Trade, Foreign Ownership, Closure and Labour Demand: Firm-Level Evidence from Cameroon[1]

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Table of contents

Abstract

This paper examines the response of Cameroonian manufacturing firms to exposure to international trade through reductions in tariff rates, import penetration, exports, and foreign ownership. We find that the probability of firm death declines with import penetration, exports and size while exiters are more likely to be foreign owned. Survival probability decreases with tariff cuts, particularly for least productive firms. We also find that import penetration is a source of skill-biased technological change and this result holds at the industry level. The importance of exports and foreign ownership could not be clearly established. Firms in industries with relatively greater tariff cuts experience large demand for unskilled workers. Firm size positively affects the demand for both skilled and unskilled workers, skill intensity induces skill acquisition while capital-and skill-intensities decrease skill downgrading.

Keywords: Tariffs, Imports, Exports, Foreign ownership, Firm deaths, Employment.
JEL Classification: F14, F16, J23, L60

Executive Summary

The late 1980s and early 1990s period witnessed a substantial integration of the Cameroonian economy into the world economy through tariff reductions as well as elimination of most non-tariff barriers to trade. As the country increases its integration into the world markets, the number of firms using imported intermediate inputs, exporting or having foreign direct investment (FDI) likely increases. This leads to a much higher degree of competition in domestic markets. Hence, since the late 1980s and early 1990s, the Cameroonian manufacturing sector has had to adapt to intensified international competition following increasing trade liberalization.

Firms may respond to exposure to international competition due to reductions in tariff rates, import penetration, exports or FDI in many ways. They may increase/reduce the size of existing operations, switch production to a different industry or product, enter/exit the market, or merge/acquire another firm. This paper focuses on the relationship between foreign competition and firm exit. In particular, our aim in this paper is to make two contributions. First, we provide evidence on the impact of international competition on firm death. We ask which firms are more likely to close down when the Cameroonian manufacturing sector is more exposed to international competition. In examining how Cameroonian manufacturing firms adjust to international competition, we also control for other factors that may influence firm closure. These include firm characteristics, such as size, age, factor intensities, and productivity as well as spell- and industry-fixed effects.

Firm closure results in job losses. Hence, our second contribution is to investigate the relationship for surviving firms between firm employment and foreign competition. Unlike previous studies, we jointly estimate the demand for skilled and unskilled labour as a system of interrelated factor demands. The main reasons, a single equation estimation of the demand for different types of labour does not seem appropriate, given that these demand functions are affected by common shocks. Moreover, the decision to employ skilled or unskilled workers is a joint decision.

Using Cameroonian manufacturing firms over the period following immediately trade liberalization i.e. 1993-2005, we find:

- While the view that globalization leads to the closure of domestic firms has some truth, it is far from ubiquitous. Firms that exit are less likely to use imported intermediate inputs or to export.
- The view that multinational enterprises are 'footloose' is true, albeit insignificant: exiters are more likely to be foreign owned.
- Statistical significance aside, and as expected, as tariff rates fall, firm closure is more likely, and the effect is particularly pronounced among the least productive firms.
- We also find that smaller firms are more likely to die.
- From our analysis we find that import penetration acts as a complement (substitute) to skilled (unskilled) workers. Hence, skill-biased technological change is a determinant of the decline in the relative demand for low skilled labour in the Cameroonian manufacturing sector. Moreover, the negative effect of import penetration on the demand for unskilled workers is less pronounced for more capital intensive firms.
- There is no precise impact of exports and foreign ownership on the demand for both types of workers.
- Changes in tariffs are uncorrelated with the demand for high-skill labour, while firms in industries with relatively greater reductions in tariff rates experience large demand in unskilled employment but the effect is insignificant.

- Firm size significantly increases the demand for both skilled and unskilled workers, with a bigger effect for the latter. Skill intensity induces skill acquisition while capital- and skill-intensities decrease skill downgrading.

1. Introduction

Cameroon has realized significant improvements in trade openness in recent decades through numerous deregulation waves, reductions in tariffs, elimination of import barriers, relaxation of labour market regulations, etc. Trade openness was also promoted within the CEMAC (Communauté Economique et Monétaire de l'Afrique Centrale) zone through the establishment of a custom union and the drastic reduction in the common external tariff[2] In addition, trade openness continued in a multilateral setting with the accession of the country to the WTO (World Trade Organization). This increased integration of the Cameroonian economy into the world economy leads to a much higher degree of competition in domestic markets with potential implications for firms' adjustment and labour market. In a context of trade openness and increased international competition, Cameroon faces two main challenges among others: creating firms which are productive enough to compete internationally, whilst also creating jobs, usually for low-skilled individuals, the abundant factor of production.

Empirical research from several countries shows that trade liberalization entails opportunities as well as threats. As regards opportunities, trade liberalization is seen as a sharp reduction in trade costs that leads to a much higher degree of competition in domestic market, which in turn pushes firms to reduce inefficiencies. In particular, trade liberalization increase firms' incentives to invest in new technologies, and such investment leads to productivity gains within firms.[3] Regarding the threats linked to trade liberalization, reductions in trade costs expose firms to increased global competition, which tends to drive out the less efficient firms. This competitive elimination process following trade reforms by inducing exit of the least productive firms also destroys the jobs of exiting firms (Cunat and Guadalope, 2009). Hence, there is fear that intensified international competition following trade openness will harm domestic industry and labour market.

From the theoretical side, the Hecksher-Ohlin (HO) traditional trade theory is the usual starting point when analysing the effect of increased trade openness on resource allocation. This theory predicts that countries export goods that use intensively the factors of production with which they are relatively abundantly endowed, and import goods that use intensively factors that are relatively scarce at home. Hence, with trade liberalization resources will be reallocated towards industries in which the country has a comparative advantage. However, the traditional HO model assumes that all firms are identical and therefore does not explain how the reallocation of resources takes place. In particular, the HO model largely ignores the implications of exposure to trade on firm turnover (e.g. entry and exit) and reallocations of resources among firms.

Recent trade models (e.g. Melitz, 2003; Helpman et al., 2004; Bernard et al., 2004, 2006; Melitz and Ottaviano, 2008) introduce firm-level heterogeneity into the model of international trade, overcoming this limitation. According to heterogeneous firm models, opportunities and threats linked to trade liberalization are unevenly spread amongst firms: the opportunities accrue to the most productive firms, whereas the threats are felt disproportionately by the least productive ones. For example, Bernard et al. (2003) adapt a Ricardian framework to firm-specific comparative advantage and introduce firm-level heterogeneity into a model of trade. They show that lower trade barriers tend to force out the least productive firms. In Melitz (2003) trade increases competition for labour and wages go

[2] The CEMAC consists of the following countries: Cameroon Central African Republic, Chad, Congo Republic, Equatorial Guinea, Gabon and Sao Tome & Principe.

[3] The efficiency-enhancing opportunities stem from: the development of new technologies or imitation of foreign technologies, cross-border learning of production methods, product design, organizational methods and market conditions, use of a larger variety of intermediate products and capital equipment, etc. (see e.g. Yeaple, 2005; Ekholm and Midelfart, 2005; Ederington and McCalman, 2008).

up, forcing the least productive producers to exit. This effect is driven by an increase in exports. In Melitz and Ottaviano (2008) the effect of the factor market competition and product market competition are reversed: imports competition plays a role in reallocation and the only channel that matters is the product market competition. Imports penetration increases competition in the domestic market, which forces the least productive firms to close down.

The specific role of international competition in inducing the closure of domestic firms and subsequently loss of employment following the early 1990s trade liberalization in Cameroon has not yet been tested. In this paper we examine two things. First, we provide explanations for foreign competition-induced firm closure by examining how manufacturing firms in Cameroon adjust to increased exposure to international competition due to reductions in tariff rates, import penetration, exports and foreign direct investment (FDI). Logistic regression models are used to provide empirical evidence. Then, and for surviving firms, the paper investigates the impact which foreign competition (equally due to tariffs liberalization, imported intermediate inputs, export activity and FDI) has on the demand for heterogeneous labour i.e. by jointly estimating the demand for skilled and unskilled labour as a dynamic interrelated factor demands. To the best of our knowledge, this is the first study that addresses both issues of foreign competition-induced firm closure and foreign competition-induced labour demand. Understanding the factors contributing to firm closure as well as the subsequent impact on labour demand has important implications for industrial, trade, and employment policy. The previous both objectives are achieved controlling for firm characteristics (e.g. size, age, input intensities and productivity) as well as time- and industry-fixed effects. We focus on the Cameroonian manufacturing sector using firm-level panel data from 1993 to 2005. This period is of particular interest: it immediately follows the 1992 trade liberalization in Cameroon.

The main findings of our study can be summarized as follows. We find that while the view that globalization leads to the closure of domestic firms has some truth, it is far from ubiquitous. Firms that exit are less likely to use imported intermediate inputs or to export. The view that multinational enterprises are 'footloose' is true, albeit insignificant: exiters are more likely to be foreign owned. Statistical significance aside, and as expected, as tariff rates fall, firm closure is more likely, and the effect is particularly pronounced among least productive firms. We also find that smaller firms are more likely to die.

From our analysis we also find that import penetration acts as complement (substitute) to skilled (unskilled) workers. Hence, skill-biased technological change is a determinant of the decline in the relative demand for low skilled labour in the Cameroonian manufacturing sector. There is no precise impact of exports and foreign ownership on the demand for both types of workers. Changes in tariffs are uncorrelated with the demand for high-skill labour, while firms in industries with relatively greater reductions in tariff rates experience large demand in unskilled employment but the effect is insignificant. Firm size significantly increases the demand for both skilled and unskilled workers, with a bigger effect for the latter.

The rest of the paper is organized as follows. In Section 2, we describe the Cameroonian trade liberalization process. Section 3 presents the overview of the Cameroon manufacturing sector over the period under investigation. Section 4 outlines empirical specifications. Section 5 presents the data for the regression analysis. In Section 6 we present and discuss the regression results. Section 7 reports the results on robustness check. Finally, Section 8 concludes.

2. Cameroonian Trade Liberalization[4]

From political independence in 1960 to the early 1990s, Cameroon's trade policy was one of import substitution to shield domestic firms from foreign competition. This trade strategy was characterized by a highly complex tariff regime and an extensive use of non-tariff barriers (NTBs). This meant that at the domestic level, the degree of protection varied widely across industries. For example, imports from the most protected sector (e.g. textile & weaving) faced tariffs exceeding 200 per cent in 1988, the earliest year for which this information is available. The other industrial sectors were subject to tariffs exceeding 100 per cent in 1988 with the machinery & appliance industry the next highest. In particular, there were four individual taxes on imports: the custom duty, import turnover tax, fiscal entry duty, and the complementary tax. The custom duty was levied on the cost insurance freight (c.i.f.) value of the imported goods, and was subject to wide variation (5 to 30 per cent) both across and within sectors and regardless of origin. The import turnover tax was levied at 10 per cent of the c.i.f. value inclusive of custom duty, fiscal entry duty, and the complementary tax. It could be zero for some imported necessities, but sometimes reached 72 per cent of the c.i.f. value for some luxury imports. The fiscal entry duty was a tariff levied on the c.i.f. value of imports whatever the country of origin at the rate between 5 and 90 per cent. The complementary tax was levied on the ad valorem basis at the rate between 0 and 100 per cent.

For the NTBs, an annual 'General Trade Program' classified goods by tariff lines into four categories: 'sensitive' goods imported under very restrictive conditions; 'twinned' goods necessitated a prior authorization to import a quantity in proportion to the local purchase; 'government-controlled' goods necessitated a prior authorization to be imported; and the 'freely imported' goods. Other protective measures were the price controls which were based on protected costs of production plus a margin for profit and marketing. Official reference prices were national prices used by the government as a basis for imposing tariffs. They were usually used as a means of combating under-invoicing of imports.

At the regional level, all imported goods were subject to the common external tariff (CET) in the CEMAC zone plus Cameroonian surcharges such as an unloading fee, municipal tax, tax for the contribution to the shipper national council, a tax for the inspection of meat, veterinary tax, and the special tax on fuel. In particular, among the CEMAC member states, there were two main taxes: the internal production tax and the unique tax. Enterprises registered with the unique tax system were exempted from all taxes and duties within the CEMAC zone. These enterprises paid only a tax called a unique tax. However, access to the unique tax regime was very difficult, hence the creation of a domestically administered variant i.e. the internal production tax regime.

Overall, a variety of Cameroonian trade policy instruments have contributed to macroeconomic instability, low or even negative economic growth, thus the need for the reforms. The trend towards liberalization began in the late 1980s within the structural adjustment program (SAP) framework. The SAP was put in place in July 1988, resulting in a wide range of reforms. Trade reforms proceeded in several stages. Between 1990 and 1992 and within the regional framework i.e. 'Regional Fiscal Reform Program' in the CEMAC zone, the custom duty and the fiscal entry duty were replaced by a custom duty applicable to all imports and according to the category of goods: first necessity goods 5 per cent, capital goods 10 per cent, intermediate goods 20 per cent, and current consumption goods 30 per cent of the c.i.f. value, respectively. The import turnover tax and the complementary tax were replaced by a turnover tax applicable to all imports as well as to all domestic production at three different rates: a zero rate for exempted goods, a reduced rate of 5 per cent, and a

[4] This section relies heavily on Njikam and Cockburn (2011).

normal rate of 12.5 per cent, respectively. The internal production tax was abolished while the unique tax was replaced by a 'Generalized Preferential Tariff' which was a proportion of the normal custom duty rate. At the domestic level, the tariff regime was simplified, as the number of lines facing specific tariffs was drastically reduced. In 1993, tariffs were reduced and rationalized. For example, the number of tariff bands was reduced from 6 to 1 and the average tariff fell from 82 per cent to 23 per cent.

In the second stage, trade reforms took the form of eliminating NTBs such as import licenses, special import programs, and administrative barriers.[5] For example, in 1990, approximately 105 commodities did not require import licenses. In 1991 trade liberalization moved ahead, 22 products were classified in the free import category. This number increased continuously through time and by 1992 all quantitative restrictions were removed. 'Sensitive' imports were steadily transferred to 'government-controlled' goods. Import licenses for 'government-controlled' goods had become virtually automatic and hence less restrictive. The price controls were first progressively removed from most goods and then abolished. The system of reference prices was abolished.

As can be seen in Table 1, trade liberalization also moved forward in the manufacturing sector. By 1993, Cameroon had reduced tariffs to uniformly low levels and had considerably reduced the level of protection for all manufacturing industries as shown by the level and percentage changes in protection measures between 1988 and 1993. The level and percentage changes in protection measures indicate that declines and dispersions in these measures differ across industries. Also, the dispersion of these protection measures was significantly reduced.

Integration into the international economy as measured by import also shows a diversity of experiences across industries (Table 1). Between 1988 and 1993 the import penetration rate increased in 8 of 11 industries. The most integrated industries into the international trade are chemicals, rubber & plastic, machinery & appliance, and transport equipment. In these industries the import penetration rate increased by more than 50 per cent over a period of 5 years. The remaining industries recorded declining import penetration rates, with textile & weaving and wood & furniture sectors registering the dramatic decline of more than 50 per cent.

Table 1. Trade liberalization in Cameroon manufacturing industries

Industry	Nominal rate of protection (per cent)[a]				Effective rate of protection (per cent) [b]			
	1988	1993	Level change	Per cent change	1988	1993	Level change	Per cent change
Food, drink, tobacco	126.50	36.80	-89.70	-70.91	225.79	55.65	-170.14	-75.35
Textile & weaving	95.00	19.30	-75.70	-79.68	477.35	53.20	-424.15	-88.86
Wood & furniture	64.00	19.30	-44.70	-69.84	98.64	-2.60	-101.24	-102.64
Paper & printing	57.00	19.30	-37.70	-66.14	164.58	50.30	-114.28	-69.44
Chemical products	58.00	26.80	-31.20	-53.79	440.78	74.10	-366.68	-83.19
Rubber & plastic	102.00	26.80	-75.20	-73.73	24550.79	51.00	-24499.8	-99.79
Non-metallic mineral	98.50	16.80	-81.70	-82.94	16367.00	48.90	-16318.1	-99.70
Basic metal	49.00	19.30	-29.70	-60.61	706.40	64.80	-641.60	-90.83
Machinery & appliance	49.00	19.30	-29.70	-60.61	176.61	20.60	-156.01	-88.34
Transport equipment	73.00	16.80	-56.20	-76.99	717.60	38.70	-678.90	-94.61
Miscellaneous	86.51	14.80	-71.71	-82.89	358.81	28.80	-330.01	-91.97

[5] Unfortunately, the information on NTBs is not available. This might not be very problematic since tariffs were an important policy instrument in Cameroon. Moreover, as argued by Pavcnik (2003) NTBs are inherently hard if not impossible to measure.

Table 1 continued

	Import tariff rates (per cent)[c]				Import penetration rates (per cent)[d]			
	1988	1993	Level change	Per cent change	1988	1993	Level change	Per cent change
Food, drink, tobacco	13.00	8.29	-4.71	-36.23	15.35	14.08	-1.27	-8.27
Textile & weaving	13.68	5.65	-8.03	-58.70	30.00	4.12	-25.88	-86.27
Wood & furniture	10.38	10.76	0.38	3.66	15.80	27.19	11.39	72.09
Paper & printing	9.64	3.87	-5.77	-59.85	26.30	2.26	-24.04	-91.41
Chemical products	5.93	4.50	-1.43	-24.11	33.80	38.42	4.62	13.67
Rubber & plastic	17.04	18.87	1.83	10.74	27.90	45.18	17.28	61.94
Non-metallic mineral	10.96	21.57	10.61	96.81	14.20	36.70	22.50	158.45
Basic metal	9.55	7.03	-2.52	-26.39	24.80	35.48	10.68	43.06
Machinery & appliance	10.71	9.10	-1.61	-15.03	45.80	59.72	13.92	30.39
Transport equipment	17.18	22.96	5.78	33.64	35.30	73.90	38.60	109.35
Miscellaneous	9.88	5.90	-3.98	-40.28	30.00	91.94	61.94	206.47

Sources: Data on import tariff rates are from the 1989 and 1994 Cameroon input-output tables. The nominal and effective protection figures are from Cameroon's Industrial Master Plan (IMP, 1989) and Kamgnia (1994).

Notes: [a] Expressed as ad valorem rates. [b] Effective rate of protection is defined by $\frac{T_i - \sum_j a_{ij} T_j}{1 - \sum_j a_{ij}}$, where T_i and T_j are nominal protection rates on output and inputs, respectively while a_{ij} are technical coefficients. [c] Industry-year-specific tariff rates. [d] Imports as a share of domestic sale (production + imports - exports).

3. Overview of Cameroonian Manufacturing Sector, 1993-2005

In this section we analyse the changes from 1993 to 2005 in the manufacturing production, manufacturing exports and manufacturing imports. The figures in Table 2 indicate that the extent of gross production variations differed substantially across manufacturing industries. Between 1993 and 2005, four sectors e.g. food, drink, tobacco, wood & furniture, paper & printing, and non-metallic mineral experienced improvement in output of more than 50 percent. In textile & weaving and transport & equipment sectors, output dropped by 31.63 and 14.33 per cent respectively. The remaining industries recorded output gains varying between 17.77 and 42.81 percent. In terms of exports, two industries e.g. transport equipment and miscellaneous experienced a decrease in exports of respectively 91.25 and 76.37 per cent. The remaining industries recorded an expansion in exports. The dramatic increase occurred in the wood & furniture and non-metallic mineral industries. Turning to manufacturing imports, three industries experienced declining imports, with the miscellaneous sector recording the worst decline of 54.28 per cent. The remaining industries recorded improvement in imports, with the dramatic increase of more than 100 per cent occurring in food, drink, tobacco, chemicals, basic metal, machinery & appliance and transport equipment industries.

The extent of job movements differed substantially across manufacturing industries. Between 1988 and 2005 chemicals, non-metallic mineral, transport equipment, and miscellaneous industries experienced job losses, with the non-metallic mineral industry experiencing the employment loss of more than 50 percent. Coming to the structure of employment, five sectors recorded a contraction in the share of skilled labour in total employment. The sharpest decline of 45.3 and 41.8 percent occurred in miscellaneous and textile & weaving industries, respectively. The remaining industries recorded an expansion in the proportion of skilled labour in total employment. The share of unskilled labour also varies widely across industries between 1988 and 2005. Four industries experienced declining share of unskilled workers. Food, drink, tobacco and chemicals recorded the worst decline of 26.4 and 38.1 percent, respectively. The remaining industries recorded improvements in the

proportion of unskilled workers, with the greatest increase of 28.6 percent occurring in the machinery & appliance industry.

Table 2. Trends in Cameroon manufacturing sector, 1993 and 2005

Industry	Number of firms (in units)			Production (in 10^6)			Exports (in 10^6)		
	1993	2005	% change	1993	2005	% change	1993	2005	% change
Food, drink, tobacco	194	186	-4.12	571.63	980.45	71.52	50.20	74.47	48.35
Textile & weaving	46	36	-21.74	305.20	208.67	-31.63	25.88	45.50	75.81
Wood & furniture	151	102	-32.45	239.11	572.98	139.63	14.97	225.04	1403.27
Paper & printing	46	72	56.52	34.54	93.65	171.14	0.65	1.21	86.15
Chemical products	94	78	-17.02	69.11	77.67	12.39	2.82	4.96	75.89
Rubber & plastic	62	36	-41.94	36.69	43.21	17.77	12.90	25.52	97.83
Non-metallic mineral	16	6	-62.50	31.56	49.61	57.19	2.62	8.09	208.78
Basic metal	22	18	-18.18	87.87	125.49	42.81	20.81	45.99	121.00
Machinery appliance	88	42	-52.27	24.44	34.17	39.81	5.54	6.02	8.66
Transport equipment	38	20	-47.37	12.49	10.70	-14.33	4.00	0.35	-91.25
Miscellaneous	31	22	-29.03	74.26	91.67	23.45	14.09	3.33	-76.37

Industry	Imports (in 10^6)			Employment (in thousand)			Proportion of skilled labour		
	1993	2005	% change	1993	2005	% change	1993	2005	% change
Food, drink, tobacco	24.73	97.30	293.45	180	340	88.89	0.024	0.283	1079.2
Textile & weaving	13.99	11.16	-20.23	71	99	39.44	0.182	0.106	-41.76
Wood & furniture	6.32	4.43	-29.91	51	103	101.96	0.017	0.137	705.88
Paper & printing	17.81	26.82	50.59	3.5	6	71.43	0.016	0.196	1125.0
Chemical products	44.17	91.04	106.11	7	4	-42.86	0.008	0.386	4725.0
Rubber & plastic	11.22	18.14	61.68	6	16	166.67	0.112	0.094	-16.07
Non-metallic mineral	6.33	11.95	88.78	3	1	-66.67	0.403	0.356	-11.66
Basic metal	24.47	72.03	194.36	2	5	150.00	0.451	0.387	-14.19
Machinery appliance	56.96	133.83	134.95	2	3	50.00	0.382	0.209	-45.29
Transport equipment	25.21	69.28	174.81	1.5	1	-33.33	0.037	0.204	451.35
Miscellaneous	11.46	5.24	-54.28	6	5	-16.67	0.032	0.241	653.12

Industry	Proportion of unskilled labour		
	1993	2005	% change
Food, drink, tobacco	0.976	0.718	-26.43
Textile & weaving	0.818	0.894	9.29
Wood & furniture	0.983	0.863	-12.21
Paper & printing	0.984	0.804	-18.29
Chemical products	0.992	0.614	-38.10
Rubber & plastic	0.890	0.906	1.80
Non-metallic mineral	0.597	0.644	7.87
Basic metal	0.549	0.613	11.66
Machinery appliance	0.615	0.791	28.62
Transport equipment	0.963	0.796	-17.34
Miscellaneous	0.968	0.759	-21.59

Source: Authors' construction using industry annual survey data of the National Institute of Statistics.
Notes: All variables are in 1995 constant prices.

4. Empirical Methodology

We examine the effects of international trade (exports and imports) and foreign ownership on firm closure and employment. These outcomes over the period 1993-2005 are related to trade and foreign ownership firm i in industry j at time t faces (FC_{ijt}), industry shocks relating to tariff reductions (TA_{jt}), firm characteristics (CH_{ijt}), interactions of firm

input intensities and productivity with trade and foreign ownership (X_{ijt}), as well as the interactions of firm productivity with tariff reductions (Z_{ijt}),

$$Outcome_{ijt} = f(FC_{ijt}, TA_{jt}, CH_{ijt}, X_{ijt}, Z_{ijt}) \quad (1)$$

As already stated, we consider two firm outcomes. The first is firm death and the second is the influence of trade and foreign ownership on employment. To address potential endogeneity issues of trade and foreign ownership proxies as well as changes in tariff, we also report the results using the generalized method of moments (GMM) approach.

4.1. Modelling determinants of firm exit

We build on existing trade models involving heterogeneous firms (e.g. Melitz, 2003; Bernard et al., 2003, 2005; Melitz and Ottaviano, 2008; Baldwin and Gu, 2009; Baldwin and Yan, 2010). We estimate the first outcome related to firm death via a logistic regression based on the decision facing each firm: continue its business as before or closedown. The empirical model has the following form:

$$\Pr(Exit_{ijt} = 1) = \Phi(x\beta) = \Phi(\alpha FC'_{ijt} + \varphi TA'_{jt} + \gamma CH'_{ijt} + \delta X'_{ijt} + \lambda Z'_{ijt} + \mu_t + \mu_j + \varepsilon_{ijt}) \quad (2)$$

where Φ is the standard normal cumulative distribution and β is a vector of coefficients ($\alpha, \varphi, \gamma, \delta, \lambda$). Firm-level trade and foreign ownership indicators include use of imported intermediate inputs, export and foreign ownership. Exit probabilities are also allowed to depend on tariff changes, as well as on a number of firm characteristics. Our set of firm characteristics encompasses size, age, capital intensity, skill intensity, and total factor productivity (TFP).[6] Equation (2) also includes spell fixed effects, μ_t, to proxy for aggregate shocks that affect all industries equally, individual fixed effects, μ_j, that capture unobserved heterogeneity in production technologies, and a random error term, ε_{ijt}. The procedure consisting in estimating the models with individual and spell fixed effects is important as we are interested in estimating both the effect of within industry changes and within spell variation in international trade and foreign ownership on firm death.

As regards the predictions on the sign of the coefficients in equation (2), as a result of their higher efficiency, exporters are less likely to die than non-exporters. Thus, we expect a negative coefficient on export status. Foreign-owned firms are relatively 'footloose' i.e. associated with the threat of shifting production to alternative locations in response to negative shocks (see Barba Navaretti and Turrini, 2003). Therefore, multinationals are more likely to die compared with indigenous firms and we expect a positive estimate of the foreign ownership variable. One major hypothesis of the heterogeneous-firm models is that declines in trade costs increase the probability of firm death. Hence, we expect φ to be negative.

The industrial-organization literature on firms' turnover (e.g. Geroski, 1995) argues that firm attributes such as size and age are positively related to a firm's probability of survival. Indeed, the lower likelihood of survival for small firms is due to a 'selection' effect: smaller firms are confronted by a scale cost disadvantage. Younger firms are more likely to die because of the 'liability of newness' effect: after entry they go through a process of learning which involves solving a range of problems e.g. acquiring suitable capital, training a new workforce, establishing an appropriate organizational structure, etc. The selection models suggest that low-productivity firms have a higher probability of exit. A key implication of the

[6] The inclusion of controls for firm size and age is motivated by the empirical work of Dunne et al. (1988, 1989) and the theoretical models by Hopenhayn (1992), Olley and Pakes (1996) among others. The model by Olley and Pakes (1996) predicts faster growth for more capital intensive and productive firms. Moreover, and following previous studies (e.g. Hall, 1987; Blonigen and Tomlin, 2001) we use the firm-level employment and age at the beginning year of the study period.

HO trade is that goods produced by a country are a function of its relative endowments. Thus, with trade openness, a labour-abundant country like Cameroon is expected to produce less capital- and skill-intensive products. We then assume that the probability of firm survival decreases with industry exposure to imports from capital- and skill-abundant countries.

Turning to the interactions, the model of Melitz (2003) predicts that less productive firms in industries which liberalise are more likely to exit. Indeed, the heterogeneous-firm-based models of international trade assume that falling tariffs forces the least efficient firms to exit: a fall in tariffs is expected to have a stronger effect on the death of a firm that is least productive. In the specification (2) λ reflects how the effect of tariff reductions varies with firm productivity and we expect it to be positive. Indeed, $\lambda \succ 0$ indicates that the effect of tariff reductions on the probability of firm exit depends on the level of a firm's productivity: higher-productivity firms are less likely to die as a result of a given fall in tariffs. Finally, we expect firm capital and skill intensity to increase the probability of survival relatively more in industries where exposure to imports is high or increasing.

4.2. Modelling determinants of labour demand

Our second outcome considered is the influence of international trade and foreign ownership on employment. We follow Bernard et al. (2006). However, and contrary to this study, we jointly estimate the demand for skilled and unskilled labour as a system of interrelated factor demands à la Nadiri and Rosen (1969).[7] For two heterogeneous types of labour, L_g with g=1,2, the classical adjustment model can be generalized to the following equation:

$$\Delta L_{gt} = \sum_{h=1}^{2} \beta_{gh} (L_{ht}^{*} - L_{ht-1}) \qquad (3)$$

where L_{ht}^{*} is the desired level of employment at time t. β_{gh} is the adjustment coefficient. $\beta_{gh} \succ 0$ or $\beta_{gh} \prec 0$ implies that inputs g and h are dynamic p-substitutes or p-complement. If inputs g and h are p-complement, a greater disequilibrium in the demand for factor g slows the adjustment of the demand for factor h. In order to be consistent with the dynamic framework, the $\beta_{gg}'s$ have to be positive. We assume a linear relationship between L_{ht}^{*} and the independent variables in the death specification (2). That is, trade and foreign ownership (FC_t), firm attributes (CH_t), tariff changes (TA_t), interactions of firm input intensities and productivity with trade and foreign ownership (X_t), and the interactions of firm productivity with tariff changes (Z_t):

$$L_{ht}^{*} = \alpha_1 FC_t + \alpha_2 CH_t + \alpha_3 TA_t + \alpha_4 X_t + \alpha_5 Z_t \qquad (4)$$

We then insert equation (4) into (3). After rearranging terms, and introducing an error term as well as time- and industry-fixed effects, the following estimation equation for the demand for skill group g is obtained:

$$\Delta L_{gt} = c + \phi_1 FC_t + \phi_2 CH_t + \phi_3 TA_t + \phi_4 X_t + \phi_5 Z_t + \sum_{h=1}^{2} L_{jt-1} + d_t + d_r + \varepsilon_t \qquad (5)$$

where $\phi_1 = \alpha_1 \sum_{h=1}^{2} \beta_{gh}$, $\phi_2 = \alpha_2 \sum_{h=1}^{2} \beta_{gh}$ and so forth. d_t and d_r are spell and industry dummies. $\phi_1 \prec 0$ indicates a negative correlation of trade and foreign ownership with employment. $\phi_4 \succ 0$ implies faster reallocation towards more productive, capital- and skill-intensive firms

[7] Indeed, a single equation estimation of the demand for different types of labour does not seem appropriate, given that these demand functions are affected by common shocks. Moreover, the decision to employ skilled or unskilled workers is a joint decision. See Kaiser (2001) for a similar approach.

with greater exposure to trade and foreign ownership. $\phi_5 \succ 0$ also indicates faster reallocation towards more efficient firms in terms of productivity in industries with lower tariff rates.

5. Data Description and Descriptive Statistics

We explore the relationship between trade and foreign ownership, firm closure and labour-demand using a data set based on a census of Cameroonian manufacturing firms by Cameroon's National Institute of Statistics (NIS). The data initially covers 788 firms from different manufacturing sectors. We focus our attention on firms that employ five or more workers.[8] Given that we are also interested in what happens to the demand for both skilled and unskilled workers following firm closure, firms with incomplete information on wage and both categories of employees are also eliminated.[9] After cleaning the data set, the unbalanced panel sample of firms utilized in this study is 600 for the period 1993-2005. This is a reduction 24 per cent in the sample size and possibly limits the analysis. The sample thus includes firms in 9 industries: food, drink, tobacco, textile & weaving, wood & furniture, paper & printing, chemicals, rubber & plastic, non-metallic mineral, basic metals, and machinery & appliance.

Table 3 shows the sample composition by industry and over time (Panel A), by size category (Panel B), and by size category over time (Panel C). The Cameroonian manufacturing sector is dominated over the period under investigation by the food, drink, tobacco sector, followed by wood & furniture, and then Chemicals and machinery & appliances sectors. Over time, the number of manufacturing firms increases from 1993 to 1995, decreases continually between 1996 and 2001, increases again in the remaining years, except in 2004 where it drops. As regards size, the figures in Panel B reveal that large firms represent the majority of the Cameroonian total sample (49.2 per cent), followed by the medium size enterprises (27.7 per cent) and finally small size enterprises (23.2 per cent). In order to see what happens to the average size of firm over the period under investigation, Panel C of Table 3 provides a breakdown by size category for each year of the census. Certain trends are clear from this Panel. There is an increase between 1993 and 1998 in the proportion of small firms, and from 1999 to 2005 the percentage of small firms decreases. The medium-sized distribution shows an increase in the proportion of medium firms between 1993 and 1995, a drop between 1995 and 1997, an increase between 1998 and 1999, a drop again between 2000 and 2001, a remarkable increase in 2002 and a decrease thereafter. As concerns the large firms, there has been almost no significant change in the distribution over the period from 1993 to 2005.

The census distinguishes between production and nonproduction workers. We measure skilled (nonproduction) workers (L_s) by the sum of (i) senior managers, (ii) senior technicians and middle level managers, and (iii) technicians, foremen and skilled workers in a firm per year. The unskilled or production employment (L_u) is other workers (e.g. the sum of clerks, unskilled workers, and apprentices) per year.[10] The data do not include information on hours worked in order to pick up the degree of capacity utilization of labour. For every firm, the wages measured in terms of annual earnings of skilled and unskilled labour are divided by the consumer price index (CPI) to arrive at a real measure. The wage for skilled and unskilled workers are obtained by dividing the total wage bill for a given skill group by the number of employee in that skill group. Output is the firm observed production per year. It is measured

[8] This is related to the definition of SMEs (Small & Medium Scale Enterprises) in Cameroon. Moreover, firms having less than 5 employees usually operate in the informal sector.

[9] However, to check the robustness of the results we will run the exit estimations on a broader section of firms.

[10] The activities of unskilled workers mainly include machine operation, production supervision, repair, maintenance and cleaning.

in 2000 constant price using sector's output price index as deflator. With regard to firm characteristics, our data include information on size, age, productivity, input intensities. Specifically, size is measured by the (log) of the number of employees; age as the (log) number of years in the sample; the capital-labour-ratio (CLR) as the estimated (log) of capital stock per employee; the skill intensity (SKI) as the (log) skilled workers per employee; and total factor productivity (TFP) is estimated using the methodology suggested by Olley and Pakes (1996).[11]

Table 3. Sample composition

Panel A: Proportion and number of firms by sector and over time

Sectors	Proportion and number of firms by sector		Proportion and number of firms over time			Proportion and number of firms over time		
	Number of firm	Proportion (%)	Year	Number of firm	Proportion (%)	Year	Number of firm	Proportion (%)
Food processing	146	24.33	1993	39	6.50	2002	54	9.00
Textile & weaving	36	6.00	1994	40	6.67	2003	56	9.33
Wood & furniture	118	19.67	1995	50	8.33	2004	50	8.33
Paper & printing	50	8.33	1996	49	8.17	2005	55	9.17
Chemicals	93	15.50	1997	47	7.83			
Rubber & plastic	50	8.33	1998	45	7.50			
Non-metallic mineral	7	1.17	1999	45	7.50			
Basic metal	29	4.83	2000	39	6.50			
Machinery & appliance	71	11.83	2001	31	5.17			
Total	600	100.00		385	64.17		215	35.83

Panel B: Proportion and number of firms by group size[a]

Group size	Number of firm	Proportion (%)
Small firms ($5 \prec total\ employees \prec 50$)	139	23.17
Medium firms ($51 \prec total\ employees \prec 150$)	166	27.67
Large firms ($total\ employees \succ 150$)	295	49.17

Panel C: Breakdown by year for different size group

Year	Small firms		Medium firms		Large firms	
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	11	7.91	10	6.02	21	7.12
1994	10	7.19	11	6.63	22	7.46
1995	16	11.51	12	7.23	25	8.47
1996	17	12.23	11	6.63	24	8.14
1997	16	11.51	9	5.42	24	8.14
1998	15	10.79	10	6.02	21	7.12
1999	11	7.91	11	6.63	25	8.47
2000	10	7.19	9	5.42	22	7.46
2001	7	5.04	6	3.61	20	6.78
2002	6	4.32	23	13.86	26	8.81
2003	8	5.76	21	12.65	25	8.47
2004	7	5.04	20	12.05	26	8.81
2005	5	3.60	13	7.83	13	4.41
Total	139	100.00	166	100.00	295	100.00

Source: Own estimates. [a] The size is defined based on a firm's total number of permanent employees.

The data also provide firm-level variables to measure trade and foreign ownership: imported materials, exported output, and foreign ownership.[12] To measure trade and foreign ownership, we use (i) a dummy variable (DM) coded one for firms that use imported inputs

[11] See Appendix A_1 for a more detailed presentation of this methodology.

[12] We simply distinguish between firms' with no foreign ownership and those with at least some. And for the latter group we do not distinguish between the degree of foreign ownership.

(and zero otherwise) and the firm's imported inputs share (MS),[13] (ii) a dummy variable (DX) coded one for firms that export (and zero otherwise) and the firm's share of sales that are exported (XS), and (iii) a dummy variable (DFO) coded one for firms that are foreign-owned (and zero otherwise) and the firm's foreign ownership share (FOS). Coming to the firm exit, in the context of Cameroonian manufacturing firms, an exit may imply one of the following: (i) an actual exit i.e. the firm closed down, (ii) firms remaining in existence but not surveyed by the data collectors, (iii) a change in formality/informality i.e. firms continue to operate but now informally, and last but not least (iv) merger/acquisition. However, the available information does not allow the distinction between the different forms of exit. In this study exits are defined as firms that completely cease to report data.

Table 4 Panels A-C presents descriptive statistics. First, Table 4 Panel A provides details on the patterns of exit by year, sector and size group, expressed as a percentage of the total number of observations. Over the sample period, around 30.7 per cent of our observations are firm exit, accounting for 14.9, 57.8, 14.6 and 59.4 per cent of average manufacturing output, employment, skilled employment, and unskilled employment, respectively. The figures also reveal a noticeable change in firm exit over time and this peaks in the years 1995, 1996, 1997 and 1998, where they account for 14, 13.5 and 12 per cent in those years respectively. As regards sectors, textile & weaving, wood & furniture, paper & printing, rubber & plastic, and machinery & appliance have above average exit rates. In contrast, food, drink, tobacco, chemicals, non-metallic mineral, and basic metal show below average exit rates. Most exiting firms are small (around 48.7 per cent of total observations over the entire period). This is consistent with the view that small firms are more likely to die following trade liberalization shocks such as foreign competition (Bernard and Jensen, 2002).

In Panel B of Table 4 we compare mean firm level characteristics of firms that exit with those that continue. In particular, Panel B reports the mean and the standard deviation of each variable for the two types of firms, deaths and survivors, as well as the percentage difference in means. A number of these differences are statistically significant. For instance, firms that cease production are smaller (134.5 per cent) and much less capital intensive (142 per cent), compared to those that stay. However, and contrary to expectation, firms that shut-down are about 28.2 per cent more productive than firms that do not, and this difference is statistically significant. It is also worth noting that over the entire period, exiting firms are younger (5.6 per cent) and least skill intensive (10.3 per cent), although the difference is not statistically significant.

As far as trade and foreign ownership are concerned, the figures in Panel C Table 4 show that firms that close are less likely to export (44.05 per cent) or to use imported intermediate inputs (13.4 per cent) than continuing firms. Moreover, 63.2 per cent of surviving firms belong to exporting firms as opposed to 19.2 per cent of firms that exit. Survivors export on average 24.1 per cent of their output against 6.9 per cent for deaths. The use of imported inputs also differs significantly between survivors, 0.698, than deaths, 0.564. On average, 36.6 per cent of the intermediate inputs used by survivors are imported while exiting firms use on average 32.9 per cent of imported raw materials. Turning to foreign ownership, we find that foreign owned firms are more likely to be found among deaths (78.5 versus 72.9 per cent). Hence, firms with some foreign ownership are more likely to close (5.6 per cent) than purely domestically owned firms. This is consistent with the finding by Görg and Strobt (2003) and Bernard and Sjöholm (2003) in the Irish and Indonesian manufacturing sectors respectively. Furthermore, the foreign ownership share is on average 60.7 per cent for deaths against 50.1 per cent for survivors.

[13] To examine the robustness of the results we also use the industry-level import penetration ratio (imports to gross output by industry).

Table 4. Descriptive statistics

Panel A: Firm exit by year, sector and group size

Exit by year[a]		Exit by year (cont'd)		Exit by sector		Exit by group size[b]	
Year	Exit rate (per cent)	Year	Exit rate (per cent)	Sector	Exit rate (per cent)	Group size	Exit rate (per cent)
1993	9.169	2002	1.146	Food, drink, tobacco	19.715	Small	48.714
1994	8.883	2003	1.433	Textile & weaving	51.471	Medium	20.917
1995	14.040	2004	1.146	Wood & furniture	33.804	Large	30.086
1996	14.040	2005	1.146	Paper & printing	32.743		
1997	13.467			Chemicals	20.690		
1998	12.034			Rubber & plastic	47.689		
1999	10.888			Non-metallic mineral	10.029		
2000	7.736			Basic metal	10.602		
2001	4.871			Machinery & appliance	49.558		
				Average	30.668		

Panel B: Attributes of exiters and non-exiters

	All firms		Survivors		Deaths		Percentage difference in mean (%)[c]
	Mean	SD	Mean	SD	Mean	SD	
Size (log[# employees])	5.115	1.826	5.527	1.628	4.183	1.906	-134.45***
Age (log[# years in sample])	2.816	0.815	2.834	0.887	2.778	0.622	-5.64
Capital intensity (log[capital stock/# employees])	0.410	2.272	0.845	2.232	-0.575	2.044	-142***
Skill intensity (log[skilled workers/# employees])	-1.758	1.286	-1.726	1.223	-1.829	1.415	-10.33
TFP (total factor productivity)[d]	-0.490	1.459	-0.577	1.602	-0.295	1.042	28.19***
Observations	4780		3314		1466		

Panel C: Trade, foreign ownership and firm exit

	All firms		Survivors		Deaths		Percentage difference in mean (%)
	Mean	SD	Mean	SD	Mean	SD	
Export dummy	0.497	0.500	0.632	0.482	0.192	0.394	-44.05***
Import dummy	0.657	0.475	0.698	0.459	0.564	0.497	-13.39***
Foreign owner dummy	0.746	0.435	0.729	0.445	0.785	0.411	5.63**
Export share	0.188	0.317	0.241	0.342	0.069	0.207	-17.16***
Imported input share	0.355	0.363	0.366	0.365	0.329	0.357	-3.70
Foreign ownership share	0.534	0.416	0.501	0.409	0.607	0.424	10.58***
Tariff changes	-0.0085	0.015	-0.0089	0.015	-0.0075	0.017	0.14
Observations	4780		3314		1466		

Notes: [a] Exit rates are defined as the number of exiting firms dividing by the total number of firms. [b] The size category is defined as follows: small firms: 5-50 employees, medium firms: 51-150 employees and large firms: $\succ 150$ employees. [c] A difference of means test between the group of exiting firms and continuing firms for the whole period. [d] As in Olley and Pakes (1996). We control for unobservable using investments when calculating firm-level TFP measures. *** significant at 1% level; ** significant at the 5% level.

Table 5 shows the means of firm characteristics by trade and foreign ownership type. Firms that use imported intermediate inputs are part of industries with lower tariff rates (1.1 per cent), are older (11 years) and are more skill intensive (26.8 per cent) than firms that do not use imported inputs. Export activity is associated with larger differences in firm attributes. Exporting firms belong to industries with higher changes in tariff rates (0.5 per cent). Furthermore, exporters are far larger (145.7 per cent), older (25 years) and capital intensive (56.5 per cent) and skill intensive (19.9 per cent) than non-exporters. Relative to domestically owned firms, multinational firms belong to industries with higher variation in tariff rates (0.48

per cent). In addition, multinationals are far larger (51.1 per cent), older (31.6 years), more capital intensive (73.2 per cent), more skill intensive (40.4 per cent), and more productive (43.2 per cent) than indigenous firms.

Finally, in Appendixes A_2 and A_3, we present the descriptive statistics over time for the different sectors and for each size category, respectively. In Appendix A_4, we provide the proportion of firms importing, exporting or having foreign ownership over time for each sector, while and A_5 we present we provide the proportion of firms importing, exporting or having foreign ownership over time by size group.

Table 5. Firm characteristics by trade type and foreign ownership

Attributes	Type of trade and foreign ownership		
	Importers	Non-importers	Percentage difference in mean (%)[a]
Tariff changes	-0.005	-0.015	-1.05***
Size	5.092	5.159	6.80
Age	2.853	2.745	-10.78**
Capital intensity	0.443	0.345	-9.86
Skill intensity	-1.666	-1.934	-26.80***
TFP (total factor productivity)	-0.486	-0.499	-1.37
Observations	3146	1638	
	Exporters	Non-exporters	Percentage difference in mean (%)
Tariff changes	-0.011	-0.006	0.5***
Size	5.847	4.390	-145.70***
Age	2.943	2.691	-25.27***
Capital intensity	0.694	0.129	-56.50**
Skill intensity	-1.858	-1.659	19.94***
TFP (total factor productivity)	-0.473	-0.507	-3.38
Observations	2377	2403	
	Foreign owned	Domestic owned	Percentage difference in mean (%)
Tariff changes	-0.010	-0.005	0.48***
Size	5.245	4.734	-51.10**
Age	2.896	2.581	-31.60***
Capital intensity	0.224	0.956	73.18***
Skill intensity	-1.861	-1.456	40.40***
TFP (total factor productivity)	-0.381	-0.813	-43.20***
Observations	3566	1214	

Notes: [a] A difference of means test between the two groups of firms for the whole period. *** significant at 1% level; ** significant at the 5% level.

6. Econometric Results

As described in Section3, we begin by estimating the impact of foreign competition on the probability of firm death. Then, we investigate whether international competition has any induced effect on the demand for labour.

6.1. Determinants of firm deaths

We first examine the role of trade and foreign ownership in firm shutdowns controlling for firm characteristics. We also include year and industry dummies to control for aggregate variation in firm death and unobservable industry characteristics that shift the probability of death, e.g. variation in industry sunk costs of entry. Further, with industry fixed effects, the estimation focuses on changes over time in firm death within an industry. That is, when a given industry faces increasing foreign competition what happens to firm exit. Table 6 Panels A-C reports the relationship between the probability of firm death and foreign competition. In particular, we report results from logistic regressions in which we proxy the three foreign competition channels using the dummy variables approach for firms that use

imported inputs, for firms that export a share of their output, and for firms that are foreign owned.

The column (1) of Table 6 reports coefficients from a logistic regression of firm death on foreign competition, tariff liberalization and firm attributes, controlling for industry and time effects. Each of our four channels of foreign competition provides important insights into the firm shutdown decision. The coefficients associated with the imported inputs and export dummy variables are negatively signed and statistically significant while the coefficient on foreign ownership dummy is positive and largely insignificant. These results indicate that the probability of firm death significantly decreases with the use of imported intermediate inputs. This result is inconsistent with Greenaway et al. (2008) who find that increased import penetration significantly increases the probability of firm closure in Swedish manufacturing. Likewise, exporting firms are significantly less likely to cease production. This is consistent with the finding by Bernard et al. (2003) and Greenaway et al. (2008) in Swedish manufacturing. The results also show that firms that exit are more likely to be foreign owned, though not significantly so, compared to those that stay. As regards trade costs, the results reveal a negative and statistically insignificant coefficient on tariff changes in all specifications. Hence, statistical significance aside, this result is consistent with the view that trade liberalization through tariff cuts leads to the increased closure of domestic firms i.e the process of de-industrialization. Likewise, this result is in line with the finding by Bernard et al. (2006) in the U.S. manufacturing industries and plants and Baldwin and Yan (2010) using the Canadian manufacturing plants.

While the focus of this paper is on the impact of trade and foreign ownership, we also offer a discussion of the role of firm characteristics (e.g. productivity, size, age and factor intensity) in increasing or decreasing the probability of firm failure, as recent work finds that all these firm attributes improve survival chances. The results in column (1) of Table 6 Panels A-C show that firm size is negatively and significantly related to the likelihood of firm death. Hence, larger firms are less likely to close down. This confirms the finding by Dunne et al. (1989) that larger firms are less likely to die. The results also confirm that firm death is more likely for younger, less productive and less capital- and skill-intensive firms, although statistically insignificant.

The column (2) of Table 6 Panels A-C includes interactions of trade and foreign ownership proxies with firm capital intensity, skill intensity and productivity, as well as the interactions of firm productivity with tariff changes. The use of imported inputs and export activity continue to be negatively and significantly related to the probability of firm closure and the magnitude of the effect is bigger. The coefficient of the foreign ownership dummy variable is now positive, close to zero and largely insignificant. The coefficient of tariff changes remains negative and insignificant but of lesser magnitude. The export-productivity interaction is negatively signed and statistically significant at the 10 per cent level. This indicates that while increases in export reduce the probability of firm death, the effect is lower for the least productive firms. Finally, the interaction of changes in tariff rates with productivity is positively signed as expected and statistically significant in all specifications. Hence, the effect of tariff reductions on the probability of firm death depends on the level of a firm's productivity. That is, more productive firms are less likely to die as a result of a given reduction in tariff rates (see Figure 1a-c). In particular, the observed exit rates vary dramatically across different types of firms. For example, the exit rate among low-productivity is 49.1 per cent, while the exit rate among top-productivity firms is only 24 per cent. This is consistent with Aw et al. (2000) who use micro-level data from the Republic of Korea and China and find evidence suggesting that exposure to trade forces the least productive firms to exit.

Figure 1a-c. Tariff liberalization, productivity and exit in Cameroonian manufacturing

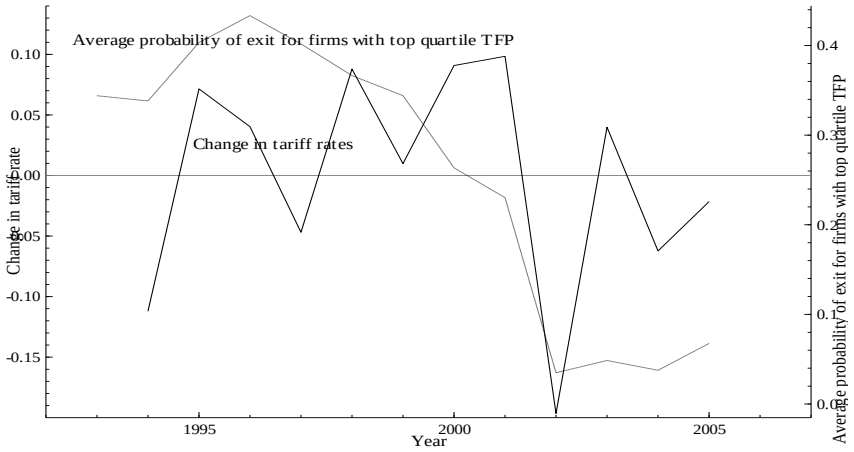

Figure 1a: Firms with top quartile TFP

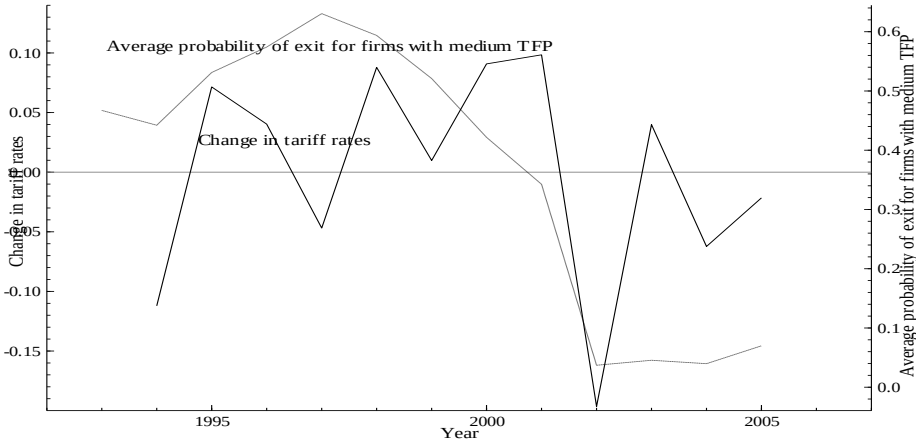

Figure 1b: Firms with median TFP

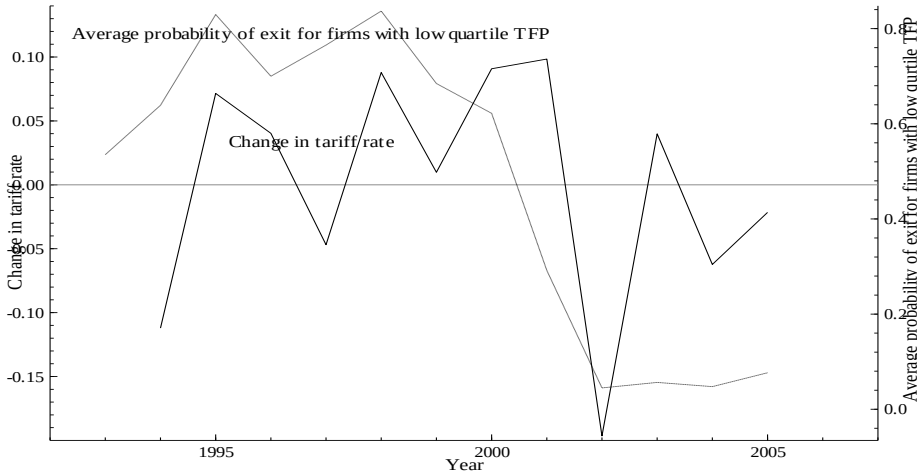

Figure 1c: Firms with low quartile TFP

In order to provide some interpretation of the estimated coefficients, we use the point estimates in column (2) of Table 6 Panels A-C and calculate the marginal effects of the variables on the probability to close down.[14] The results are shown in column (3) of Table 6 Panels A-C. As can be seen, in all cases, the largest effect on the probability of firm failure is from the falling tariffs variable, although insignificant. Furthermore, the effect of tariff cuts on the probability of firm exit depends on the level of firm's productivity: the probability of

[14] The marginal effects at the mean are calculated using the ' mfx, nodiscrete' command in STATA.

firm failure is 12.2 percentage point (Panel A), 64.5 percentage point (Panel B) and 63.2 percentage point (Panel C) lower for higher-productivity firms. Use of imported inputs and export activity are associated with a 19.3 and 38.3 percentage points decrease in the probability of death for the firm, respectively. The latter case on export is a very large increase relative to the 0.211 overall probability of firm death. The marginal effect of the firm level variable such as size on closedown is 0.058 (Panel A), 0.044 (Panel B) and 0.059 (Panel C). Using the marginal effects reported in column (3) of Table 6 Panels A-C, together with mean of the independent variables and the probability of exit, the elasticities are calculated and reported in column (4) of Table 6 Panels A-C.[15] The largest elasticity of the probability of closure is from the firm attribute such as size: a one per increase in this variable decreases the probability of firm exit by 1.402 (Panel A), 1.118 (Panel B) and 1.431 (Panel C). The impact of trade and foreign ownership variables is also significant. For example, the elasticity of the probability of firm closure is 0.562 (imported inputs) and 0.881 (export status). The columns (5) and (6) of Table 6 Panels A-C reports the GMM results where we address the potential endogeneity of foreign competition variables. These results offer the same message: the use of imported intermediate inputs and export activity are negatively and significantly associated with firm death. There is a negative and statistically insignificant association between tariff reductions and firm exit, and the effect is smaller for more efficient firms. The results also confirm that firm death is more likely for smaller and less productive firms.

Table 6. Trade, foreign ownership and firm death

Variables	Logistic				GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Imported inputs dummy						
DM	-0.875***	-1.106***	-0.193***	-0.562***	-0.0853*	-0.049
	(0.324)	(0.387)	(0.075)	(0.197)	(0.0527)	(0.069)
Tariff changes	-0.428	-0.365	-6.356	0.261	-0.020	-0.016
	(0.698)	(0.700)	(12.189)	(0.502)	(0.030)	(0.032)
Size	-0.345***	-0.334***	-0.058***	-1.402***	-0.152**	-0.166**
	(0.133)	(0.133)	(0.024)	(0.571)	(0.077)	(0.086)
Age	-0.307	-0.287	-0.050	-0.573	0.201	0.200
	(0.276)	(0.281)	(0.046)	(0.576)	(0.129)	(0.136)
CLR	-0.038	-0.157	-0.027	-0.041	-0.040	-0.030
	(0.096)	(0.129)	(0.023)	(0.033)	(0.025)	(0.024)
SKI	-0.103	-0.0003	-0.0001	0.0005	-0.019	-0.038
	(0.165)	(0.165)	(0.029)	(0.228)	(0.033)	(0.043)
TFP	-0.193	-0.211	-0.037	0.080	-0.072***	-0.042
	(0.183)	(0.230)	(0.039)	(0.089)	(0.029)	(0.029)
DM*CLR		0.237	0.041	0.033		-0.030
		(0.151)	(0.027)	(0.021)		(0.034)
DM*SKI		-0.220	-0.038	0.141		0.051
		(0.202)	(0.037)	(0.129)		(0.036)
DM*TFP		0.067	0.012	-0.012		-0.047
		(0.253)	(0.044)	(0.045)		(0.043)
Tariff		0.699***	0.122*	0.015***		0.012
changes*TFP		(0.075)	(0.072)	(0.005)		(0.012)
Industry effects	yes	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes	yes
Pseudo R^2	0.275	0.281				
Observations	4780	4780	4780	4780	3483	3483

[15] These elasticities are calculated using the 'mfx, eyex varlist(.)' command in STATA.

Table 6 continued

Variables	Logistic				GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel B: Export dummy						
DX	-1.736***	-2.297***	-0.383***	-0.881***	0.034	-0.305***
	(0.474)	(0.671)	(0.113)	(0.273)	(0.057)	(0.116)
Tariff changes	-0.248	-0.277	-4.611	0.202	-0.024	-0.023
	(0.710)	(0.706)	(11.719)	(0.515)	(0.030)	(0.031)
logSize	-0.265***	-0.261***	-0.044**	-1.118**	-0.057	-0.075
	(0.121)	(0.120)	(0.021)	(0.520)	(0.070)	(0.064)
logAge	-0.125	-0.145	-0.024	-0.295	0.313***	0.317***
	(0.286)	(0.288)	(0.047)	(0.592)	(0.079)	(0.080)
logCLR	-0.008	-0.080	-0.013	-0.021	0.014	-0.031
	(0.098)	(0.122)	(0.021)	(0.032)	(0.017)	(0.022)
logSKI	-0.198	-0.116	-0.019	0.163	-0.001	0.066**
	(0.155)	(0.168)	(0.028)	(0.236)	(0.032)	(0.037)
TFP	-0.128	0.015	0.003	-0.006	-0.032**	-0.062**
	(0.186)	(0.217)	(0.036)	(0.084)	(0.017)	(0.031)
DX*logCLR		0.208	0.035	0.044		0.073***
		(0.165)	(0.029)	(0.035)		(0.027)
DX*logSKI		-0.272	-0.045	0.201		-0.170***
		(0.282)	(0.046)	(0.211)		(0.050)
DX*TFP		-0.352*	-0.059	0.072		0.032
		(0.214)	(0.038)	(0.044)		(0.025)
Tariff		0.039***	0.645***	0.016**		0.008**
changes*TFP		(0.004)	(0.252)	(0.009)		(0.005)
Industry effects	yes	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes	yes
Pseudo R^2	0.321	0.329				
Observations	4780	4780	4780	4780	3483	3483
Panel C: Foreign ownership dummy						
DFO	0.010	-0.002	-0.0003	-0.001	0.285	0.269
	(0.585)	(0.641)	(0.112)	(0.372)	(0.209)	(0.371)
Tariff changes	-0.361	-0.308	-5.363	0.220	-0.082	-0.082*
	(0.698)	(0.725)	(12.650)	(0.520)	(0.052)	(0.052)
logSize	-0.338***	-0.341***	-0.059***	-1.431***	-0.318***	-0.311***
	(0.131)	(0.133)	(0.024)	(0.571)	(0.145)	(0.136)
logAge	-0.359	-0.356	-0.062	-0.712	0.366***	0.337***
	(0.284)	(0.286)	(0.046)	(0.591)	(0.133)	(0.120)
logCLR	-0.023	-0.057	-0.010	-0.015	0.012	-0.029
	(0.097)	(0.121)	(0.021)	(0.032)	(0.010)	(0.052)
logSKI	-0.118	-0.110	-0.019	0.152	-0.007	-0.040
	(0.160)	(0.218)	(0.039)	(0.300)	(0.027)	(0.105)
TFP	-0.229	-0.236	-0.041	0.090	-0.013	-0.017
	(0.183)	(0.261)	(0.045)	(0.101)	(0.017)	(0.036)
DFO*logCLR		0.072	0.012	0.0003		0.048
		(0.158)	(0.027)	(0.001)		(0.057)
DFO*logSKI		-0.036	-0.006	0.026		0.038
		(0.217)	(0.038)	(0.159)		(0.106)
DFO*TFP		0.068	0.012	-0.013		0.007
		(0.259)	(0.045)	(0.051)		(0.030)
Tariff		0.036***	0.632**	0.060**		0.026**
changes*TFP		(0.004)	(0.351)	(0.030)		(0.015)
Industry effects	yes	yes	yes	yes	yes	Yes
Year effects	yes	yes	yes	yes	yes	yes
Pseudo R^2	0.259	0.260				
Observations	4780	4780	4780	4780	3483	3483

Notes: Robust standard errors adjusted for clustering at the firm level are in parentheses. Coefficients for the regression constant, industry and time dummy variables are suppressed. *** significant at 1% level; **

significant at the 5% level; * significant at the 10% level. The second-order autocorrelation and Sargan/Hansen tests do not indicate that our GMM estimations suffer from misspecification.

However, the previous estimated effect may suffer from an omitted variables bias since we focus separately on each measure of trade and foreign ownership. Hence, in Table 7 we report the results for the specifications where trade and foreign ownership indicators are simultaneously considered. The results are in line with the ones reported in Table 6 Panels A-C and the magnitude of the coefficients is bigger. For instance, the results on the marginal effects in columns (3) show that using imported intermediate inputs is associated with a 22.3 percentage point reduction in the probability of death for the firm. Turning to exporting, this activity is equally associated with a 43 percentage point reduction in the probability of closure. The coefficient associated with the foreign owner dummy is positive, albeit statistically insignificant. This implies that a foreign owned firm is more likely to close than a comparable indigenous firm: multinationals have a 7 percentage point increase in their probability of death. Although statistically insignificant, the probability of closure is higher for firms belonging to industries which liberalize, and more productive firms are more likely to survive tariffs liberalization. The marginal probability of death is significantly declining in firm size. The survival of capital-intensive firms is more sensitive to changes in imported intermediate inputs: capital intensity reduces the probability of death and the effect is smaller for firms using more imported raw materials.

Overall, three main findings emerge from our analysis above. First, firms that exit are less likely to use imported inputs or to export, while foreign owned firms are more likely to die albeit insignificant. Second, statistical significance aside, firm death and changing tariff rates have the predicted negative association: as tariff rates fall, firm death is more likely, and the effect is particularly pronounced among least productive firms. This is consistent with the view that tariff cuts force the least productive firms to exit, which in turn may contribute to productivity gains. This is also consistent with the prediction of heterogeneous-firm models of international trade: as trade costs fall economic activity is reallocated towards high-productivity firms. Finally, firm death is still more likely for smaller firms.

Table 7. Multiple trade and foreign ownership indicators and firm death

Variables	Logistic				GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
DM	-0.954***	-1.366***	-0.223***	-0.711***	-0.157***	-0.160***
	(0.337)	(0.389)	(0.071)	(0.208)	(0.051)	(0.061)
DX	-1.833***	-2.634***	-0.430***	-1.017***	-0.091*	-0.247**
	(0.485)	(0.696)	(0.115)	(0.288)	(0.057)	(0.123)
DFO	0.359	0.433	0.071	0.258	0.260**	0.219
	(0.564)	(0.643)	(0.104)	(0.385)	(0.149)	(0.178)
Tariff	-0.354	-0.301	-4.924	0.221	-0.003	-0.0002
	(0.703)	(0.739)	(12.059)	(0.543)	(0.026)	(0.028)
logSize	-0.277***	-0.269**	-0.044**	-1.158**	-0.111***	-0.103**
	(0.121)	(0.124)	(0.020)	(0.546)	(0.045)	(0.052)
logAge	-0.063	-0.029	-0.005	-0.059	0.129	0.101
	(0.298)	(0.313)	(0.051)	(0.641)	(0.080)	(0.081)
logCLR	-0.026	-0.315**	-0.051**	-0.084**	-0.008	-0.072***
	(0.096)	(0.144)	(0.024)	(0.039)	(0.020)	(0.029)
logSKI	-0.165	0.066	0.011	-0.094	-0.056**	0.026
	(0.159)	(0.197)	(0.032)	(0.280)	(0.033)	(0.053)
TFP	-0.086	-0.044	-0.007	0.017	-0.041***	-0.036
	(0.180)	(0.265)	(0.043)	(0.104)	(0.016)	(0.027)
DM*logCLR		0.269**	0.044*	0.039*		0.011
		(0.158)	(0.026)	(0.023)		(0.027)
DM*logSKI		-0.265	-0.043	0.175		0.005
		(0.187)	(0.033)	(0.122)		(0.029)

Table 7 continued

Variables	Logistic				GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
DM*TFP		-0.017	-0.003	0.003		-0.031
		(0.241)	(0.039)	(0.044)		(0.027)
DX*logCLR		0.265	0.043	0.057		0.079***
		(0.178)	(0.031)	(0.038)		(0.027)
DX*logSKI		-0.371	-0.061	0.277		-0.075
		(0.270)	(0.044)	(0.203)		(0.055)
DX*TFP		-0.419*	-0.069*	0.086*		0.005
		(0.250)	(0.043)	(0.051)		(0.023)
DFO*logCLR		0.103	0.017	0.0005		0.043
		(0.156)	(0.025)	(0.0008)		(0.027)
DFO*logSKI		0.015	0.002	-0.011		-0.092**
		(0.218)	(0.036)	(0.163)		(0.054)
DFO*TFP		0.355	0.058	-0.072		0.014
		(0.246)	(0.041)	(0.050)		(0.033)
Tariff		0.490**	0.364***	0.151***		0.007
changes*TFP		(0.267)	(0.147)	(0.057)		(0.014)
Industry effects	yes	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes	yes
Pseudo R^2	0.340	0.359				
Observations	4780	4780	4780	4780	3483	3483

Notes: Robust standard errors adjusted for clustering at the firm level are in parentheses. Coefficients for the regression constant, industry and time dummy variables are suppressed. *** significant at 1% level; ** significant at the 5% level; * significant at the 10% level. The second-order autocorrelation and Sargan/Hansen tests do not indicate that our GMM estimations suffer from misspecification.

6.2. Trade, foreign ownership and labour demand

In this section, we present the results on the relationship for surviving firms between firm skilled and unskilled employment and trade and foreign ownership. One potential problem with the conditional estimates of labour demand is that the estimations use data on surviving firms and do not take exiting firms into account. Hence, we control for selection using data on continuing and exiting firms. The equation (5) is first estimated by least squares dummy variables (LSDV) and then by the GMM approach. The conditional and unconditional estimates are presented in Table 8 Panels A-B.[16]

Turning first to Panel A columns (1), (3), (5) and (7), the results show that the use of imported inputs is positively associated with skilled employment, while the unskilled employment is negatively correlated with the use of imported intermediate inputs. But, in both cases the conditional and unconditional estimates are imprecise. Exports are significantly positively related to both skilled and unskilled employment. The estimated conditional and unconditional correlations between foreign ownership and both types of workers are negative and statistically significant (except the unconditional estimate in the case of unskilled labour equation). We find a positive and statistically insignificant association between changes in tariff rates and the demand for skilled workers. Hence, changes in tariffs are uncorrelated with the demand for high-skill labour. Columns (5) and (7) report a negative and statistically insignificant relationship between changes in tariffs and unskilled labour demand. This indicates that firms in industries with relatively greater declines in tariff rates experience larger demand in unskilled employment, although the effect is statistically insignificant. Statistical significance aside, this result is consistent with the standard theories of international trade that predict trade liberalization will reduce lower-skill domestic

[16] To save space, the results using individual measures of trade and foreign ownership are not reported. These results, available from the authors upon request, yield the same message in terms of sign and significance, although the magnitude of coefficients changes.

employment and widen the wage gap between skilled and unskilled workers. Firm size has a significant positive effect on the demand for both skilled and unskilled labour. Capital intensity affects negatively both skilled and unskilled labour demand, but only the former effect is significantly different from zero. This indicates surprisingly that capital intensive production techniques are substitutive to high skilled labour. As expected, the skill intensity affects positively (negatively) skilled (unskilled) employment and the correlation is significantly different from zero. Technology, as proxied by TFP, has a negative and statistically insignificant effect on the demand for both skilled and unskilled labour. These estimated conditional and unconditional effects are consistent with the Rybczynski theorem where factors flow into sectors experiencing technological advance.

The own-adjustment conditional and unconditional coefficients, β_{gg}, are positive and significant for the demand for both types of labour, which is consistent with the theoretical framework. For example, the conditional own lag effects associated with skilled and unskilled workers are 0.695 and 0.245, respectively. This implies an adjustment speed of 30.5 per cent ([1-0.65]*100) for skilled workers and 75.5 per cent ([1-0.245]*100) for unskilled workers. Hence, the skilled labour experiences a greater degree of inertia with half-life (i.e. the length of time it takes to move halfway to a new equilibrium in response to a shock) of at most 1.9 years, compared to 5.9 months for unskilled workers.[17] These results parallel the expectation that the adjustment process should be slower for higher-skill employment due to the importance of firm-specific human capital. The results are also consistent with the expectation that firing costs increase with a worker's skill. There are significant cross-adjustment effects in each demand equation. The cross-effect conditional and unconditional coefficients, β_{gh}, are positively signed and statistically significant in the demand for both skilled and unskilled labour. This indicates that both types of workers are substitutes.

The columns (2), (4), (6) and (8) of Table 8 include interactions of firm factor intensities and productivity with trade and foreign ownership measures, and the interaction of firm productivity with tariff changes. Comparison of columns (1) and (3) with columns (2) and (4) indicates that imported intermediate inputs continue to be positively related to the demand for skilled workers, and the effect is now bigger and statistically significant at the 5 per cent level. On the other hand, comparison of columns (5) and (7) with columns (6) and (8) reveals that import penetration is significantly negatively related to the demand for unskilled workers. The estimation results thus suggest that imported intermediate inputs are complementary to skilled labour and are substitutive to unskilled labour. Quantitatively, and regarding the conditional estimates for example, a 1 per cent increase in import penetration increases (decreases) the demand for skilled (unskilled) workers by 0.286 (0.364) per cent. Hence, evidence in favour of skill-biased technological change is found. The effect of export activity on the demand for both skilled and unskilled labour remains positively and now only the unconditional estimate in the skilled labour equation is statistically significant. The unconditional estimate of foreign ownership is positively associated with the demand for both skilled and unskilled workers and only the former association is statistically significant. Changes in tariff rates continue to be uncorrelated with the demand for skilled workers and to fuel the demand for unskilled workers, but both effects remain insignificant. Size continues to be positively and significantly associated with the demand for both skilled and unskilled workers. Skill intensive production techniques remain complementary to skilled labour while capital and skill intensive production techniques are still substitutive to unskilled workers.

The interaction of import penetration with firm capital intensity is positive and significant in the unskilled labour demand equation. While increases in the imports of

[17] The half-life of adjustment is calculated as the ratio of the log of one half to the log of the own lag coefficient. See Fajnzylber and Maloney (2005).

intermediate inputs reduce the demand for unskilled employment, the effect is smaller for the most capital-intensive firms in the industry. The conditional and unconditional estimates of the interactions of firm skill intensity with import penetration are negative and statistically significant in both skilled and unskilled labour equations. Hence, while increased import penetration increases the demand for skilled employment, the effect is smaller for the less skill intensive firms. Likewise, import penetration reduces the need for lower-skill employment and the effect is largest for the least skilled labour-intensive firms.

The conditional and unconditional GMM estimates reported in Panel B of Table 8 confirm that import penetration remains positively and significantly related to the demand for skilled employment, and significantly reduces the demand for unskilled employment. In both cases, the magnitude of the GMM estimates is larger. For instance, a 1 per cent increase in import penetration increases the demand for skilled workers by 0.67 per cent. A similar increase in import penetration rather leads to a 0.51 per cent drop in the demand for unskilled workers. In the unskilled labour demand equation, the conditional and unconditional coefficients associated with foreign ownership remain negative but only the former is now significantly different from zero. Hence, multinationality is associated with a lower demand for lower-skill workers. With respect to the firm attributes, firm size remains positively and significantly correlated with the demand for both types of workers. Technology as measured by TFP still has a negative effect on skilled and unskilled labour demand but only the latter effect is now statistically significant. There is still surprisingly substitutability between capital-intensive production technique and skilled labour while the capital-intensity remains substitutive to low skilled labour as expected. Skilled labour-intensity continues to affect positively (and significantly) the skilled employment and to be negatively (and significantly) related to unskilled employment. As regards the interactions, the import penetration and capital intensity interaction remains positive in the skilled and unskilled labour demand equations and now statistically different from zero in both cases. Finally, the import penetration-skill intensity interaction remains negative and significant in the demand for both skilled and unskilled labour.

In sum, there is little difference between the estimates obtained using data on only continuing firms and using data on continuing and exiting firms. Hence, one may conclude that selection bias does not affect the estimates of exit effects of trade and foreign ownership. Also, it appears that in accounting for the impact of trade and foreign ownership on the demand for labour, import penetration, export activity, tariff reductions, and firm attributes such size and input intensities matter. First, increased import competition causes skill upgrading (growing demand for skilled labour), and the negative effect on low skill workers is less pronounced among more capital intensive firms. Second, although insignificant, exports increase the demand for both skilled and unskilled workers with a bigger impact for the latter whereas firms in industries with greater reductions in tariffs demand more unskilled workers. Finally, size induces a rise in demand for skilled and unskilled workers, skill intensive production techniques induce skill acquisition while factor input intensities decrease skill downgrading.

Table 8. Labour demand and foreign competition

Variable	Dependent variable: log skilled labour				Dependent variable: log unskilled labour			
	Continuing firms		Selection correction		Continuing firms		Selection correction	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: LSDV estimates								
DM	0.044	0.286**	0.042	0.155***	-0.029	-0.364***	-0.061	-0.081**
	(0.046)	(0.142)	(0.035)	(0.071)	(0.061)	(0.167)	(0.049)	(0.046)
DX	0.121***	0.060	0.101***	0.200**	0.171***	0.120	0.132**	0.160
	(0.047)	(0.118)	(0.041)	(0.096)	(0.070)	(0.130)	(0.061)	(0.113)
DFO	-0.09**	-0.156	-0.073**	-0.188**	-0.169***	-0.196	-0.101*	-0.009
	(0.051)	(0.121)	(0.040)	(0.088)	(0.072)	(0.134)	(0.063)	(0.117)
Tariff changes	0.009	0.006	0.010	0.005	-0.049	-0.052	-0.056	-0.056
	(0.016)	(0.017)	(0.012)	(0.014)	(0.047)	(0.045)	(0.044)	(0.043)
logSize	0.039***	0.042***	0.031***	0.033***	0.035***	0.038***	0.016	0.019**
	(0.016)	(0.018)	(0.012)	(0.012)	(0.014)	(0.013)	(0.012)	(0.011)
logAge	0.001	0.011	-0.001	0.005	-0.035	-0.020	-0.025	-0.018
	(0.024)	(0.025)	(0.020)	(0.021)	(0.038)	(0.035)	(0.032)	(0.031)
logCLR	-0.041**	-0.066	-0.025**	-0.013	-0.024	-0.107***	-0.013	-0.027
	(0.020)	(0.043)	(0.014)	(0.021)	(0.025)	(0.045)	(0.018)	(0.028)
logSKI	0.300***	0.411***	0.237***	0.292***	-0.885***	-0.816***	-0.920***	-0.961***
	(0.065)	(0.094)	(0.050)	(0.068)	(0.067)	(0.092)	(0.053)	(0.082)
TFP	-0.017	-0.007	-0.007	0.005	-0.023	-0.038	-0.009	-0.021
	(0.018)	(0.029)	(0.015)	(0.026)	(0.024)	(0.036)	(0.020)	(0.034)
DM*logCLR		0.038		0.001		0.058**		0.005**
		(0.030)		(0.017)		(0.032)		(0.002)
DM*logSKI		-0.105**		-0.022*		-0.162***		-0.092**
		(0.058)		(0.013)		(0.070)		(0.051)
DM*TFP		-0.009		-0.018		0.030		0.004
		(0.023)		(0.020)		(0.039)		(0.035)
DX*logCLR		0.012		-0.020		0.043		0.023
		(0.025)		(0.019)		(0.036)		(0.027)
DX*logSKI		-0.024		0.057		0.013		0.034
		(0.057)		(0.037)		(0.060)		(0.048)
DX*TFP		0.002		-0.007		-0.013		-0.006
		(0.023)		(0.019)		(0.044)		(0.039)
DFO*logCLR		-0.007		-0.003		0.021		0.004
		(0.035)		(0.020)		(0.041)		(0.030)
DFO*logSKI		-0.028		-0.076*		0.020		0.080
		(0.057)		(0.046)		(0.063)		(0.061)
DFO*TFP		-0.009		0.003		-0.003		0.011
		(0.025)		(0.022)		(0.033)		(0.030)
Tariff		-0.008		-0.003		-0.016		-0.004
changes*TFP		(0.013)		(0.011)		(0.023)		(0.019)
$logL_{st-1}$	0.695***	0.690***	0.738***	0.734***	0.652***	0.243***	0.241***	0.236***
	(0.059)	(0.060)	(0.046)	(0.047)	(0.062)	(0.047)	(0.044)	(0.043)
$logL_{ut-1}$	0.175***	0.176***	0.169***	0.170***	0.245***	0.654***	0.691***	0.700***
	(0.040)	(0.039)	(0.035)	(0.035)	(0.050)	(0.061)	(0.049)	(0.050)
Industry effects	yes	yes	yes	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes	yes	yes	yes
Pseudo R^2	0.868	0.870	0.892	0.892	0.905	0.908	0.927	0.928
Observations	3314	3314	4780	4780	3314	3314	4780	4780
Panel A: GMM estimates								
DM	0.067	0.669***	0.026	0.416**	-0.043	-0.506**	-0.007**	-0.708***
	(0.054)	(0.253)	(0.091)	(0.222)	(0.070)	(0.268)	(0.004)	(0.280)
DX	0.163***	0.146	0.175*	0.266	0.221***	0.233	0.403***	0.824***
	(0.055)	(0.161)	(0.091)	(0.508)	(0.078)	(0.165)	(0.121)	(0.354)
DFO	-0.100	-0.451***	-0.157	-0.881**	-0.169**	-0.463**	-0.210	-0.624
	(0.070)	(0.197)	(0.241)	(0.445)	(0.088)	(0.216)	(0.169)	(0.485)
Tariff changes	0.019	0.008	0.093	0.030	-0.033	-0.045	-0.062	-0.099
	(0.022)	(0.024)	(0.063)	(0.067)	(0.052)	(0.055)	(0.062)	(0.067)
logSize	0.066***	0.077***	0.505***	0.502***	0.081***	0.085***	0.206***	0.277***
	(0.024)	(0.028)	(0.215)	(0.200)	(0.022)	(0.025)	(0.064)	(0.076)
logAge	-0.029	-0.018	-0.267	-0.255	-0.124**	-0.109	-0.072	-0.159
	(0.055)	(0.060)	(0.169)	(0.164)	(0.070)	(0.069)	(0.089)	(0.113)

Table 8 continued

Variable	Dependent variable: log skilled labour				Dependent variable: log unskilled labour			
	Continuing firms		Selection correction		Continuing firms		Selection correction	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
logCLR	-0.112***	-0.223***	-0.105**	-0.172**	-0.076*	-0.246***	-0.096***	-0.137
	(0.040)	(0.090)	(0.046)	(0.093)	(0.047)	(0.095)	(0.041)	(0.096)
logSKI	0.369***	0.696***	0.428***	0.978***	-0.881***	-0.685***	-0.889***	-0.512**
	(0.074)	(0.151)	(0.099)	(0.251)	(0.077)	(0.154)	(0.096)	(0.267)
TFP	-0.047	-0.066	0.005	-0.015	-0.070	-0.133***	0.001	-0.005
	(0.032)	(0.045)	(0.042)	(0.117)	(0.041)	(0.058)	(0.046)	(0.113)
DM*logCLR		0.087**		0.064		0.103**		0.075**
		(0.049)		(0.068)		(0.052)		(0.036)
DM*logSKI		-0.291***		-0.247*		-0.218**		-0.407***
		(0.115)		(0.148)		(0.125)		(0.137)
DM*TFP		0.026		-0.059		0.078		-0.040
		(0.045)		(0.086)		(0.061)		(0.088)
DX*logCLR		0.002		-0.051		0.040		-0.067
		(0.045)		(0.103)		(0.059)		(0.067)
DX*logSKI		0.001		0.081		0.057		0.302**
		(0.075)		(0.231)		(0.088)		(0.147)
DX*TFP		0.019		-0.019		-0.013		0.008
		(0.039)		(0.064)		(0.047)		(0.058)
DFO*logCLR		0.061		0.034		0.078		0.020
		(0.067)		(0.085)		(0.069)		(0.101)
DFO*logSKI		-0.145		-0.478***		-0.102		-0.327
		(0.115)		(0.186)		(0.119)		(0.234)
DFO*TFP		-0.025		0.074		-0.019		0.029
		(0.041)		(0.105)		(0.059)		(0.090)
Tariff		-0.024		-0.024		-0.048		-0.030
changes*TFP		(0.027)		(0.045)		(0.040)		(0.047)
$logL_{st-1}$	0.369***	0.658***	0.421***	0.435***	0.194***	0.200***	0.198***	0.192***
	(0.074)	(0.062)	(0.117)	(0.124)	(0.043)	(0.041)	(0.069)	(0.069)
$logL_{ut-1}$	0.678***	0.167***	0.111	0.080	0.669***	0.659***	0.479***	0.468***
	(0.060)	(0.039)	(0.073)	(0.068)	(0.062)	(0.063)	(0.086)	(0.102)
Industry effects	yes	yes	yes	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes	yes	yes	yes
Observations	2614	2614	3483	3483	2614	2614	3483	3483

Notes: Robust standard errors adjusted for clustering at the firm level are in parentheses. Coefficients for the regression constant, industry and time dummy variables are suppressed. *** significant at 1% level; ** significant at the 5% level; * significant at the 10% level. The second-order autocorrelation and Sargan/Hansen tests do not indicate that our GMM estimations suffer from misspecification.

7. Robustness

In this section, we check the robustness of the results in three ways. First, as previously stated, we check the robustness of the results on firm death running the exit estimations on a broader section of firms i.e. firms with incomplete information on wage and different categories of workers are taken into consideration. We control for firm characteristics e.g. employment and output as well as spell and industry fixed effects. The results are reported in Table 9 Panels A-C. The logistic estimates are reported in column (1), the marginal effects and elasticities are in columns (2) and (3), respectively while column (4) contains the GMM estimates. The message remains similar to the one reported in Table 6: importers and exporters are less likely to close down, while although statistically insignificant, foreign owned firms are more likely to close down. There is still a negative and significant correlation between output and firm death, indicating that less productive firms are more likely to exit. We obtain similar results when we use the share variables as proxies for trade and foreign ownership or when we merge industry level imports and use imports to gross output ratio in place of firm-level import shares.

Table 9. Robustness check: firm death and trade and foreign ownership on a broader section of firms

Variable	Logistic			GMM
	(1)	(2)	(3)	(4)
Panel A: Dummy variables				
DM	-0.699**(0.371)	-0.1130**(0.057)	-0.368**(0.202)	-0.104*(0.061)
DX	-1.407***(0.481)	-0.222***(0.074)	-0.549***(0.201)	-0.027**(0.015)
DFO	0.405(0.600)	0.064(0.093)	0.243(0.365)	0.058(0.165)
lnSize	-0.148(0.142)	-0.023(0.023)	-0.607(0.587)	-0.158***(0.040)
lnOutput	-0.505***(0.153)	-0.080***(0.023)	-2.689***(0.886)	-0.030*(0.018)
Industry effects	yes	yes	yes	yes
Year effects	yes	yes	yes	yes
Pseudo R^2	0.388			
Observations	4884	4884	4884	3559
Panel B: Share variables				
MS	-0.938(0.926)	-0.049(0.048)	-1.349(1.355)	-0.074**(0.037)
XS	-0.888**(0.506)	-0.047**(0.024)	-1.889**(1.044)	-0.016**(0.009)
FOS	0.247(0.395)	0.013(0.017)	-0.177(0.287)	0.020(0.013)
lnSize	-0.445***(0.191)	-0.023(0.015)	-2.596***(1.180)	-0.044*(0.026)
lnOutput	-1.144***(0.386)	-0.060**(0.035)	-8.893***(3.130)	-0.055***(0.018)
Industry effects	yes	yes	yes	yes
Year effects	yes	yes	yes	yes
Pseudo R^2	0.399			
Observations	4884	4884	4884	3559
Panel C: Industry-level import penetration rate				
lnMPR	-0.248**(0.126)	-0.037(0.040)	-0.448(0.467)	-0.174***(0.018)
XS	-0.490(0.477)	-0.074(0.089)	-0.691(0.636)	-0.080**(0.042)
FOS	0.237(0.308)	0.036(0.043)	-0.106(0.143)	-0.023(0.022)
lnSize	0.084(0.171)	0.013(0.028)	-0.412(0.829)	-0.011**(0.005)
lnOutput	-0.783***(0.271)	-0.118***(0.048)	-5.093***(2.018)	-0.031***(0.012)
Industry effects	yes	yes	yes	yes
Year effects	yes	yes	yes	yes
Pseudo R^2	0.262			
Observations	4884	4884	4884	3559

Notes: Robust standard errors adjusted for clustering at the firm level are in parentheses. Coefficients for the regression constant, industry and time dummy variables are suppressed. *** significant at 1% level; ** significant at the 5% level; * significant at the 10% level. The second-order autocorrelation and Sargan/Hansen tests do not indicate that our GMM estimations suffer from misspecification.

Second, we investigate whether the results are robust to different measures of international trade and foreign ownership. For that, we replace the dummy variables as proxies of foreign trade by the share variables as measures of trade and foreign ownership. The results are reported in Table 10. Columns (1)-(2) contain the logistic estimates. Columns (3)-(4) include the marginal effects as well as elasticities while columns (5)-(6) include the GMM coefficients. The results remain similar to the ones presented in Table 6 Panels A-C. In particular, the results in columns (1)-(2) show that there is still a clear negative and significant impact of imported inputs and exports on the firm death. Further, the magnitude of the effect is bigger. Hence, after accounting for firm attributes (e.g. size, age, productivity, and factor intensities) as well as spell- and industry-fixed effects, robust estimates show that the use of imported raw materials and export activity increase the probability of firm survival. We again find that tariff liberalization is negatively associated with the likelihood of firm death, although the correlation is statistically insignificant. The firm attribute such as size continues to significantly decrease the probability of firm closure. Although still insignificant, least productive firms have a higher probability of failure. The effect of other firm attributes is now imprecise. The results on all the interaction terms are basically the same.

Table 10. Robustness check: considering trade and foreign ownership measured by share variables and firm death

Variables	Logistic				GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
MS	-1.118**	-2.188***	-0.354***	-0.615***	-0.053	-0.130***
	(0.526)	(0.862)	(0.155)	(0.243)	(0.086)	(0.017)
XS	-2.966***	-4.523***	-0.732***	-0.685**	-0.190**	-0.286**
	(1.237)	(1.952)	(0.299)	(0.311)	(0.103)	(0.154)
FOS	0.310	-0.374	-0.061	-0.160	0.045	-0.276
	(0.532)	(0.879)	(0.143)	(0.375)	(0.140)	(0.221)
Tariff changes	-0.481	-0.451	-7.306	0.332	-0.028	-0.030
	(0.715)	(0.731)	(11.838)	(0.539)	(0.020)	(0.022)
logSize	-0.306***	-0.298***	-0.048***	-1.289***	-0.013	-0.016
	(0.122)	(0.121)	(0.021)	(0.534)	(0.034)	(0.035)
logAge	-0.383	-0.338	-0.055	-0.695	0.047	0.031
	(0.291)	(0.297)	(0.044)	(0.631)	(0.067)	(0.067)
logCLR	0.005	-0.264	0.040	-0.071	-0.014	-0.087***
	(0.092)	(0.167)	(0.049)	(0.046)	(0.019)	(0.037)
logSKI	-0.157	0.381	-0.043	-0.541	0.038	0.155**
	(0.146)	(0.312)	(0.027)	(0.444)	(0.034)	(0.083)
TFP	-0.123	-0.245	0.062	0.096	-0.027	-0.004
	(0.203)	(0.299)	(0.052)	(0.117)	(0.017)	(0.027)
MS*logCLR		0.480**	0.078**	0.050		0.039
		(0.229)	(0.040)	(0.024)		(0.031)
MS*logSKI		-0.640	-0.104	0.304		-0.025
		(0.415)	(0.073)	(0.194)		(0.074)
MS*TFP		0.164	0.027	-0.021		-0.028
		(0.447)	(0.073)	(0.057)		(0.036)
XS*logCLR		0.533	0.086	0.061		0.052
		(0.357)	(0.059)	(0.041)		(0.036)
XS*logSKI		-0.696	-0.113	0.204		-0.034
		(0.557)	(0.090)	(0.165)		(0.089)
XS*TFP		-0.028	-0.005	0.002		0.011
		(0.353)	(0.057)	(0.025)		(0.034)
FOS*logCLR		0.057	0.009	0.002		0.075
		(0.218)	(0.035)	(0.007)		(0.049)
FOS*logSKI		-0.409	-0.066	0.324		-0.181**
		(0.419)	(0.068)	(0.334)		(0.078)
FOS*TFP		0.090	0.015	-0.017		0.002
		(0.355)	(0.058)	(0.066)		(0.034)
Tariff		0.041***	0.659**	0.145***		0.013
changes*TFP		(0.016)	(0.350)	(0.063)		(0.011)
Industry effects	yes	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes	yes
Pseudo R^2	0.308	0.321				
Observations	4780	4780	4780	4780	3483	3483

Notes: Robust standard errors adjusted for clustering at the firm level are in parentheses. Coefficients for the regression constant, industry and time dummy variables are suppressed. *** significant at 1% level; ** significant at the 5% level; * significant at the 10% level. The second-order autocorrelation and Sargan/Hansen tests do not indicate that our GMM estimations suffer from misspecification.

Third, another possible concern with the previous results is related to the fact that the effects of trade and foreign ownership might be different in highly exposed versus lowly exposed to trade and foreign ownership Cameroonian manufacturing firms. In this regards, the firms were classified as having 'low' or 'high' import, export and foreign ownership shares if they are below or above the median i.e. the sample is divided into 'low' and 'high' at the median.[18] Hence, we constructed 3 dummies: DIM coded 1 if firms are in the 'high'

[18] The median imported inputs share, export share and foreign ownership share is 0.22, 0.0001 and 0.558, respectively.

import share (and 0 otherwise), DEX coded 1 if firms are in the 'high' export share (and 0 otherwise), and DFDI coded 1 if firms are in the 'high' foreign ownership share (and 0 otherwise). First, Table 11 includes regression results on the determinants of firm death. Columns (1) and (2) contain the logistic estimates of both restricted and unrestricted specifications. Columns (3) and (4) include the marginal effects and elasticities while columns (5) and (6) have the GMM estimates.

The results are very stable. Import penetration and export activity continue to be negatively and significantly correlated with the probability of firm death, even when the interaction terms are included or when the GMM approach is used. The coefficient on the firm ownership status does not change sign or significance: the probability of death is increasing in foreign ownership but the effect is insignificant. The expected negative sign of changes in tariffs is unchanged and the effect remains insignificant. None of the coefficients on the firm characteristics changes sign or significance. For example, the results confirm that larger firms are less likely to exit. Also, low-productivity firms are more likely to fail while firms with capital-intensive production techniques have a lower probability of failure. The signs of the interactions of firm characteristics (e.g. input intensities and productivity) and the degree of exposure to trade and foreign ownership measures are unchanged, although the significance or magnitude of the associated coefficients does change. The magnitude of the interaction of firm productivity and changes in tariffs is reduced and is positive as expected and significant.

Table 11. Robustness check: considering the degree of trade and foreign ownership in firm death

Variables	Logistic				GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
DIM	-0.623**	-1.513***	-0.252***	-0.594***	-0.006	-0.131***
	(0.351)	(0.602)	(0.111)	(0.234)	(0.041)	(0.027)
DEX	-1.793***	-2.856***	-0.476***	-1.101***	-0.042	-0.145***
	(0.490)	(0.784)	(0.137)	(0.317)	(0.062)	(0.012)
DFDI	0.211	0.355	0.059	0.141	0.049	-0.287
	(0.431)	(0.733)	(0.122)	(0.292)	(0.098)	(0.227)
Tariff changes	-0.347	-0.387	-6.460	0.282	-0.009	-0.013
	(0.725)	(0.742)	(12.324)	(0.541)	(0.022)	(0.024)
logSize	-0.266***	-0.246**	-0.041	-1.053**	-0.017	-0.003
	(0.119)	(0.120)	(0.020)	(0.521)	(0.046)	(0.048)
logAge	-0.133	-0.118	-0.020	-0.241	0.040	0.031
	(0.289)	(0.301)	(0.050)	(0.617)	(0.060)	(0.061)
logCLR	-0.009	-0.319***	-0.053	-0.085***	-0.033**	-0.099***
	(0.093)	(0.142)	(0.025)	(0.038)	(0.019)	(0.033)
logSKI	-0.189	0.161	0.027	-0.227	-0.010	0.110
	(0.159)	(0.231)	(0.039)	(0.324)	(0.032)	(0.071)
TFP	-0.109	-0.098	-0.016	0.038	-0.016	-0.011
	(0.189)	(0.272)	(0.045)	(0.106)	(0.020)	(0.027)
DIM*logCLR		0.297**	0.050**	0.042**		-0.001
		(0.165)	(0.029)	(0.024)		(0.024)
DIM*logSKI		-0.491**	-0.082**	0.321**		-0.003
		(0.259)	(0.048)	(0.166)		(0.045)
DIM*TFP		0.075	0.012	-0.013		-0.033
		(0.262)	(0.044)	(0.047)		(0.025)
DEX*logCLR		0.298*	0.050	0.063*		0.017
		(0.184)	(0.033)	(0.039)		(0.030)
DEX*logSKI		-0.444	-0.074	0.329		-0.055
		(0.288)	(0.048)	(0.216)		(0.050)
DEX*TFP		-0.478**	-0.080**	0.098**		-0.001
		(0.245)	(0.043)	(0.050)		(0.022)
DFDI*logCLR		0.087	0.014	0.0004		0.092***
		(0.173)	(0.028)	(0.001)		(0.041)

Table 11 continued

Variables	Logistic				GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
DFDI*logSKI		0.054	0.009	-0.040		-0.163**
		(0.308)	(0.052)	(0.229)		(0.084)
DFDI*TFP		0.284	0.047	-0.057		0.030
		(0.242)	(0.042)	(0.048)		(0.025)
Tariff		0.077**	0.392***	0.133**		0.325
changes*TFP		(0.043)	(0.158)	(0.060)		(0.243)
Industry effects	yes	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes	yes
Pseudo R^2	0.327	0.351				
Observations	4780	4780	4780	4780	3483	3483

Notes: Robust standard errors adjusted for clustering at the firm level are in parentheses. Coefficients for the regression constant, industry and time dummy variables are suppressed. *** significant at 1% level; ** significant at the 5% level; * significant at the 10% level. The second-order autocorrelation and Sargan/Hansen tests do not indicate that our GMM estimations suffer from misspecification.

We also evaluate the robustness of our results on the relationship for surviving firms between firm labour demand and foreign competition. In Table 12 Panels A-B, we report the coefficients using the proxies for the degree of exposure to trade and foreign ownership. Panels A and B contain our LSDV and GMM estimates, respectively. Both Panels indicate that import penetration still acts as a complement to skilled labour while it is a substitute for unskilled workers and the negative effect of import penetration on low skill workers is lower for more capital intensive firms. Hence, robust findings suggest that imported intermediate inputs act as a channel for the diffusion of skill-biased technology. There is no sign of a precise impact of exports and foreign ownership on the demand for both types of workers. Qualitatively similar findings are obtained for both categories of workers when using tariff changes. Also, the results related to firm attributes do not reveal any substantial difference compared to the previous results in Table 7. The same goes for the interaction terms.

Table 12. Robustness check: considering the degree of trade and foreign ownership in labour demand of survivors

	Dependent variable: log skilled labour		Dependent variable: log unskilled labour	
	(1)	(2)	(3)	(4)
Panel A: LSDV estimates				
DIM	0.065(0.045)	0.263***(0.100)	-0.081(0.065)	-0.288***(0.129)
DEX	0.092**(0.044)	-0.010(0.114)	0.157***(0.066)	0.030(0.124)
DFDI	-0.007(0.050)	0.025(0.111)	-0.136**(0.069)	0.011(0.120)
Tariff changes	0.014(0.017)	0.013(0.018)	-0.050(0.047)	-0.050(0.046)
logSize	0.033**(0.016)	0.035**(0.017)	0.027**(0.013)	0.028**(0.013)
logAge	-0.010(0.024)	-0.011(0.023)	-0.046(0.038)	-0.049(0.035)
logCLR	-0.042**(0.020)	-0.077***(0.029)	-0.035(0.024)	-0.109***(0.036)
logSKI	0.301***(0.064)	0.365***(0.084)	-0.878***(0.066)	-0.871***(0.085)
TFP	-0.014(0.018)	-0.033(0.029)	-0.018(0.024)	-0.066*(0.041)
DIM*logCLR		0.034(0.025)		0.050*(0.030)
DIM*logSKI		-0.096***(0.041)		-0.104**(0.051)
DIM*TFP		0.005(0.025)		0.058*(0.035)
DEX*logCLR		0.022(0.025)		0.060*(0.036)
DEX*logSKI		-0.052(0.059)		-0.030(0.053)
DEX*TFP		0.020(0.023)		0.007(0.042)
DFDI*logCLR		0.010(0.027)		0.009(0.033)
DFDI*logSKI		0.026(0.053)		0.089**(0.052)
DFDI*TFP		-0.005(0.026)		0.023(0.037)
Tariff changes*TFP		-0.010(0.014)		-0.019(0.023)
$logL_{st-1}$	0.700***(0.059)	0.693***(0.061)	0.243***(0.050)	0.240***(0.046)
$logL_{ut-1}$	0.176***(0.040)	0.177***(0.040)	0.661***(0.062)	0.663***(0.061)

Table 12 continued

	Dependent variable: log skilled labour		Dependent variable: log unskilled labour	
	(1)	(2)	(3)	(4)
Industry effects	yes	yes	yes	Yes
Year effects	yes	yes	yes	yes
Pseudo R^2	0.867	0.869	0.905	0.908
Observations	3314	3314	3314	3314
Panel A: GMM estimates				
DIM	0.088(0.057)	0.613***(0.195)	-0.100(0.074)	-0.405**(0.220)
DEX	0.137***(0.052)	0.012(0.172)	0.202***(0.070)	0.046(0.183)
DFDI	-0.054(0.066)	0.014(0.190)	-0.165**(0.081)	-0.127(0.204)
Tariff changes	0.022(0.024)	0.026(0.024)	-0.038(0.053)	-0.045(0.053)
logSize	0.060***(0.026)	0.066**(0.030)	0.071***(0.025)	0.073***(0.030)
logAge	-0.060(0.050)	-0.068(0.051)	-0.140**(0.065)	-0.129**(0.059)
logCLR	-0.123***(0.040)	-0.194***(0.056)	-0.098***(0.044)	-0.213***(0.060)
logSKI	0.380***(0.076)	0.507***(0.111)	-0.864***(0.076)	-0.827***(0.122)
TFP	-0.053(0.036)	-0.107***(0.045)	-0.053(0.044)	-0.149***(0.058)
DIM*logCLR		0.084**(0.046)		0.082*(0.050)
DIM*logSKI		-0.248***(0.084)		-0.133(0.096)
DIM*TFP		0.043(0.037)		0.094**(0.051)
DEX*logCLR		0.023(0.040)		0.077(0.050)
DEX*logSKI		-0.060(0.088)		-0.046(0.092)
DEX*TFP		0.025(0.036)		0.028(0.043)
DFDI*logCLR		0.038(0.055)		0.038(0.059)
DFDI*logSKI		0.061(0.084)		0.083(0.090)
DFDI*TFP		0.001(0.045)		-0.0002(0.063)
Tariff changes*TFP		-0.027(0.027)		-0.052(0.039)
$logL_{st-1}$	0.687***(0.059)	0.672***(0.061)	0.192***(0.045)	0.195***(0.041)
$logL_{ut-1}$	0.160***(0.042)	0.163***(0.040)	0.679***(0.061)	0.669***(0.061)
Industry effects	yes	yes	yes	yes
Year effects	yes	yes	yes	yes
Observations	2614	2614	2614	2614

Notes: Robust standard errors adjusted for clustering at the firm level are in parentheses. Coefficients for the regression constant, industry and time dummy variables are suppressed. *** significant at 1% level; ** significant at the 5% level; * significant at the 10% level. The second-order autocorrelation and Sargan/Hansen tests do not indicate that our GMM estimations suffer from misspecification.

8. Conclusion

The objective of this paper was twofold. Our first goal has been to examine how Cameroonian manufacturing firms adjust to increased exposure to international trade due to import penetration, export activity, foreign direct investment (FDI), and reductions in Cameroonian tariff rates. In particular, we provide explanations for international trade and foreign ownership-induced firm closure. To do this, logistic regression models are used to adduce empirical evidence. Firm closure results in job losses. Hence, in the second contribution, and focusing on continuing firms as well as continuing and exiting firms, the paper uses a similar model framework and investigates the impact which trade and foreign ownership has on the demand for heterogeneous labour. Given that the decision to employ skilled or unskilled workers is a joint decision, we use a dynamic interrelated factor demand framework for two types of heterogeneous labour i.e. skilled and unskilled labour to estimate the factor demand equations. In examining the effect of international trade and foreign ownership first on firm exits and then on employment, we also control for other factors that may influence firm closure or labour demand. These include firm attributes such as size, age, factor input intensities, and productivity as well as spell- and industry-fixed effects. We focus on Cameroon using manufacturing firm-level panel data from 1993 to 2005. This period is of particular interest since it immediately follows the 1992 trade reform in Cameroon.

The main findings of our study can be summarized as follows. We find that while the view that globalization leads to the closure of domestic firms has some truth, it is far from ubiquitous. Firms that exit are less likely to use imported intermediate inputs or to export. The view that multinational enterprises are 'footloose' i.e. they are more likely to exit the host country following a negative shock is true, albeit insignificant: exiters are more likely to be foreign owned. Statistical significance aside, and as expected, as tariff rates fall, firm closure is more likely, and the effect is particularly pronounced among least productive firms. Firm size turns out to affect survival positively i.e. small firms face a higher probability of exit than do large firms.

From our analysis we also find that import penetration acts as complement (substitute) to skilled (unskilled) workers and this result holds when we use industry-level import penetration rate. Hence, skill-biased technological change is a determinant of the decline in the relative demand for low skill labour in the Cameroonian manufacturing sector. However, this negative effect of imports on unskilled employment is less pronounced in the capital intensive firms. There is no precise impact of exports and foreign ownership on the demand for both types of workers. Changes in tariffs are uncorrelated with the demand for high-skill labour, while firms in industries with relatively greater reductions in tariff rates experience large demand in unskilled employment but the effect is insignificant. Firm size significantly increases the demand for both skilled and unskilled workers, with a bigger effect for the latter. Finally, skill intensive production techniques positively affect high skill workers while capital and skill intensive production techniques reduce the demand for low skill labour.

From a policy perspective, our analysis revealed that international trade in the form of imported intermediate inputs is a source of skill-biased technological change. Policy attention to the consequences of increased import competition for human capital accumulation seems merited in order for the new technologies to be absorbed by domestic workers. Our empirical analysis also indicated that firm death is more likely for smaller firms and that firm size is positively associated with employment. Hence, the industrial policy of promoting SMEs (Small and Medium Scale Enterprises) initiated and pursued by the Government of Cameroon since decades seems futile.

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Appendix A1: Estimating Total Factor Productivity

The Olley and Pakes (1996) methodology for estimating firm-level total factor productivity (TFP) addresses two major concerns that have afflicted production function estimates for a long time: simultaneity and selection biases.[19] Let firm i's technology at time t be described by the following Cobb-Douglas production function:

$$y_{it} = \beta_0 + \beta x_{it} + \beta_k k_{it} + \varepsilon_{it}$$
$$\varepsilon_{it} = \omega_{it} + \eta_{it} \qquad (A_1)$$

where y_{it} is the logarithm of output of firm i at time t, x_{it} is a vector of the firm's (log of) variable intermediate inputs such as labor and materials inputs, and k_{it} is the log of capital used by firm i at time t. Firm specific term ε_{it} is composed of firm-specific efficiency ω_{it} that is known by the firm (and evolves over time according to an exogenous Markov process) but not by the econometrician and an unexpected productivity shock η_{it} that is not known either to the firm or the econometrician. We are interested in the former term. A firm's private knowledge of its productivity ω_{it} affects its decision about exiting or staying in the market and its choice of hiring labor, purchasing energy and materials, and investing into new capital. Yet, ω_{it} is unobserved by the econometrician. This information asymmetry introduces two biases in the estimation: simultaneity of input choice and selection biases.

We assume that each firm can easily adjust its variable inputs (labour and materials) whereas it takes time to adjust the capital stock. The Olley-Pakes methodology corrects for the endogeneity of the capital stock. It uses an equation that links stocks and flows of capital, given by Equation (A_2) below, where the next period capital stock (k_{it+1}) depends on the discounted value of the current period's capital stock (k_{it}) and the current investment (I_{it}).

$$k_{it+1} = (1-\delta)k_{it} + i_{it} \qquad (A_2)$$

We assume that productivity evolves as a first-order Markov Process which assures that the firm's state variables (k_{it} *and* ω_{it}) in the current period depend on the value of the state variables in the previous period.

We now turn to the problem of selection induced by firm closings. As shown below, we will identify ω_{it} from the firms' investment choices. Once ω_{it} is known, the simultaneity of input choices can be modeled and the bias avoided. We incorporate exit and investment rules into the estimation of the production function to identify the coefficients on capital and variable inputs such as skilled and unskilled labor, and materials. The firm continues to produce if its unobserved productivity exceeds some threshold value $\underline{\omega}_t$ that is a function of the firm's capital. Hence, the exit rule and the investment demand equation are written respectively as:

$$X_t = \begin{cases} 1, \textit{if } \omega_t \geq \underline{\omega}_t(k_t) \\ 0, \textit{otherwise} \end{cases} \qquad (A_3)$$

and

$$i_t = i_t(\omega_t, k_t) \qquad (A_4)$$

where $X_t = 1$ denotes that a firm stays in the market in period t and $X_t = 0$ denotes a firm's exit. A firm chooses its investment based on its benefits about future productivity and

[19] Since productivity and input choices by firms are likely to be correlated, ordinary least squares (OLS) estimation of firm-level production functions introduces a simultaneity problem. Also, no allowance for entry and exit of firms results in a selection bias or endogeneity of attrition.

profitability. Dropping the firm subscript for ease of notation, the firm's optimal investment choice at time t, i_t, then depends on its capital stock and productivity.

In terms of estimation, let us first focus on the coefficients on variable inputs (labor, energy and materials). Provided that $i_t \succ 0$, it is possible to show that investment is strictly increasing in ω_t for any k_t. This means that by inverting the investment rule specified in equation (4), unobserved productivity can be expressed as a function of observable investment and capital:

$$\omega_t = i_t^{-1}(i_t, k_t) = \theta(i_t, k_t) \qquad (A_5)$$

Substituting (5) into (1) gives:

$$y_t = \beta x_t + \lambda_t(k_t, i_t) + \mu_t \qquad (A_6)$$

with $\lambda_t(k_t, i_t) = \beta_0 + \beta_k k_t + \theta_t(k_t, i_t)$. Because $\lambda_t(\cdot)$ contains the productivity term $\omega_t = \theta_t(\cdot)$ that is the source of the simultaneity bias, equation (6) can be estimated to obtain consistent estimates of the vector of coefficients on variable inputs β. Equation (6) is a partially linear regression model and we can use a fourth-order polynomial in capital and investment to capture the unknown function $\lambda_t(\cdot)$.[20] This specification of productivity is firm-specific and time varying, and it does not require productivity to be a function with a specific parametric form.

With consistent estimates of variable input coefficients β in hand, we estimate the effect of capital on output, β_k, which is not identified in (6) because it is combined with the effect of capital on investment. We assume for simplicity that k_t in uncorrelated with the innovation in ω_t, $\xi_t = \omega_t - w_{t-1}$, or ω_t is a random walk. Substituting this into (6) gives:

$$y_t - \hat{\beta} x_t = \beta_k k_t + \hat{\lambda}_{t-1} - \beta_k k_{t-1} + \xi_t + \eta_t \qquad (A_7)$$

where $\hat{\lambda}_{t-1}$ comes from estimating (6), and $\hat{\lambda}_{t-1} - \beta_k k_{t-1}$ is an estimate of ω_{t-1}.

The probability of survival to period t depends on ω_{t-1} and $\underline{\omega}_{t-1}$, the unobserved level of productivity that would make a firm shut down its operation, which can be shown to depend only on capital and investment at time $t-1$. We generate an estimate of the survival probability by running a probit regression on a fourth-order polynomial in capital and investment (lagged by one period). As in the estimation of (6), we allow the polynomial to vary over time since the exit rule is indexed by time to account for changes in the market structure. The estimates survival probability is denoted by $\hat{P}_t$. The final step is to estimate β_k from the resulting equation:

$$y_t - \hat{\beta} x_t = \beta_k x_k + g(\hat{\lambda}_{t-1} - \beta_k k_{t-1}) + \xi_t + \eta_t \qquad (A_8)$$

Here we approximate the unknown function $g(\cdot)$ by a fourth-order polynomial in $\hat{\lambda}_{t-1} - \beta_k k_{t-1}$ and $\hat{P}_t$; β_k is then estimated nonlinearly across all terms that contain it.

We will report the estimates of the coefficients based on the semiparametric estimation, first using only firms that never exited the sample (balanced panel) and then the full sample (unbalanced panel). The sample size for some sectors is quite small, potentially decreasing the confidence in some estimates. Hence, the production function is not run

[20] This includes all cross-terms, and we allow this function to vary over time i.e. we interact time indicators with investment and capital.

separately for each sector .e. we pool the sectors and run a single production function for the whole manufacturing sector.[21].

We use the input coefficients based on semiparametric estimation to construct a measure of firm productivity. The productivity index is obtained by subtracting firm i's predicted output from its actual output at time t and then comparing it relative to a reference firm r. This methodology has been employed in several studies using panel or cross sectional data e.g. Aw et al. (2001). It ensures that the productivity index has the desired properties such as transitivity and insensitivity to the units of measurement. We obtain such an index by simply subtracting a productivity of a reference firm in a base year (firm with mean output and mean input level in 1993) from an individual firm's productivity measure:

$$tfp_{it} = y_{it} - \hat{\beta}_{ls} l_{it}^{s} - \hat{\beta}_{lu} l_{it}^{u} - \hat{\beta}_{m} m_{it} - \hat{\beta}_{k} k_{it} - (y_r - \hat{y}_r) \qquad (A_9)$$

where $y_r = \bar{y}_{it}$, $\hat{y}_r = \hat{\beta}_{ls}\bar{l}_{it}^{s} + \hat{\beta}_{lu}\bar{l}_{it}^{u} + \hat{\beta}_{m}\bar{m}_{it} + \hat{\beta}_{k}\bar{k}_{it}$ and the bar over a variable indicates the mean over all firms in the base year. Therefore, y_r is the mean log output of firms in the base year, 1993 and $\hat{y}_r$ is the predicted mean log output in 1993. This productivity measure presents a logarithmic deviation of a firm from the mean industry practice in a base year.

[21] By combining cross-section and time-series data, the cross-section parameters may shift over time in which case pooling is not the appropriate procedure. Hence, we allow the intercepts to vary across firms and over time by including industry and time dummies as additional regressors. The test of poolability is done using Chow test which consists in comparing the restricted and unrestricted residual sums of squares.

Appendix A_2: Descriptive statistics over time for different sectors

(i) Food, drink, tobacco

Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	7.823	7.858	1.523	1.594	1.867	2.093	1.243	1.177	1.351
1994	7.798	8.152	1.810	1.675	1.864	1.848	1.157	1.493	0.778
1995	7.880	8.112	1.691	2.009	2.177	1.951	1.068	1.126	0.770
1996	7.879	8.105	1.665	2.035	1.958	1.931	1.125	1.080	0.734
1997	7.972	8.506	1.920	2.595	2.636	1.876	1.190	1.275	0.714
1998	7.942	7.909	1.812	2.305	2.548	1.935	1.193	1.247	0.757
1999	8.237	8.200	1.602	2.553	2.816	1.749	1.002	0.894	0.735
2000	8.181	8.082	1.745	2.718	3.143	2.001	1.287	1.231	0.772
2001	7.958	7.689	1.934	2.500	2.783	2.161	1.342	1.372	0.822
2002	5.282	5.281	2.000	-0.192	-0.189	1.998	1.967	2.098	1.329
2003	5.409	5.574	1.950	0.125	0.290	2.018	2.081	2.014	0.877
2004	5.442	5.530	1.924	0.028	0.300	1.937	1.976	2.066	0.762
2005	5.010	5.005	1.872	0.188	0.349	2.126	2.046	2.142	0.839
Observations	1166								

Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	0.230	0.265	2.508	-0.352	-0.247	0.408	-2.349	-1.550	1.958
1994	-1.249	-0.847	2.088	-0.334	-0.345	0.313	-2.108	-1.233	1.682
1995	-0.865	-0.484	2.412	-0.432	-0.405	0.366	-1.877	-1.099	1.760
1996	-0.860	-0.022	2.351	-0.404	-0.297	0.354	-1.911	-1.358	1.709
1997	-0.285	0.515	2.074	-0.448	-0.403	0.335	-1.670	-1.105	1.591
1998	-0.353	-0.074	1.995	-0.439	-0.381	0.362	-1.768	-1.151	1.622
1999	-0.034	0.350	1.686	-0.534	-0.463	0.417	-1.433	-0.998	1.300
2000	0.436	0.654	1.770	-0.534	-0.391	0.419	-1.410	-1.129	1.215
2001	0.633	0.626	1.749	-0.460	-0.345	0.378	-1.505	-1.233	1.163
2002	2.757	2.859	1.172	-0.422	-0.189	0.562	-1.672	-1.758	0.915
2003	2.791	2.960	1.136	-0.434	-0.218	0.566	-1.640	-1.631	0.952
2004	2.738	2.905	1.370	-0.396	-0.216	0.593	-1.703	-1.638	0.940
2005	2.552	3.285	2.474	-0.420	-0.198	0.715	-1.781	-1.718	1.016
Observations	1166								

Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-1.714	-1.384	0.917	-2.475	-2.230	1.538	-0.794	-0.741	0.722
1994	-0.927	-0.524	0.923	-2.654	-3.043	1.859	-0.754	-0.618	0.716
1995	-1.210	-0.605	1.237	-2.221	-2.499	1.446	-0.694	-0.572	0.698
1996	-0.900	-0.522	0.889	-2.321	-1.902	1.756	-0.694	-0.572	0.698
1997	-1.146	-0.568	1.535	-2.359	-2.433	1.572	-0.590	-0.583	0.448
1998	-1.278	-0.570	1.297	-1.930	-1.837	1.417	-0.677	-0.561	0.733
1999	-1.284	-0.841	1.093	-2.199	-2.168	1.380	-0.649	-0.561	0.692
2000	-1.251	-0.767	1.117	-2.146	-2.168	1.425	-0.659	-0.561	0.685
2001	-1.423	-1.074	1.322	-2.070	-2.105	1.450	-0.622	-0.386	0.720
2002	-0.948	-0.561	1.348	-2.407	-1.958	2.066	-0.433	-0.165	0.747
2003	-0.888	-0.657	0.940	-2.238	-1.705	2.109	-0.486	-0.237	0.749
2004	-1.063	-0.533	1.123	-2.645	-2.349	2.516	-0.546	-0.268	0.782
2005	-1.156	-0.568	1.583	-2.679	-2.761	2.213	-0.794	-0.508	0.970
Observations	1166								

Appendix A_2 continued

(ii) Textile & weaving

Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	7.001	7.376	3.374	1.848	2.277	1.319	1.279	1.335	0.378
1994	6.991	6.949	3.863	2.003	2.354	1.628	1.606	1.602	0.557
1995	5.982	5.175	2.764	1.988	2.147	0.928	1.083	1.149	0.717
1996	6.074	5.780	2.761	2.028	2.038	0.982	1.192	1.321	0.745
1997	6.129	5.988	3.018	2.100	1.919	0.974	2.248	1.432	0.814
1998	5.719	5.096	3.501	1.685	1.868	1.200	0.967	1.234	0.790
1999	6.470	5.017	3.435	1.795	1.756	0.960	1.130	1.229	0.852
2000	6.986	7.139	3.957	1.909	1.701	1.321	1.286	1.722	1.011
2001	6.289	6.829	6.028	2.402	2.402	1.727	0.876	0.876	1.604
2002	7.306	8.066	1.991	0.862	1.077	0.492	1.890	1.8019	0.529
2003	7.555	8.106	1.959	1.228	1.170	1.605	1.892	1.906	0.562
2004	7.479	8.408	2.161	1.126	1.248	0.396	1.970	1.963	0.370
2005	7.322	8.336	1.889	0.867	0.908	0.485	2.588	2.390	0.406
Observations	285								

Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-1.407	-1.102	1.610	-0.253	-0.198	0.176	-1.653	-1.717	0.514
1994	-1.493	-1.341	2.122	-0.505	-0.278	0.624	-1.378	-1.418	0.738
1995	-0.633	-0.649	1.750	-0.357	-0.246	0.378	-1.523	-1.522	0.657
1996	-0.831	-1.070	2.119	-0.353	-0.275	0.380	-1.545	-1.426	0.665
1997	-0.193	-0.195	1.647	-0.357	-0.271	0.314	-1.429	-1.439	0.530
1998	-0.245	-0.617	1.810	-0.411	-0.389	0.329	-1.329	-1.131	0.622
1999	-0.248	0.199	1.915	-0.290	-0.278	0.184	-1.593	-1.416	0.706
2000	-1.518	-2.169	1.700	-0.273	-0.162	0.283	-1.780	-1.902	0.802
2001	-0.733	-0.733	2.626	-0.429	-0.429	0.374	-1.289	-1.289	0.842
2002	1.285	1.122	0.373	-0.174	-0.169	0.105	-1.975	-1.859	0.635
2003	1.397	1.413	0.491	-0.184	-0.166	0.089	-1.860	-1.880	0.446
2004	1.452	1.144	0.551	-0.181	-0.171	0.109	-1.935	-1.849	0.620
2005	1.349	1.238	0.203	-0.101	-0.098	0.058	-2.470	-2.370	0.621
Observations	285								

Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-1.064	-0.930	0.877	-1.379	-1.079	0.915	-0.313	-0.041	0.516
1994	-0.461	-0.263	0.380	-1.379	-1.079	0.915	-0.313	-0.041	0.516
1995	-0.297	-0.134	0.298	-1.312	-1.152	0.531	-0.195	-0.001	0.422
1996	-0.360	-0.212	0.349	-1.767	-1.415	1.054	-0.195	-0.001	0.422
1997	-0.911	-0.340	1.063	-1.508	-1.220	0.950	-0.217	0.000	0.451
1998	-0.471	-0.255	0.403	-1.118	-1.125	0.321	-0.254	-0.001	0.483
1999	-1.017	-0.786	0.754	-1.118	-1.125	0.321	-0.304	0.000	0.521
2000	-0.746	-0.746	0.424	-1.118	-1.125	0.321	-0.380	-0.159	0.569
2001	-2.717	-1.716	1.832	-0.794	-0.794	0.851	-0.602	-0.602	0.552
2002	-1.562	-0.803	1.996	-3.965	-4.220	3.587	-0.782	-0.782	0.596
2003	-1.637	-0.916	1.877	-2.412	-2.628	1.925	-1.204	-1.204	0.408
2004	-2.024	-0.976	2.409	-1.342	-1.342	1.896	-1.204	-1.204	0.568
2005	-1.562	-0.806	1.827	-3.634	-3.794	3.175	-1.204	-1.204	0.568
Observations	285								

Appendix A_2 continued

(iii) Wood & furniture

Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	7.115	7.588	1.717	1.521	2.183	1.553	1.379	1.455	0.529
1994	7.192	7.976	2.048	2.010	2.224	0.814	1.304	1.667	0.779
1995	7.060	7.723	1.732	1.397	1.608	1.319	1.436	1.242	0.681
1996	6.875	7.629	1.856	1.409	1.723	1.568	1.364	1.313	0.648
1997	7.188	7.929	1.951	1.614	1.962	1.427	1.222	1.647	0.784
1998	7.109	7.743	1.866	1.776	2.168	1.165	1.363	1.424	0.628
1999	7.639	7.924	1.341	1.937	2.317	1.584	1.269	1.261	0.652
2000	7.621	8.042	1.622	2.252	2.350	0.657	1.272	1.169	0.591
2001	7.667	7.833	1.128	2.084	2.024	0.547	1.199	1.147	0.582
2002	5.986	6.399	1.801	0.434	0.826	1.126	1.933	1.761	0.713
2003	6.281	6.534	1.857	0.752	0.868	1.278	1.926	1.855	0.673
2004	6.145	6.729	1.984	0.647	0.864	1.309	1.826	1.603	0.797
2005	6.472	6.536	1.060	0.435	0.734	1.057	1.950	1.751	0.639
Observations	939								

Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	0.224	1.055	2.743	-0.116	-0.084	0.119	-2.610	-2.527	1.391
1994	-1.008	-0.331	1.757	-0.166	-0.141	0.103	-2.076	-2.031	0.650
1995	-1.094	-0.423	2.177	-0.139	-0.148	0.091	-2.521	1.862	1.527
1996	-1.279	-0.957	2.165	-0.200	-0.169	0.178	-2.282	-1.862	1.686
1997	-0.797	-0.615	1.990	-0.179	-0.115	0.140	-2.313	-2.223	1.513
1998	-0.649	-0.459	1.783	-0.196	-0.140	0.177	-2.220	-2.033	1.291
1999	-0.570	-0.639	1.918	-0.166	-0.124	0.126	-2.305	-2.152	1.343
2000	-0.050	-0.428	1.451	-0.189	-0.172	0.119	-1.908	-1.863	0.493
2001	0.020	-0.206	1.727	-0.271	-0.195	0.288	-1.772	-1.731	0.651
2002	1.952	1.942	1.043	-0.390	-0.313	0.342	-1.690	-1.316	1.150
2003	1.943	1.894	1.168	-0.379	-0.334	0.336	-1.626	-1.260	0.986
2004	1.670	1.877	1.240	-0.390	-0.343	0.318	-1.645	-1.236	1.095
2005	1.445	1.478	0.760	-0.188	-0.095	0.178	-2.173	-2.398	0.926
Observations	939								

Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-2.107	-2.107	0.829	-0.896	-0.794	0.683	-0.182	0.000	0.359
1994	-2.370	-2.594	0.578	-1.104	-0.812	0.847	-0.196	0.000	0.370
1995	-2.319	-2.870	1.184	-0.643	-0.389	0.746	-0.134	0.000	0.316
1996	-3.281	-2.870	0.718	-0.404	-0.389	0.432	-0.142	0.000	0.323
1997	-3.206	-3.014	1.374	-0.575	-0.719	0.470	-0.134	0.000	0.316
1998	-3.126	-3.103	1.123	-0.526	-0.718	0.367	-0.128	0.000	0.309
1999	-3.463	-3.474	0.992	-0.491	-0.694	0.364	-0.142	0.000	0.323
2000	-2.627	-2.419	0.759	-0.488	-0.695	0.367	-0.090	0.000	0.229
2001	-2.923	-2.898	0.831	-0.420	-0.695	0.394	-0.111	0.000	0.251
2002	-2.047	-2.276	0.775	-0.509	-0.032	1.153	-0.141	0.000	0.376
2003	-2.172	-2.213	1.010	-0.251	-0.017	0.611	-0.081	-0.001	0.168
2004	-1.898	-1.551	1.001	-0.263	-0.045	0.434	-0.084	0.000	0.173
2005	-2.597	-2.538	1.009	-0.451	-0.525	0.450	-0.088	0.000	0.215
Observations	939								

Appendix A_2 continued

(iv) Paper & printing									
Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	6.773	7.161	1.125	1.504	1.961	1.928	0.936	0.774	0.439
1994	6.730	6.816	1.188	1.556	2.091	1.970	1.051	1.187	0.720
1995	6.933	7.074	1.126	1.842	2.039	1.567	1.025	0.972	0.768
1996	7.093	7.099	1.111	2.166	2.310	1.316	1.078	1.126	0.572
1997	7.109	7.195	1.174	2.239	2.823	1.358	0.963	0.915	0.495
1998	7.329	7.285	0.891	1.554	2.065	1.679	0.956	0.965	0.302
1999	7.497	7.474	0.899	1.896	2.639	1.786	0.934	0.868	0.310
2000	7.675	7.978	0.983	1.869	2.432	1.765	0.921	0.788	0.338
2001	8.503	8.296	0.442	2.513	2.840	0.941	0.554	0.548	0.353
2002	5.716	5.785	1.175	1.048	1.211	1.382	2.096	2.043	0.386
2003	5.486	5.479	1.412	1.062	1.134	1.595	1.902	1.872	0.261
2004	5.438	5.501	1.612	0.819	1.601	1.719	1.799	1.913	0.421
2005	5.144	5.375	1.817	0.227	0.163	1.988	1.891	1.970	0.441
Observations	398								
Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-0.581	0.180	2.270	-0.308	-0.372	0.212	-2.279	-1.420	1.994
1994	-1.329	-0.311	2.621	-0.307	-0.300	0.205	-2.042	-1.352	1.788
1995	-1.070	-0.475	1.217	-0.325	-0.354	0.231	-2.014	-1.213	1.763
1996	-0.597	-0.616	1.394	-0.312	-0.334	0.189	-1.804	-1.259	1.404
1997	-0.716	-0.155	2.124	-0.371	-0.416	0.275	-1.767	-1.078	1.529
1998	-1.197	-1.140	1.889	-0.315	-0.359	0.309	-2.329	-1.210	1.884
1999	-1.484	-1.109	2.028	-0.293	-0.358	0.192	-2.130	-1.202	1.818
2000	-2.001	-1.644	1.467	-0.303	-0.414	0.250	-2.199	-1.081	1.837
2001	-0.834	-1.296	1.714	-0.306	-0.277	0.247	-1.655	-1.574	0.875
2002	1.786	1.614	0.872	-0.195	-0.194	0.093	-1.821	-1.735	0.417
2003	1.931	1.708	1.139	-0.220	-0.221	0.079	-1.687	-1.619	0.368
2004	1.747	1.576	0.948	-0.270	-0.215	0.148	-1.529	-1.641	0.346
2005	1.728	1.853	0.937	-0.228	-0.219	0.038	-1.600	-1.630	0.146
Observations	398								
Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-0.781	-0.557	1.003	-3.494	-3.565	0.705	-1.600	-0.431	2.792
1994	-0.537	-0.262	1.069	-3.494	-3.565	0.705	-1.600	-0.431	2.792
1995	-0.280	-0.157	0.363	-3.759	-3.670	0.848	-1.397	-0.407	2.546
1996	-0.192	-0.171	0.136	-4.070	-4.040	0.743	-1.397	-0.407	2.546
1997	-0.233	-0.209	0.183	-3.893	-3.798	0.677	-1.397	-0.407	2.546
1998	-0.211	-0.186	0.172	-4.226	-4.001	1.656	-1.591	-0.384	2.797
1999	-0.317	-0.344	0.171	-2.978	-3.882	1.824	-1.591	-0.384	2.797
2000	-0.117	-0.095	0.058	-2.849	-3.173	1.512	-1.591	-0.384	2.797
2001	-0.173	-0.210	0.066	-2.380	-2.380	2.124	-0.264	-0.264	2.797
2002	-0.119	-0.107	0.073	-3.691	-4.154	1.651	-3.876	-3.876	4.791
2003	-0.089	-0.089	0.054	-3.762	-3.605	1.868	-3.789	-3.789	4.916
2004	-0.155	-0.149	0.077	-3.576	-3.713	1.497	-3.795	-3.795	4.906
2005	-0.218	-0.201	0.087	-2.925	-2.014	1.606	-3.795	-3.795	4.906
Observations	398								

Appendix A_2 continued

(v) Chemicals

Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	7.360	7.116	1.509	1.161	2.159	2.307	1.567	1.551	0.725
1994	7.722	7.355	1.400	2.449	2.730	2.016	1.727	1.689	0.587
1995	7.346	7.403	1.754	2.517	2.734	1.439	1.361	1.406	0.747
1996	7.546	7.652	1.809	2.823	2.932	1.586	1.411	1.612	0.713
1997	7.594	7.434	1.737	2.862	2.892	1.803	1.347	1.368	0.692
1998	7.576	7.420	1.943	2.964	2.884	1.206	1.222	1.385	0.673
1999	7.540	7.606	2.002	2.663	3.091	1.794	1.132	1.182	0.759
2000	7.661	7.770	2.343	2.887	3.171	1.777	1.122	1.296	0.703
2001	7.985	7.598	1.801	3.004	3.445	1.842	1.111	0.995	0.662
2002	5.202	4.923	2.043	0.852	0.909	1.974	2.217	2.232	0.659
2003	5.315	5.095	1.651	0.917	0.564	1.566	2.154	1.993	0.599
2004	5.602	5.362	2.004	1.067	1.060	1.753	2.222	2.284	0.667
2005	4.881	5.139	2.061	0.678	0.648	2.338	2.060	1.874	0.645
Observations	740								

Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-0.938	-0.213	2.026	-0.323	-0.102	0.387	-2.804	-2.334	2.457
1994	-0.947	-0.513	3.522	-0.407	-0.383	0.327	-1.863	-1.145	1.716
1995	-0.564	-0.328	2.304	-0.404	-0.346	0.331	-1.607	-1.239	1.207
1996	-0.213	0.337	1.685	-0.539	-0.433	0.487	-1.429	-1.045	1.269
1997	-0.218	0.457	2.069	-0.577	-0.452	0.514	-1.382	-1.012	1.354
1998	-0.193	-0.353	1.898	-0.586	-0.405	0.562	-1.206	-1.099	0.748
1999	-1.000	-0.643	1.754	-0.473	-0.372	0.505	-1.721	-1.173	1.447
2000	-0.793	-0.733	1.855	-0.487	-0.333	0.518	-1.590	-1.267	1.162
2001	-0.100	-0.292	2.389	-0.520	-0.270	0.551	-1.493	-1.440	1.107
2002	2.490	2.251	1.231	-0.512	-0.426	0.384	-1.246	-1.059	0.798
2003	2.572	2.404	1.330	-0.612	-0.491	0.435	-1.095	-0.950	0.865
2004	2.594	2.724	1.243	-0.570	-0.458	0.427	-1.172	-1.009	0.869
2005	2.790	3.038	1.116	-0.627	-0.488	0.430	-1.120	-0.951	1.004
Observations	740								

Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-1.663	-1.606	1.046	-0.876	-0.650	1.020	-0.947	-0.916	0.998
1994	-0.944	-0.747	1.049	-0.875	-0.650	1.020	-1.157	-1.167	1.021
1995	-0.886	-0.332	1.103	-1.052	-0.866	1.139	-0.868	-0.595	1.085
1996	-0.646	-0.396	0.653	-1.004	-0.968	0.966	-0.884	-0.916	0.870
1997	-0.956	-0.393	1.136	-1.590	-1.222	1.573	-1.112	-1.167	1.003
1998	-0.925	-0.275	1.546	-1.217	-1.106	0.959	-1.208	-1.609	1.036
1999	-0.900	-0.252	1.704	-1.473	-1.053	1.416	-1.013	-1.042	0.978
2000	-0.262	-0.183	0.241	-0.819	-1.023	0.661	-0.938	-0.916	0.990
2001	-0.279	-0.197	0.240	-0.950	-0.628	1.179	-0.954	-0.916	1.018
2002	-0.607	-0.373	0.676	-1.882	-1.994	1.641	-0.763	-0.434	0.922
2003	-0.731	-0.459	0.867	-1.997	-1.956	1.682	-0.827	-0.434	0.954
2004	-0.785	-0.405	0.845	-2.207	-1.495	1.891	-0.827	-0.434	0.954
2005	-0.725	-0.568	0.640	-1.746	-1.053	1.675	-1.032	-0.431	1.307
Observations	740								

Appendix A_2 continued

(vi) Rubber & plastic									
Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	6.040	6.146	1.549	1.090	1.249	1.301	1.070	1.200	0.451
1994	6.219	6.382	1.702	1.193	1.079	0.897	1.115	1.252	0.406
1995	5.593	5.227	1.807	0.893	1.197	1.419	0.766	0.875	0.843
1996	5.475	5.326	1.338	1.304	1.601	1.521	0.612	0.417	0.891
1997	5.799	5.249	1.792	1.121	1.298	1.302	0.577	0.950	1.255
1998	5.972	6.065	1.930	1.418	1.698	0.971	0.689	0.770	0.696
1999	6.235	6.068	1.476	1.367	1.503	1.045	0.868	0.731	0.693
2000	6.522	6.593	1.309	1.317	1.297	0.601	0.976	0.866	0.740
2001	6.434	6.615	1.584	0.802	1.047	0.960	1.016	1.259	0.921
2002	4.919	4.516	1.154	-0.465	-0.389	1.116	1.983	1.773	0.516
2003	5.085	4.780	1.088	-0.290	-0.203	0.931	1.953	1.692	0.703
2004	5.482	4.895	2.353	0.013	-0.037	0.889	1.994	2.057	1.208
2005	4.936	5.224	1.011	-0.167	0.254	1.225	2.287	1.779	0.936
Observations	398								
Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	0.166	0.185	2.165	-0.304	-0.207	0.269	-1.755	-1.678	0.949
1994	-0.150	-0.717	1.736	-0.291	-0.207	0.286	-1.745	-1.678	0.812
1995	0.090	0.431	1.963	-0.282	-0.186	0.275	-1.962	-1.786	1.234
1996	-0.244	0.070	1.607	-0.531	-0.262	0.693	-1.663	-1.485	1.269
1997	-0.576	-0.786	1.758	-0.442	-0.318	0.650	-1.719	-1.299	1.065
1998	0.115	0.135	1.817	-0.337	-0.280	0.254	-1.512	-1.410	0.689
1999	-0.173	-0.008	1.216	-0.256	-0.225	0.200	-1.819	-1.604	0.830
2000	-0.500	-0.639	1.291	-0.207	-0.159	0.176	-2.008	1.953	0.825
2001	-0.907	-1.150	1.486	-0.140	-0.076	0.132	-2.442	-2.629	0.949
2002	2.162	2.045	1.186	-0.291	-0.087	0.509	-2.305	-2.489	1.125
2003	2.126	1.930	1.241	-0.309	-0.128	0.477	-2.085	-2.118	1.074
2004	2.101	2.096	1.246	-0.579	-0.129	0.972	-1.809	-2.108	1.147
2005	1.697	2.257	1.011	-0.149	-0.073	0.152	-2.355	-2.660	0.872
Observations	398								
Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-0.997	-0.904	0.787	-2.709	-2.709	2.846	-0.108	0.000	0.264
1994	-0.418	-0.352	0.350	-2.709	-2.709	2.846	-0.108	0.000	0.264
1995	-0.316	-0.246	0.233	-3.567	-3.567	4.060	-0.100	0.000	0.242
1996	-0.249	-0.262	0.184	-6.377	-6.377	0.261	-0.116	0.000	0.242
1997	-0.482	-0.225	0.775	-1.606	-1.606	1.283	-0.100	0.000	0.242
1998	-0.240	-0.201	0.207	-2.554	-2.554	2.631	-0.108	0.000	0.264
1999	-0.392	-0.309	0.330	-0.693	-0.693	0.242	-0.100	0.000	0.264
2000	-0.639	-0.503	0.529	-0.694	-0.694	0.261	-0.116	0.000	0.264
2001	-0.742	-0.649	0.547	-0.614	-0.694	0.261	-0.126	0.000	0.264
2002	-1.541	-0.280	2.198	-3.036	-1.891	2.173	-0.125	0.000	0.259
2003	-1.267	-1.025	1.364	-2.019	-2.005	1.677	-0.018	0.000	0.043
2004	-0.869	-0.151	1.476	-1.878	-2.275	1.141	-0.125	0.000	0.259
2005	-0.700	-0.120	1.231	-2.386	-2.694	0.830	-0.130	0.000	0.290
Observations	398								

Appendix A_2 continued

(vii)Non-metallic mineral									
Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	6.666	6.001	1.211	0.445	0.345	0.444	1.032	2.000	1.142
1994	7.206	6.169	1.301	0.888	0.369	0.354	2.045	2.008	1.521
1995	6.396	6.155	1.888	0.896	0.788	0.124	2.222	2.133	1.623
1996	5.896	5.555	1.808	1.506	0.909	1.507	0.989	2.144	1.236
1997	6.123	7.225	1.706	1.707	0.996	1.502	1.009	2.145	1.336
1998	6.258	5.759	1.506	0.809	0.789	1.206	1.892	2.888	0.785
1999	6.559	8.303	1.424	0.456	0.587	1.308	1.205	2.102	0.578
2000	6.888	7.709	0.895	0.968	0.656	1.403	1.505	2.999	0.555
2001	6.727	5.096	0.989	0.708	0.759	1.501	2.021	2.457	0.778
2002	6.762	6.762	1.234	0.749	0.749	1.607	2.019	2.019	0.809
2003	7.531	7.532	0.046	1.560	1.560	0.366	2.099	2.099	1.143
2004	7.104	7.104	0.374	1.150	1.150	0.762	1.807	1.807	0.838
2005	7.218	7.218		1.685	1.685		1.301	1.301	0.787
Observations	57								
Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	3.266	2.526	2.097	-0.482	-0.723	0.535	-1.003	-1.106	0.321
1994	2.998	2.021	2.109	-0.456	-0.196	0.171	-1.222	-1.063	0.561
1995	3.031	2.841	1.292	-0.442	-0.253	0.392	-1.025	-1.193	0.782
1996	3.055	1.281	1.315	-0.426	-0.351	0.078	-1.026	-1.097	0.274
1997	2.066	2.031	1.047	-0.508	-0.174	0.168	-1.361	-1.245	0.483
1998	2.789	2.226	1.614	-0.402	-0.410	0.141	-1.069	-1.184	0.330
1999	3.698	2.445	2.089	-0.607	-0.626	0.835	-1.044	-1.018	0.288
2000	2.332	1.173	1.273	-0.569	-0.387	0.196	-1.025	-1.482	0.166
2001	2.145	1.098	1.331	-0.575	-0.338	0.327	-1.024	-1.065	0.195
2002	2.667	2.666	2.346	-0.486	-0.486	0.246	-1.023	-1.023	0.418
2003	2.768	2.768	2.367	-0.485	-0.485	0.228	-1.014	-1.014	0.385
2004	2.823	2.823	2.288	-0.577	-0.577	0.225	-0.929	-0.929	0.358
2005	1.420	1.420	2.133	-0.440	-0.440	0.226	-1.034	-1.034	0.431
Observations	57								
Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-0.888	-0.749	0.143	-1.189	-1.015	0.154	-0.456	-0.167	0.454
1994	-0.555	-0.499	0.186	-1.223	-1.095	0.096	-0.385	-0.279	0.106
1995	-0.668	-0.572	0.836	-1.889	-1.229	0.229	-0.289	-0.286	0.375
1996	-0.778	-0.611	0.658	-1.555	-1.206	0.207	-0.404	-0.401	0.350
1997	-0.663	-0.583	0.548	-2.166	-2.144	0.445	-0.506	-0.347	0.441
1998	-0.666	-0.411	0.408	-2.333	-2.004	0.400	-0.561	-0.396	0.213
1999	-0.509	-0.501	0.878	-2.009	-1.951	0.512	-0.562	-0.398	0.152
2000	-0.489	-0.375	0.587	-2.669	-2.470	0.470	-0.499	-0.433	0.358
2001	-1.229	-0.858	0.566	-2.777	-2.111	0.201	-0.509	-0.343	0.789
2002	-0.677	-0.677	0.634	-2.933	-2.933	0.778	-0.599	-0.599	0.256
2003	-1.555	-1.555	1.919	-3.166	-3.166	0.734	-0.521	-0.599	0.612
2004	-2.653	-2.653	0.504	-3.511	-3.511	3.326	-0.699	-0.599	1.696
2005	-1.883	-1.883	0.689	-3.689	-3.689	1.002	-0.356	-0.599	0.225
Observations	57								

Appendix A_2 continued

(viii) Basic metal									
Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	5.501	5.306	1.405	-1.111	-1.075	1.134	1.202	2.051	0.449
1994	5.553	5.189	1.230	-2.500	-1.822	1.660	1.313	1.376	0.662
1995	5.669	4.453	1.929	-0.895	-1.049	1.444	1.056	1.417	0.375
1996	5.460	5.002	1.293	1.006	1.002	1.601	1.085	2.347	0.997
1997	5.809	5.007	1.505	2.006	2.033	1.067	1.069	2.112	0.939
1998	6.663	5.223	1.604	3.133	2.377	1.010	2.014	1.795	0.927
1999	6.897	6.831	1.415	-3.155	-2.000	0.676	2.000	2.481	0.747
2000	7.056	8.103	1.549	2.888	2.667	2.131	1.999	1.695	0.724
2001	7.558	8.410	1.157	2.758	2.077	1.534	2.448	1.204	0.496
2002	7.636	8.379	1.267	3.015	2.819	1.343	2.462	2.529	0.818
2003	7.624	7.911	1.184	2.768	2.597	0.928	2.299	2.446	0.540
2004	7.364	8.187	2.064	2.664	3.430	2.009	2.357	2.428	0.655
2005	7.824	8.349	1.442	-2.604	2.811	1.006	-0.213	2.150	0.711
Observations	228								
Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	1.899	1.731	1.335	-0.812	-0.788	0.945	-0.636	-0.528	0.182
1994	1.567	1.235	1.156	-0.786	-0.740	0.435	-0.645	-0.692	0.173
1995	1.801	1.365	1.680	-0.777	-0.640	0.435	-0.648	-0.618	0.171
1996	2.006	1.170	1.256	-0.802	-0.744	0.560	-0.669	-0.911	0.323
1997	2.072	1.075	1.658	-0.603	-0.501	0.655	-0.689	-0.591	0.191
1998	2.089	2.408	1.201	-0.669	-0.418	0.273	-0.878	-0.839	0.363
1999	2.135	2.315	1.622	-0.745	-0.304	0.162	-0.886	-0.703	0.204
2000	2.872	1.707	1.630	-0.909	-0.208	0.223	-0.878	-0.811	0.392
2001	2.632	2.441	1.268	-0.828	-0.311	0.831	-0.859	-0.921	0.338
2002	2.720	2.486	1.004	-0.894	-0.448	0.929	-0.817	-1.020	0.427
2003	2.823	2.872	1.082	-0.637	-0.445	0.603	-0.951	-1.025	0.348
2004	2.799	2.659	0.921	-0.966	-0.440	1.105	-0.869	-1.033	0.502
2005	2.105	2.608	1.161	-0.808	-0.442	0.929	-0.985	-1.029	0.529
Observations	228								
Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-0.501	-0.606	0.161	-1.003	-1.446	1.128	-0.434	-0.187	0.705
1994	-0.414	-0.597	0.441	-0.888	-0.621	1.215	-0.369	-0.647	0.219
1995	-0.313	-0.286	0.531	-1.221	-1.159	1.158	-0.214	-0.577	0.588
1996	-0.289	-0.177	0.559	-1.506	-1.138	1.328	-0.306	-0.522	0.800
1997	-0.607	-0.588	0.398	-1.409	-1.065	1.096	-0.436	-0.258	0.127
1998	-0.603	-0.528	0.113	-1.225	-1.233	1.288	-0.558	-0.813	0.346
1999	-0.705	-0.614	0.107	-2.102	-1.402	1.553	-0.892	-0.712	0.517
2000	-0.682	-0.790	0.174	-2.111	-1.139	1.155	-0.602	-0.452	0.173
2001	-0.891	-0.714	0.791	-2.301	-1.244	1.894	-0.504	-0.264	0.425
2002	-0.680	-0.774	0.409	-2.208	-1.630	1.764	-0.454	-0.314	0.586
2003	-0.234	-0.256	0.132	-2.140	-1.904	1.253	-0.675	-0.512	0.676
2004	-1.153	-0.488	1.694	-3.001	-2.772	1.899	-0.425	-0.229	0.582
2005	-1.001	-0.211	0.207	-2.018	-3.022	1.378	-0.305	-0.213	0.302
Observations	228								

Appendix A_2 continued

(ix) Machinery & appliance									
Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	5.446	5.195	1.417	2.380	2.206	0.961	0.910	1.158	0.620
1994	6.010	6.129	1.309	2.296	2.993	1.866	1.093	1.148	0.681
1995	5.514	5.400	1.335	1.372	1.636	1.717	0.892	1.101	0.837
1996	5.600	5.697	1.433	1.539	1.837	1.743	1.227	1.089	0.597
1997	5.273	5.372	1.700	1.263	1.485	1.859	1.089	0.987	0.632
1998	4.513	4.865	2.270	1.020	1.572	1.618	0.932	1.001	0.435
1999	4.870	4.977	1.347	0.892	1.229	1.653	1.162	1.197	0.582
2000	5.404	5.222	1.143	1.958	1.946	0.774	1.579	1.369	0.698
2001	5.803	5.781	1.290	1.921	2.456	0.933	1.501	1.383	0.445
2002	6.030	6.332	1.900	1.481	1.237	1.565	2.130	2.203	0.732
2003	6.139	6.336	1.877	1.532	1.510	1.622	2.012	1.780	0.638
2004	6.402	5.668	1.798	1.502	1.323	1.069	2.225	2.536	0.658
2005	5.961	5.786	2.545	1.135	1.015	1.680	2.477	2.613	0.448
Observations	569								
Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	0.327	0.065	1.414	-0.452	-0.431	0.224	-1.108	-1.049	0.362
1994	-0.936	-0.674	1.989	-0.348	-0.353	0.322	-2.034	-1.213	1.835
1995	-0.810	-0.555	2.284	-0.231	-0.230	0.181	-2.314	-1.616	1.742
1996	-0.503	0.182	2.680	-0.410	-0.328	0.384	-1.976	-1.282	1.911
1997	-0.435	0.294	2.516	-0.402	-0.375	0.382	-1.957	-1.162	1.817
1998	-0.121	-0.252	1.247	-0.529	-0.470	0.361	-1.346	-0.985	1.345
1999	-1.147	-0.504	2.663	-0.392	-0.417	0.313	-1.974	-1.076	1.943
2000	-1.083	-0.261	2.106	-0.439	-0.389	0.290	-1.245	-1.146	0.652
2001	-0.974	-0.818	2.034	-0.395	-0.325	0.251	-1.328	-1.281	0.688
2002	2.913	2.938	0.693	-0.331	-0.336	0.201	-1.441	-1.253	0.581
2003	2.880	3.084	0.794	-0.350	-0.336	0.212	-1.379	-1.253	0.540
2004	2.940	2.720	0.640	-0.366	-0.258	0.315	-1.420	-1.483	0.610
2005	3.046	3.037	0.812	-0.389	-0.297	0.318	-1.373	-1.364	0.675
Observations	569								
Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-1.268	-1.264	1.101	-2.207	-2.207	1.246	-1.430	-0.511	2.698
1994	-0.821	-0.800	0.751	-2.207	-2.207	1.246	-1.430	-0.511	2.698
1995	-0.555	-0.312	0.496	-1.609	-1.609	0.413	-1.347	-0.554	2.557
1996	-1.008	-0.982	1.050	-2.177	-2.177	0.787	-0.548	-0.511	0.481
1997	-0.912	-0.382	0.997	-2.377	-2.409	0.252	-0.548	-0.511	0.481
1998	-0.894	-1.014	0.765	-2.456	-2.456	0.477	-0.645	-0.598	0.481
1999	-1.568	-1.471	1.230	-2.084	-2.084	0.391	-0.574	-0.554	0.499
2000	-1.538	-1.537	1.011	-2.360	-2.360	0.560	-0.412	-0.112	0.499
2001	-1.706	-1.921	0.874	-2.360	-2.360	0.508	-0.279	0.000	0.499
2002	-1.161	-1.064	0.845	-1.086	-0.425	1.423	-1.030	-1.026	0.929
2003	-1.160	-1.239	0.641	-1.042	-0.701	1.007	-1.030	-1.026	0.929
2004	-1.176	-0.279	1.707	-0.931	-0.556	0.730	-1.269	-1.500	0.935
2005	-3.432	-3.432	0.860	-2.180	-2.913	1.488	-1.267	-1.500	0.939
Observations	569								

Appendix A_3: Descriptive statistics over time by size categories

(i) Small size enterprises

Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	5.050	5.096	1.403	2.090	2.135	1.186	0.974	0.945	0.636
1994	5.023	5.233	1.669	2.274	1.928	1.501	0.945	1.014	0.641
1995	4.845	4.813	1.384	1.991	1.735	1.189	0.792	0.731	0.767
1996	5.086	5.004	1.453	2.243	1.869	1.220	0.924	0.951	0.700
1997	4.995	5.172	1.700	1.996	1.707	1.410	0.869	0.704	0.733
1998	4.590	4.952	2.015	1.848	1.710	1.551	0.857	0.787	0.753
1999	5.044	5.078	1.632	2.353	1.970	1.484	0.863	0.657	0.833
2000	5.421	5.680	1.741	2.744	2.345	1.560	1.045	0.849	0.883
2001	5.748	5.781	1.677	3.003	2.755	1.680	1.224	1.301	0.772
2002	4.769	4.966	2.280	1.552	1.748	2.250	2.454	2.359	0.632
2003	4.954	5.143	1.874	1.582	2.059	1.774	2.200	2.211	1.037
2004	4.312	4.615	1.583	0.910	1.091	1.390	2.013	1.740	0.840
2005	4.960	5.139	2.163	1.376	1.326	2.334	2.305	2.592	0.866
Observations	1105								
Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	0.345	0.185	1.538	-0.498	-0.421	0.351	-1.028	-1.017	0.424
1994	-0.168	-0.623	2.089	-0.480	-0.405	0.369	-1.180	-1.099	0.505
1995	-0.512	-0.407	1.615	-0.455	-0.334	0.345	-1.262	-1.259	0.615
1996	-0.226	-0.126	1.378	-0.587	-0.437	0.480	-1.070	-1.039	0.558
1997	-0.180	-0.134	1.746	-0.608	-0.449	0.490	-1.129	-1.017	1.008
1998	-0.161	-0.289	2.021	-0.594	-0.442	0.393	-1.001	-1.029	0.523
1999	-0.225	0.405	1.745	-0.548	-0.511	0.332	-1.024	-0.916	0.475
2000	-0.170	0.283	1.886	-0.622	-0.521	0.412	-0.983	-0.902	0.549
2001	-0.136	0.405	2.284	-0.602	-0.480	0.420	-1.014	-0.965	0.556
2002	3.311	3.123	0.837	-0.726	-0.372	0.631	-1.233	-1.170	1.046
2003	3.347	3.453	0.942	-0.831	-0.619	0.701	-0.855	-0.777	0.540
2004	2.671	3.084	2.021	-0.848	-0.598	0.807	-0.914	-0.799	0.657
2005	3.369	3.283	1.436	-1.010	-0.847	0.923	-0.814	-0.560	0.699
Observations	1105								
Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-1.315	-1.251	1.065	-2.891	-2.891	0.278	-1.137	-0.359	2.129
1994	-0.845	-0.421	1.004	-2.706	-2.694	1.386	-0.984	-0.144	2.229
1995	-0.364	-0.263	0.325	-1.969	-1.969	0.096	-0.813	0.000	1.906
1996	-0.473	-0.235	0.642	-2.454	-2.454	1.177	-0.459	0.000	0.733
1997	-0.492	-0.264	0.594	-2.363	-2.361	0.442	-0.350	0.000	0.485
1998	-0.598	-0.254	0.987	-1.327	-1.327	0.733	-0.457	0.000	0.506
1999	-1.509	-1.130	1.203	-1.567	-1.567	0.340	-0.439	0.000	0.768
2000	-1.128	-0.879	0.939	-1.327	-1.327	0.748	-0.372	-0.0001	0.756
2001	-1.174	-1.248	0.641	-1.327	-1.327	0.299	-0.153	0.000	0.888
2002	-0.678	-0.507	0.700	-3.037	-3.037	4.296	-0.739	-0.044	1.420
2003	-0.843	-0.459	1.009	-1.849	-1.664	1.862	-0.621	-0.432	0.895
2004	-0.759	-0.317	0.937	-0.918	-0.232	1.541	-0.309	-0.089	0.507
2005	-0.619	-0.579	0.545	-0.467	-0.467	0.545	-0.344	-0.118	0.608
Observations	1105								

Appendix A_3 continued

(ii) Medium size enterprises

Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	7.108	6.992	0.794	2.612	2.553	0.782	1.377	1.385	0.395
1994	7.134	7.126	0.795	2.556	2.491	0.832	1.419	1.401	0.489
1995	7.128	7.263	0.925	2.678	2.754	0.804	1.249	1.241	0.608
1996	7.216	7.443	0.985	2.750	2.804	0.856	1.320	1.402	0.643
1997	7.400	7.368	0.892	2.929	2.890	0.830	1.361	1.306	0.584
1998	7.139	7.167	0.821	2.696	2.722	0.783	1.179	1.148	0.428
1999	7.024	7.137	0.986	2.586	2.806	0.816	1.077	0.876	0.525
2000	7.400	7.405	1.467	2.908	2.744	1.274	1.456	1.295	0.678
2001	7.380	7.369	1.518	2.856	2.938	1.546	1.624	1.651	0.784
2002	5.350	5.187	1.760	0.890	1.012	1.726	2.262	2.296	0.877
2003	5.293	5.081	1.596	0.757	0.766	1.559	2.129	1.956	0.552
2004	5.482	5.300	1.872	0.952	0.823	1.777	2.206	2.273	0.664
2005	5.217	5.183	1.472	0.717	0.817	1.435	2.238	2.229	0.695
Observations	1327								

Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	0.708	0.458	1.821	-0.415	-0.418	0.260	-1.369	-1.074	0.715
1994	-0.505	-0.533	1.621	-0.413	-0.379	0.269	-1.300	-1.153	0.640
1995	0.109	0.270	1.538	-0.410	-0.386	0.224	-1.238	-1.139	0.480
1996	-0.297	0.337	1.712	-0.478	-0.397	0.343	-1.168	-1.116	0.501
1997	0.200	0.473	0.976	-0.464	-0.387	0.333	-1.184	-1.137	0.498
1998	0.159	0.366	1.268	-0.531	-0.416	0.341	-1.073	-1.078	0.513
1999	-0.194	-0.117	1.116	-0.499	-0.432	0.307	-1.113	-1.048	0.543
2000	-0.269	0.102	1.378	-0.603	-0.473	0.369	-1.016	-0.976	0.627
2001	0.333	0.926	1.923	-0.516	-0.369	0.398	-1.251	-1.176	0.837
2002	2.412	2.253	1.139	-0.445	-0.243	0.597	--1.530	-1.535	0.826
2003	2.351	2.312	1.174	-0.358	-0.243	0.384	-1.632	-1.535	0.886
2004	2.442	2.460	1.141	-0.386	-0.230	0.522	-1.667	-1.584	0.935
2005	2.421	2.594	1.323	-0.359	-0.249	0.448	-1.762	-1.513	1.055
Observations	1327								

Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-1.143	-1.077	0.828	-2.562	-2.492	1.752	-0.614	-0.648	0.610
1994	-0.624	-0.364	0.620	-2.560	-2.764	1.646	-0.828	-0.041	1.074
1995	-0.736	-0.422	1.059	-2.947	-2.976	2.136	-0.890	-0.001	1.729
1996	-0.481	-0.333	0.519	-2.713	-2.079	2.293	-0.433	-0.001	0.725
1997	-0.629	-0.437	0.727	-2.585	-2.863	1.460	-0.650	-0.042	1.007
1998	-0.527	-0.327	0.579	-1.857	-1.733	1.120	-0.784	-0.274	1.020
1999	-0.585	-0.442	0.592	-2.172	-1.708	1.297	-0.383	-0.001	0.583
2000	-0.789	-0.661	0.848	-1.451	-1.391	1.150	-0.218	-0.001	0.346
2001	-0.873	-0.708	0.823	-1.862	-2.168	1.239	-0.483	-0.042	0.904
2002	-0.774	-0.262	1.310	-2.556	-2.242	1.904	-0.523	-0.431	0.720
2003	-0.711	-0.228	0.894	-2.324	-2.295	1.636	-0.582	-0.294	0.800
2004	-0.899	-0.323	1.179	-2.506	-2.469	1.642	-0.733	-0.431	0.900
2005	-0.787	-0.315	1.134	-3.049	-2.953	1.826	-1.035	-0.537	1.161
Observations	1327								

Appendix A_3 continued

(iii) Large size enterprises									
Year	ln(output)			ln(labour productivity)			ln(average wage)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	7.916	7.858	1.494	0.823	1.710	2.026	1.263	1.335	1.074
1994	8.102	8.152	1.522	1.377	1.939	1.885	1.349	1.541	0.794
1995	7.985	7.835	1.505	1.184	1.425	1.857	1.260	1.312	0.786
1996	7.944	7.931	1.603	1.279	1.716	1.903	1.275	1.402	0.727
1997	8.046	8.070	1.666	1.574	2.001	1.965	1.195	1.298	0.862
1998	8.238	7.914	1.473	1.572	2.167	1.692	1.235	1.258	0.647
1999	8.212	8.108	1.506	1.588	2.081	1.898	1.134	1.229	0.609
2000	8.409	8.168	1.425	1.934	2.246	1.562	1.204	1.249	0.599
2001	8.327	8.210	1.502	1.869	1.974	1.549	1.026	0.909	0.699
2002	6.259	6.425	1.806	0.145	0.412	1.726	1.812	1.746	0.909
2003	6.635	6.738	1.698	0.545	0.744	1.734	1.916	1.855	0.647
2004	6.627	6.840	1.820	0.514	0.683	1.695	1.815	1.704	0.757
2005	6.176	6.480	2.189	0.153	0.408	2.077	1.856	1.765	0.592
Observations	2348								
Year	ln(capital-labour ratio)			ln(proportion unskilled labour)			ln(proportion skilled labour)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-0.798	-0.169	2.478	-0.146	-0.075	0.205	-3.196	-2.633	1.886
1994	-1.706	-1.067	2.410	-0.195	-0.129	0.230	-2.689	-2.116	1.669
1995	-1.357	-0.914	2.382	-0.186	-0.109	0.228	-2.799	-2.276	1.801
1996	-1.284	-0.918	2.468	-0.186	-0.118	0.209	-2.712	-2.201	1.788
1997	-1.075	-0.677	2.388	-0.190	-0.112	0.196	-2.586	-2.244	1.672
1998	-0.817	-0.556	1.779	-0.186	-0.107	0.199	-2.542	-2.291	1.530
1999	-0.928	-0.477	2.156	-0.233	-0.122	0.313	-2.479	-2.164	1.604
2000	-0.562	-0.350	1.921	-0.206	-0.137	0.231	-2.221	-2.055	1.133
2001	-0.201	-0.292	1.694	-0.263	-0.163	0.294	-2.022	-1.894	1.041
2002	2.208	1.979	1.134	-0.359	-0.318	0.309	-1.660	-1.300	0.966
2003	2.254	2.025	1.182	-0.376	-0.331	0.322	-1.565	-1.268	0.877
2004	2.211	2.168	1.170	-0.374	-0.324	0.311	-1.568	-1.286	0.883
2005	1.780	1.885	1.825	-0.250	-0.185	0.192	-1.846	-1.782	0.809
Observations	2348								
Year	ln(import share)			ln(export share)			ln(foreign ownership share)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
1993	-1.587	-1.521	1.049	-1.638	-0.862	1.347	-0.610	-0.193	1.211
1994	-1.036	-0.747	1.062	-1.901	-1.144	1.593	-0.706	-0.352	1.179
1995	-1.143	-0.740	1.158	-1.625	-1.121	1.407	-0.414	-0.269	0.473
1996	-1.225	-.545	1.290	-1.708	-1.289	1.617	-0.596	-0.317	1.068
1997	-1.477	-0.603	1.607	-1.494	-0.901	1.430	-0.606	-0.309	1.076
1998	-1.354	-0.476	1.523	-1.510	-0.798	1.647	-0.583	-0.283	1.118
1999	-1.408	-0.667	1.522	-1.411	-0.839	1.369	-0.696	-0.383	1.120
2000	-1.079	-0.628	1.154	-1.526	-0.878	1.371	-0.727	-0.379	1.180
2001	-1.513	-0.876	1.445	-1.348	-0.794	1.411	-0.627	-0.319	0.798
2002	-1.247	-0.999	1.027	-1.636	-0.917	1.915	-0.525	-0.018	1.265
2003	-1.222	-0.902	1.108	-1.371	-0.524	1.819	-0.514	-0.010	1.314
2004	-1.292	-0.615	1.417	-1.649	-0.914	2.133	-0.519	-0.002	1.314
2005	-1.609	-1.110	1.561	-1.807	-1.197	1.604	-0.831	-0.001	1.816
Observations	2348								

Appendix A_4: Proportion of firms importing, exporting or having foreign ownership over time for each sector

Panel A: Proportion of firms importing

	Food, drink, tobacco		Textile & weaving		Wood & furniture		Paper & printing		Chemicals	
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	86	7.38	17	5.96	35	3.73	37	9.30	57	7.70
1994	85	7.29	16	5.61	68	7.24	37	9.30	57	7.70
1995	91	7.80	39	13.68	85	9.05	37	9.30	57	7.70
1996	96	8.23	44	15.44	86	9.16	46	11.56	51	6.89
1997	80	6.86	33	11.58	69	7.35	41	10.30	62	8.38
1998	80	6.86	28	9.82	68	7.24	42	10.55	51	6.89
1999	102	8.75	22	7.71	85	9.05	21	5.28	46	6.22
2000	91	7.80	6	2.11	68	7.24	29	7.29	36	4.86
2001	80	6.86	11	3.86	68	7.24	12	3.02	36	4.86
2002	102	8.75	17	5.96	120	12.78	25	6.28	72	9.73
2003	102	8.75	17	5.96	68	7.24	25	6.28	77	10.41
2004	107	9.18	17	5.96	68	7.24	29	7.29	87	11.76
2005	64	5.49	17	5.96	51	5.43	17	4.27	51	6.89
Total	1166	100.00	285	100.00	939	100.00	398	100.00	740	100.00

	Rubber & plastic		Non-metallic mineral		Basic metal		Machinery & appliance			
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	29	7.29	4	7.02	22	5.53	44	7.73		
1994	30	7.54	2	3.51	14	3.52	66	11.60		
1995	34	8.54	2	3.51	18	4.52	67	11.78		
1996	44	11.06	1	1.75	11	2.76	52	9.14		
1997	49	12.31	5	8.77	18	4.52	52	9.14		
1998	39	9.80	6	10.53	18	4.52	37	6.50		
1999	39	9.80	7	12.28	18	4.52	59	10.37		
2000	34	8.54	4	7.02	22	5.53	37	6.50		
2001	19	4.77	5	8.77	25	6.28	37	6.50		
2002	24	6.03	5	8.77	29	7.29	37	6.50		
2003	19	4.77	6	10.53	4	1.01	44	7.73		
2004	19	4.77	5	8.77	18	4.52	22	3.87		
2005	19	4.77	5	8.77	11	2.76	15	2.64		
Total	398	100.00	57	100.00	228	100.00	569	100.00		

Panel B: Proportion of firms exporting

	Food, drink, tobacco		Textile & weaving		Wood & furniture		Paper & printing		Chemicals	
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	80	6.86	28	9.82	53	5.64	32	8.04	37	5.00
1994	94	8.06	26	9.12	52	5.54	31	7.79	37	5.00
1995	87	7.46	28	9.82	67	7.14	31	7.79	37	5.00
1996	87	7.46	28	9.82	53	5.64	31	7.79	37	5.00
1997	72	6.17	28	9.82	80	8.52	31	7.79	55	7.43
1998	72	6.17	21	7.37	80	8.52	31	7.79	46	6.22
1999	87	7.46	21	7.37	80	8.52	23	5.78	46	6.22
2000	87	7.46	21	7.37	60	6.39	31	7.79	46	6.22
2001	80	6.86	7	2.46	47	5.01	16	4.02	37	5.00
2002	130	11.15	21	7.37	120	12.78	39	9.80	93	12.57
2003	123	10.55	21	7.37	107	11.40	39	9.80	111	15.00
2004	116	9.95	14	4.91	107	11.40	39	9.80	111	15.00
2005	51	4.37	21	7.37	33	3.51	23	5.78	37	5.00
Total	1166	100.00	285	100.00	939	100.00	398	100.00	740	100.00

Appendix A_4 continued

	Rubber & plastic		Non-metallic mineral		Basic metal		Machinery & appliance	
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	26	6.53	7	12.28	25	6.28	38	6.68
1994	25	6.28	4	7.02	22	5.53	38	6.68
1995	25	6.28	4	7.02	22	5.53	38	6.68
1996	12	3.02	4	7.02	15	3.77	38	6.68
1997	25	6.28	4	7.02	18	4.52	56	9.84
1998	25	6.28	2	3.51	7	1.76	19	3.34
1999	12	3.02	2	3.51	11	2.76	38	6.68
2000	12	3.02	2	3.51	15	3.77	19	3.34
2001	12	3.02	2	3.51	18	4.52	19	3.34
2002	62	15.58	6	10.53	29	7.29	57	10.02
2003	50	12.56	6	10.53	4	1.01	95	16.70
2004	62	15.58	6	10.53	18	4.52	57	10.02
2005	50	12.56	8	14.04	22	5.53	57	10.02
Total	398	100.00	57	100.00	228	100.00	569	100.00

Panel C: Proportion of firms with foreign ownership

	Food, drink, tobacco		Textile & weaving		Wood & furniture		Paper & printing		Chemicals	
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	94	8.06	27	9.47	63	6.71	38	9.55	58	7.84
1994	93	7.98	26	9.12	58	6.18	36	9.05	56	7.57
1995	105	9.01	41	14.39	85	9.05	45	11.31	61	8.24
1996	105	9.01	42	14.74	81	8.63	45	11.31	59	7.97
1997	76	6.52	36	12.63	85	9.05	45	11.31	69	9.32
1998	87	7.46	31	10.88	90	9.58	36	9.05	59	7.97
1999	99	8.49	26	9.12	81	8.63	36	9.05	64	8.65
2000	99	8.49	21	7.37	71	7.56	36	9.05	59	7.97
2001	87	7.46	10	3.51	58	6.18	9	2.26	48	6.49
2002	93	7.98	10	3.51	81	8.63	18	4.52	59	7.97
2003	99	8.49	55	1.75	81	8.63	18	4.52	59	7.97
2004	82	7.03	5	1.75	76	8.09	18	4.52	59	7.97
2005	47	4.03	5	1.75	27	2.88	18	4.52	27	3.65
Total	1166	100.00	285	100.00	939	100.00	398	100.00	740	100.00

	Rubber & plastic		Non-metallic mineral		Basic metal		Machinery & appliance	
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	28	7.04	3	5.26	22	5.53	54	9.49
1994	28	7.04	4	7.02	22	5.53	54	9.49
1995	39	9.80	4	7.02	22	5.53	61	10.72
1996	33	8.29	4	7.02	22	5.53	67	11.78
1997	37	9.30	3	5.26	22	5.53	67	11.78
1998	33	8.29	3	5.26	22	5.53	54	9.49
1999	37	9.30	3	5.26	22	5.53	61	10.72
2000	28	7.04	4	7.02	22	5.53	36	6.33
2001	28	7.04	4	7.02	11	2.76	30	5.27
2002	28	7.04	4	7.02	11	2.76	24	4.22
2003	28	7.04	7	12.28	11	2.76	24	4.22
2004	28	7.04	7	12.28	7	1.76	18	3.16
2005	23	5.78	7	12.28	7	1.76	18	3.16
Total	398	100.00	57	100.00	228	100.00	569	100.00

Appendix A_5: Proportion of firms importing, exporting or having foreign ownership over time by size category

Panel A: Proportion of firms importing

	Small size		Medium size		Large size	
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	87	7.84	83	6.25	170	7.24
1994	108	9.80	88	6.63	184	7.84
1995	116	10.46	104	7.84	197	8.39
1996	144	13.07	104	7.84	191	8.13
1997	137	12.42	88	6.63	191	8.13
1998	108	9.80	88	6.63	170	7.24
1999	94	8.50	78	5.88	211	8.99
2000	58	5.23	73	5.50	184	7.84
2001	43	3.92	47	3.54	177	7.54
2002	29	2.61	176	13.26	197	8.39
2003	65	5.88	161	12.13	163	6.94
2004	65	5.88	150	11.30	191	8.13
2005	51	4.58	88	6.63	123	5.24
Total	1105	100.00	1327	100.00	2348	100.00

Panel B: Proportion of firms exporting

	Small size		Medium size		Large size	
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	69	6.24	70	5.28	152	6.47
1994	104	9.41	52	3.92	176	7.50
1995	69	6.24	52	3.92	182	7.75
1996	69	6.24	61	4.60	164	6.98
1997	138	12.49	61	4.60	189	8.05
1998	35	3.17	70	5.28	170	7.24
1999	69	6.24	61	4.60	182	7.75
2000	34	3.07	70	5.28	164	6.98
2001	35	3.17	52	3.92	115	4.90
2002	69	6.24	218	16.43	267	11.37
2003	242	21.90	227	17.11	231	9.84
2004	138	12.49	201	15.15	243	10.35
2005	35	3.17	131	9.87	109	4.64
Total	1105	100.00	1327	100.00	2348	100.00

Panel C: Proportion of firms with foreign ownership

	Small size		Medium size		Large size	
	Number of firms	Proportion (%)	Number of firms	Proportion (%)	Number of firms	Proportion (%)
1993	90	8.14	97	7.31	177	7.54
1994	78	7.06	110	8.29	182	7.76
1995	125	11.31	110	8.29	213	9.05
1996	125	11.31	110	8.29	207	8.84
1997	125	11.31	91	6.86	213	9.05
1998	125	11.31	84	6.33	192	8.19
1999	108	9.77	84	6.33	218	9.27
2000	96	8.69	71	5.35	192	8.19
2001	60	5.43	65	4.90	157	6.68
2002	30	2.71	162	12.21	182	7.76
2003	66	5.97	142	10.70	167	7.11
2004	42	3.80	136	10.25	167	7.11
2005	36	3.26	65	4.90	81	3.45
Total	1105	100.00	1327	100.00	2348	100.00