tr>
<td>6 – Nonferrous Metal Products</td>
</tr>
<tr>
<td>7 – Metal Products</td>
</tr>
<tr>
<td>8 – Machinery and Equipment</td>
</tr>
<tr>
<td>10 – Electrical Equipment</td>
</tr>
<tr>
<td>11 – Electronic Equipment</td>
</tr>
<tr>
<td>12 – Automobiles, Trucks and Buses</td>
</tr>
<tr>
<td>13 – Other Vehicles and Parts</td>
</tr>
<tr>
<td>14 – Wood and Furniture</td>
</tr>
<tr>
<td>15 – Paper, Pulp and Cardboard</td>
</tr>
<tr>
<td>16 – Rubber Products</td>
</tr>
<tr>
<td>17 – Non-oils Chemical Elements</td>
</tr>
<tr>
<td>18 – Basic Petrochemical Products</td>
</tr>
<tr>
<td>19 – Chemical Products</td>
</tr>
<tr>
<td>20 – Pharmaceuticals and Perfumes</td>
</tr>
<tr>
<td>21 – Plastics</td>
</tr>
<tr>
<td>22 – Textiles</td>
</tr>
<tr>
<td>23 – Clothing</td>
</tr>
<tr>
<td>24 – Footwear</td>
</tr>
<tr>
<td>25 – Coffee Products</td>
</tr>
<tr>
<td>26 – Processed Products</td>
</tr>
<tr>
<td>27 – Meat and Poultry</td>
</tr>
<tr>
<td>28 – Processed Dairy Product</td>
</tr>
<tr>
<td>29 – Sugar</td>
</tr>
<tr>
<td>30 – Vegetable Oil</td>
</tr>
<tr>
<td>31 – Beverage and Other Food</td>
</tr>
<tr>
<td>32 – Others</td>
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</tbody>
</table>
Figure 1 - Relative Supply of Skill

Figure 2 - Wage Differentials over Time
Figure 3- Unemployment Rate By Skill

Figure 4- Sectoral Composition of Employment
Figure 7 - Output Tariffs Across Sectors and Time

Figure 8

Temporal evolution of relative employment between skilled and semiskilled workers
Figure 9
Temporal evolution of relative employment between semiskilled and unskilled workers

Figure 10
Temporal evolution of the relative wage between skilled and semiskilled workers
Figure 11

Temporal evolution of the relative wage between semiskilled and unskilled workers