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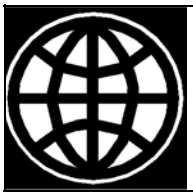

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Multinational Enterprises and Training Revisited: Do International Standards Matter?

Niels-Hugo Blunch

Paula Castro

March 2005

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Multinational Enterprises and Training Revisited: Do International Standards Matter?

Niels-Hugo Blunch

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Abstract:

Several studies have examined the determinants of training in developing countries but only few have paid attention to the potential importance of international standards such as ISO 9000 or ISO 14000 on the firm's training decision. This paper examines training determinants using recent employer surveys for four developing countries, Honduras, Indonesia, Morocco and Nicaragua. We find that ISO certification status is an important determinant of training, even after controlling for other characteristics such as workers' formal schooling, firm size, industry and foreign ownership. This points towards the importance of product quality and production standards for firm training. The paper also discusses policy implications related to the findings and provides directions for further research.

JEL Classifications: F23, D21, O1, O3
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Multinational Enterprises and Training Revisited: Do International Standards Matter?

Niels-Hugo Blunch and Paula Castro[†]

1. Introduction

The relevance of human capital for economic growth and development has long been recognized in economic theory[1]. Attention over human capital increased in the 1950s as development theories shifted away from their previous focus in physical capital and infrastructure. In the current context of a globalized economy where knowledge is considered a major driver of growth (Romer, 1989), human capital becomes a crucial point in development strategies and policies.

A significant amount of theoretical and empirical work is available on how human capital, understood as education and post-schooling training, contributes to economic growth by increasing productivity and facilitating the introduction of new technologies of production. When people acquire skills they increase their productivity and become more adaptable (Booth and Snower, 1996). This is a key ability in a world of flexible production where tastes and technology are changing rapidly. Keeping a high level of competitiveness depends on large part in the aptitude of firms and its workers to change and innovate. On the other hand, when one worker gains skills, he/she makes other workers more productive (Booth and Snower, 1996). As workplaces become highly integrated and interdependent human networks, and teamwork constitutes a pervasive organizational practice, the benefits of training gain increasing potential.

[†]The authors - Niels-Hugo Blunch, The George Washington University, nblunch@gwu.edu Paula Castro, University of California—Los Angeles, paulacr@ucla.edu

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[1] In Adam Smith's major work *The Wealth of Nations*, worker's dexterity is stated as one of the mechanisms through which the division of labor raises productivity.

One of the points defining the debates around firm-sponsored training is its conception as a privileged instrument for increasing labor market flexibility by providing channels that enable workers to adapt to technical change (Goux and Maurin, 2000). On the other hand, there exist polarized positions regarding whether private sector or governments are the best providers of training. The private sector is considered more responsive to market forces than governments in many dimensions, but there is disagreement on how good it works regarding training. The diversity of policy arrangements found around the world reflects the many different views regarding the interplay of governments and private sector in this matter (Booth and Snower, 1996; Arulampalam and Booth, 1997; Tan, 2001). Additionally, dissimilar levels of training among countries seem to be associated to their share of GDP to research and development, and to their performance in the so-called "high-tech industries" (OECD, 1999). Significant amount of research on the determinants of firm-sponsored training has been carried out in developed countries. However a remarkable scarcity of studies of this kind in developing countries remains a major problem (Colin Xu, 1998; Tan, 1996).

This paper addresses this knowledge gap by providing an overview of the determinants of firm-sponsored training for five developing countries across three continets from original firm-level surveys, namely Ethiopia, Honduras, Indonesia, Morocco and Nicaragua. In so doing, we focus specifically at the potential importance of international standards such as ISO 9000 or ISO 14000 on the firm's training decision, which previously have received little to no attention in the literature. In a globalized world, however, international standards may be more important than ever. Two issues are involved. First, when consumers are exposed to products from a wide range of products from all over the world, consumers will likely desire and, maybe even more importantly, be able to demand higher and more even product standards. An example here is the ISO 9000 certification, which is a quality management and quality assurance standard. Second, however, firms now act not only on consumers' demands in terms of products and prices but increasingly in terms of consumers' demands in terms of values more broadly defined. This includes a notion of "green" or "sustainable" consumption, so that modes of production are more environmentally friendly and so on. These issues are, at least partially, addressed by the ISO 14000 standard, which involve environmental management systems, environmental auditing, environmental

labels and declarations, and environmental performance evaluation. Again, while there have been several studies on the determinants of firms' training decision for both developed and developing economies, the evidence for developing countries is still scarce in relative terms. This is certainly true when it comes to the examining the possible impact of international standards on the firm's training decision.

The remainder of the paper is structured as follows. The next section presents an overview of the previous evidence on training determinants. Section three presents the data, including descriptive statistics. A discussion of the methodology of the paper is provided in section four, while section five presents the results. Finally, section six concludes, discusses the policy implications of the findings and provides directions for further research.

2. Previous Evidence on Training Determinants

Several factors potentially affect the firm's training decision. Among these are the education level of workers; the ratio between costs and benefits of training being more favorable for people with higher education level. From the perspective of both employers and employees, this means a higher probability of training for people with greater learning ability, which can be proxied by the educational level they have attained. In turn, this raises a major public policy issue. If workers enter the labor force with poor education, they will not obtain the training needed to increase their wages. A high proportion of low educated workers will discourage firms from offering good jobs that require higher skills and training. At the same time, having only few good jobs available, workers will have little incentive to train. As a consequence, workers may get caught in a cycle of low productivity, low training and insufficient skilled jobs, or the "low-skill, bad-job" trap (Snower, 1996).

In developed countries of North America and Europe, there is consistent evidence of significant higher likelihood of work related training the higher the education level of the recipient (Arulampalam and Booth, 1997; Booth, 1991; Van Smoorenburg and Van der Velden, 2000; Bartel and Sicherman, 1998; Green, 1993; Lynch and Black, 1995; Veum, 1995). For developing countries the results are more diverse. High impact of education level in training likelihood is found in Mexico (Tan and Lopez-Acevedo, 2003; Tan and Batra, 1996), Thailand (Zeufack, 1998), Malaysia (Tan, 2001; Tan and Batra, 1996), and Colombia (Tan and Batra, 1996). No significant relationship between education level and training was

found is Shangai (Ng, forthcoming), and a negative relationship of education with training was found in Indonesia (Tan and Batra, 1996).

Organization size is another factor that impacts the likelihood of training. Extensive empirical work in developed countries shows that larger firms provide more work related training than smaller firms (Van Smoorenburg and Van der Velden, 2000; Booth,1993; Goux and Maurin, 2000; Veum, 1995; Green, 1993; and Frazis et al, 1995; Lynch and Black, 1995). Looking at results from developing countries, a positive relationship has been found in Mexico (Tan and Lopez-Acevedo, 2003; Tan and Batra, 1996), Thailand (Zeufack, 1998), Malaysia (Tan, 2001), Taiwan, Colombia and Indonesia (Tan and Batra, 1996). However, no significant relationship was found in Shanghai (Ng, forthcoming). One of the explanations for this are the economies of scale that firms find in provision of training when they have more employees. For the case of internal (in-firm) training, the fixed costs of training can be spread over a larger number of employees, and for externally provided services, special discounts can be arranged based on quantity. Other explanation for the strong association between firm size and training, is the fact that larger firms are more forward looking and/or better prepared to face the risks of training (Arulampalam and Booth, 1997). Larger firms are also often subject to more regulations and bureaucracy, therefore offering more training to meet safety requirements (Felstead and Green, 1996). Finally, smaller firms might be less inclined to offer training because of their shorter and more uncertain planning horizons, which makes them less likely to capture the returns of training (Oi, 1983). Considering that in most countries micro and small enterprises constitute a large proportion of the private sector, at least in sharing of employment, this presents important issues regarding the access of training for the employees of those companies.

The role of trade unions in firm-sponsored training is contested. Theories support two opposing views. Unions would undermine training opportunities by using their monopoly role over labor supply to appropriate a larger proportion of surplus to obtain wages increases (Arampalum and Booth, 1997; Booth, 1995). It is also held that unionized establishments will have lower incentive to train workers as a result of opposition to the introduction of new skill-intensive technologies that would threaten union jobs (Arulampalam and Booth, 1997).

On the other hand, unions may be associated to increased training given that cooperation with employers improves workers' morale and organization, which promotes training and increased productivity (Arulampalam and Booth, 1997). In addition to this, unions would encourage firm-sponsored training through their effect on increased tenure (lower turnover) (Freeman and Medoff, 1984). Finally, the formal unionized environment may encourage firms to establish more sophisticated training systems (Green at al, 1996).

Empirical studies lend support to both points of view. In developed countries studies typically find a significant positive impact of unionization over training provision (Booth, 1991; Veum, 1995; Green et al, 1999). Aidt and Tzannatos (2002) find disagreement among studies looking at the effect of unions in work related training. However, in developing countries, evidence from Colombia and Taiwan (Tan and Batra, 1996), Mexico (Tan and Lopez-Acevedo, 2003; Tan and Batra, 1996) and Malaysia (Tan, 2001), confirms a positive impact of trade unions in the likelihood of firm-sponsored training.

The relationship between physical and human capital is another factor that has to be considered when assessing the provision of firm-sponsored training. When workers acquire skills they make equipment more productive (Booth and Snower, 1996). It is not clear how investments in human capital relate to the investments in physical capital. Employers may consider investments in physical capital as a substitute for skilled labor, or they may see investments in human capital as complements to physical capital investments (Lynch and Black, 1995). Employers that make large investments in physical capital relative to the number of workers will be more likely to train those workers in order to assure a higher return to that investment (Frazis et al, 1995). This relationship has been confirmed in a study of U.S. firms (Lynch and Black, 1995).

Different industries show dissimilar likelihood of training. Industry differences have been found among developed and developing countries (Booth, 1991; Goux and Maurin, 2000; Ng, forthcoming). In OECD countries, workers in finance, insurance and business or community, social or personal services have a higher probability of being trained compared to other industries (OECD, 1999). Similarly, Frazis et al (1995) found that financing, insurance and real state sectors are more likely to provide training. These differences might be related to the technology intensity of each sector (Lillard and Tan, 1992), the market

dynamics they face which might require them to innovate at different rates, and different levels of legal and safety requirements they are subject to.

Foreign equity of firms may have an impact in training practices. Multinational enterprises have been theorized to have a role in knowledge spillovers through a variety of means, training of workers among them (Blomstrom and Kokko, 2001). Tan and Lopez-Acevedo (2003) found foreign ownership of firms (<50 percent) to be related to a higher probability of training in Mexico than local companies, and Tan and Batra (1996) found this same relationship for Taiwan and Malaysia. However, in the same study, Mexico and Indonesia did not show a significant impact of foreign ownership in training. Given the ubiquity of foreign owned enterprises and joint ventures, and the expectation over knowledge spillovers for the benefit of recipient developing countries, this is a relevant factor to consider. Interestingly, it is not commonly included in analysis of firm training practices.

International trade, proxied by the extent to which a firm exports its products, may be a good indicator of training practices. International trade pushes firms to meet higher standards in order to satisfy demanding foreign markets and by presenting them with strong local competition from foreign producers. Empirical work testing the impact of trade shows contradictory results, with non-significant impact in Mexico (Tan and Lopez-Acevedo, 2003) but significant positive impact in Malaysia (Tan, 2001) and Taiwan (Tan and Batra, 1996).

Finally, workplace practices, such as just-in-time inventories, worker teams, total quality management, benchmarking, etc., may impact the probability of training since they require the development of particular skills. ISO standards are a set of international industrial standards defining workplace practices based on consensus agreements among national delegations representing a wide range of economic stakeholders - suppliers, consumers, and government agencies. The most widespread ISO certifications are the ISO 9000, a quality management to improve performance and customer satisfaction, and ISO 14000, an environmental management certification. ISO standards encompass specifications and criteria for the classification of materials, the manufacture of products, the provision of services, testing and analysis of products, and terminology.

Firms benefit from ISO certification because they obtain a base to develop products and services according to specifications that have wide acceptance in their sectors. Firms with ISO certification acquire the international recognition of certain quality of outputs and

procedures, which enhances competitiveness in global markets through improved productivity and/or financial performance (Corbett et al, 2002; Berthelot, et al, 2003). ISO certification provides firms access to the ISO stock of technological know-how helping them to save resources by not having to "reinvent the wheel". ISO supports the decision making processes regarding application and evaluation of new technologies, provides knowledge about regulations and consumer criteria on foreign markets, facilitates transfer of technology, and the adaptation of products and services to global requirements. Specifically for the case of ISO 14000, one of the important motivations and benefits of firms to achieve it is the enhancement of their corporate image, gaining access to customers that require ISO certification, and helping firms to answer to pressure from public and environmental groups (Ofori et al, 2002; Berthelot et al, 2003.)

Achieving ISO certification is supposed to be associated with training since the certification requires employee training on what is expected from them and how those expectations are to be met. However, many times firms would adopt new working practices but would not train their workers accordingly (Frazis et al, 1995). Moreover, some studies have found that firms see training as one of the problematic aspects of the implementation for the ISO standards on the firm, in addition to general costs of implementation, and lack of management and employee involvement (Berthelot et al, 2003, Ofori et al, 2000).

Given the relative scarcity of studies on training practices in developing countries, and the increasing relevance of international standards for trade, we want to explore to what extent ISO certification has direct impacts on the possibilities of developing the human capital of workers. Despite the seemingly natural association between high performance workplace practices and training, very few studies address the specific relationship of ISO certification and training. Only for Mexico, a study on the maquiladora industry finds training provision significantly higher in ISO-certified companies, than in the non-certified ones (Dowlatshahi and Urias, 2004). Studies in the US confirm this trend of strong association between workplace practices and training (Frazis et al, 1995; Lynch and Black, 1995).

3. Data and Descriptive Analyses

The surveys that provide the material for this paper were sponsored and designed by the Private Sector Department of the World Bank in order to gather up-to-date information regarding productivity and business climate in developing countries. The sample unit was the business establishment, defined as the production location, although in this paper we refer to them as firms.

The surveys are based on face-to-face interviews to managing directors, accountants, human resources managers and other relevant company staff. While sampling design varies somewhat across countries, the questionnaires are mostly consistent in terms of the nature of questions and their wording. Table 3.1 provides the sample size[2] and year of data collection for each country.

Table 3.1 Overview of Countries, Sample Sizes and Year of Field Work

Country	Year Field work	Sample size
Ethiopia	2002	427
Honduras	2003	450
Indonesia	2003	713
Morocco	2000	859
Nicaragua	2003	452

The selected countries for this paper were chosen based on geographic representation, availability and comparability of the data pertinent to the present paper. In particular, we were able to create a comparable set of "core" variables for the five countries shown in Table 3.1. These five countries therefore comprise the analysis sample for this paper.

Definition of Variables

The present analysis will include six dependent variables: three of incidence and three of intensity of training. All the variables considered in this study reflect responses about the firm's training practices of the year previous to the interview. The incidence variables are binary, taking the value one when the firm offers training, and zero when it does not. The analysis of incidence of training refers to *any* training, including internal (in-firm) and

[2] The effective estimation sample sizes, however, are lower than these due to missing observations on either dependent or explanatory variables.

external (outside the firm), and to any type of worker. The analysis for unskilled workers reflects the incidence of training for unskilled workers. For external training the analysis refers to the provision of training from outside of the firm (as opposed to in-firm training). This last variable is intended as an approximation to the concept of *general* training described in training theory, as opposed to firm specific. The relevance of general training is that, for being portable to other firms, it may have a higher potential to increase the wages of workers in the long term.

The intensity variables are used in this paper to analyze the proportion of workers trained. Intensity of training refers to the proportion of workers trained in either internal or external training, and includes any type of worker. Similarly, intensity of unskilled workers refers to the proportion of unskilled workers trained over the total amount of unskilled workers of the firm. Intensity of external training refers to the proportion of workers trained by external providers over the total amount of workers in the firm.

Our main explanatory variable of interest, ISO certification status, is a binary variable defined as one if the firm is either ISO 9000 or ISO 14000 certified. The reason for this is that while the surveys for Honduras and Nicaragua distinguish between ISO 9000 and ISO 14000 certifications, the surveys for Indonesia and Morocco do not; here, a "composite" ISO question was used, that is, whether the firm had at least one of the certifications. So as to ensure valid inference for the ISO variable, we include a host of explanatory variables in addition to ISO-certification status. These variables include foreign ownership share and exporting share (exports as a share of total sales); firm size, based on the total number of full time employees; capital-labor ratio, defined as the ratio of net value of production assets (machinery and equipment) over the total amount of full time workers of the firm (original responses in local currency were standardized to 2003 USD (market prices)); unionization, defined as the proportion of unionized workers; sector, according to standard ISIC classification, revision 3 (classified into four groups: food, garments, textiles and other industries); education, expressed as the weighed average of years of education per establishment. Missing observations is particularly a problem with the capital-labor ratio. So as to retain as many firms in the analyses as possible, we therefore impute missing observations on this variable with the sample mean of the country by industry.

Descriptive Analyses

In order to get an initial grasp of the determinants of firm level training, training incidence for our three types of training across various firm characteristics are tabulated in Tables 3.2-3.4.

Table 3.2 Training Incidence, any Training

	Ethiopia	**Honduras**	**Indonesia**	**Morocco**	**Nicaragua**
Full sample average	0.224	0.530	0.290	0.165	0.407
ISO Certification Status:					
No ISO certification	0.212	0.516	0.223	0.145	0.395
Has ISO certification	0.667	0.741	0.527	0.583	0.650
Education (Average, Years)					
< 6 yrs	0.153	0.406	0.169	0.122	0.250
6 to 12	0.187	0.548	0.255	0.177	0.419
12 and above	0.481	0.636	0.471	0.300	0.532
Firm size:					
1-15 employees	0.054	0.364	0.143	0.029	0.283
16-100 employees	0.289	0.620	0.148	0.113	0.546
101-250 employees	0.600	0.647	0.371	0.225	0.800
250+ employees	0.636	0.870	0.454	0.426	0.846
Unionization:					
Non-unionized firms	0.142	0.520	0.173	0.137	0.382
Unionized firms	0.541	0.846	0.395	0.349	0.759
K-L Ratio (2003 prices):					
Less than USD100	0.120	0.625	0.292	0.165	0.433
USD100 or more	0.231	0.526	0.200	0.250	0.405
Industry:					
Textiles	0.500	0.714	0.246	0.210	0.333
Garments	0.219	0.638	0.298	0.124	0.321
Food	0.271	0.540	0.298	0.158	0.613
Other	0.189	0.476	0.303	0.185	0.371
Foreign ownership:					
Less than 10 percent	0.212	0.495	0.254	0.120	0.377
10 percent or more	0.444	0.727	0.477	0.335	0.682
Exporting share:					
Less than 10 percent	0.201	0.454	0.222	0.142	0.397
10 percent or more	0.565	0.688	0.397	0.188	0.440
Number of Observations	**362**	**434**	**677**	**799**	**445**

Considering Table 3.2 for the case of any training (as opposed to training for unskilled workers and training by external providers), it is clear that a large fraction of firms train. Training incidences range from about 17 percent for Morocco to 53 percent for Honduras.

Table 3.3 Training Incidence, Training of Unskilled Workers

	Ethiopia	Honduras	Indonesia	Morocco	Nicaragua
Full sample average	0.086	0.224	0.109	0.039	0.139
ISO Certification Status:					
No ISO certification	0.085	0.221	0.074	0.031	0.134
Has ISO certification	0.111	0.259	0.236	0.194	0.250
Education (Average, Years)					
< 6 yrs	0.085	0.217	0.064	0.027	0.078
6 to 12	0.064	0.224	0.118	0.046	0.147
12 and above	0.192	0.227	0.154	0.025	0.170
Firm size:					
1-15 employees	0.024	0.120	0.000	0.010	0.079
16-100 employees	0.133	0.263	0.060	0.028	0.230
101-250 employees	0.233	0.324	0.067	0.047	0.267
250+ employees	0.182	0.463	0.193	0.099	0.154
Unionization:					
Non-unionized firms	0.069	0.221	0.068	0.033	0.125
Unionized firms	0.149	0.308	0.147	0.075	0.345
K-L Ratio (2003 prices):					
Less than USD100	0.080	0.250	0.112	0.039	0.100
USD100 or more	0.086	0.222	0.000	0.000	0.142
Industry:					
Textiles	0.250	0.429	0.109	0.038	0.067
Garments	0.094	0.300	0.066	0.020	0.107
Food	0.073	0.248	0.123	0.066	0.288
Other	0.081	0.172	0.128	0.055	0.109
Foreign ownership:					
Less than 10 percent	0.084	0.207	0.098	0.024	0.127
10 percent or more	0.111	0.318	0.168	0.096	0.250
Exporting share:					
Less than 10 percent	0.074	0.188	0.067	0.022	0.136
10 percent or more	0.261	0.298	0.176	0.055	0.150
Number of Observations	**362**	**434**	**677**	**799**	**445**

There are, however, wide and systematic differences in training incidence related to firm characteristics. Firms with ISO certification consistently are much more likely to provide training for workers than are firms that are not ISO certified. The same is true for firms with a more educated workforce, firms that are unionized, exporting firms and firms with foreign ownership. There is also a positive association between firm size and firm training.

Table 3.4 Training Incidence, Training by External Providers

	Ethiopia	Honduras	Indonesia	Morocco	Nicaragua
Full sample average	0.152	0.263	0.185	0.129	0.238
ISO Certification Status:					
No ISO certification	0.142	0.256	0.132	0.110	0.231
Has ISO certification	0.556	0.370	0.372	0.528	0.400
Education (Average, Years)					
< 6 yrs	0.051	0.203	0.084	0.092	0.156
6 to 12	0.131	0.271	0.168	0.139	0.234
12 and above	0.365	0.318	0.322	0.250	0.383
Firm size:					
1-15 employees	0.024	0.129	0.000	0.029	0.125
16-100 employees	0.133	0.307	0.066	0.083	0.362
101-250 employees	0.467	0.500	0.326	0.201	0.600
250+ employees	0.568	0.519	0.297	0.307	0.692
Unionization:					
Non-unionized firms	0.076	0.259	0.099	0.104	0.214
Unionized firms	0.446	0.385	0.263	0.292	0.586
K-L Ratio (2003 prices):					
Less than USD100	0.080	0.313	0.184	0.128	0.200
USD100 or more	0.157	0.261	0.200	0.250	0.241
Industry:					
Textiles	0.167	0.500	0.188	0.177	0.200
Garments	0.125	0.363	0.205	0.084	0.071
Food	0.177	0.310	0.158	0.105	0.438
Other	0.144	0.189	0.182	0.155	0.218
Foreign ownership:					
Less than 10 percent	0.142	0.223	0.165	0.093	0.209
10 percent or more	0.333	0.485	0.290	0.263	0.500
Exporting share:					
Less than 10 percent	0.136	0.191	0.142	0.112	0.220
10 percent or more	0.391	0.411	0.252	0.146	0.300
Number of Observations	**362**	**434**	**677**	**799**	**445**

Perhaps surprisingly the association between the capital-labor ratio and firm training is negative for some countries, indicating that capital and training are substitutes. Lastly, there are large within-industry differences in firm training. The results for training of unskilled workers and training by external providers are similar (Tables 3.3 and 3.4).

We also present the proportion of workers trained for the three types of training across various firm characteristics (Tables B1-B3 in Appendix B). The results are similar to the results for training incidence, although the positive bivariate relationship between share of workers trained and ISO certification status does not hold up quite as strongly as was the case for training incidence. The sample averages here are quite low, however, leading to lower variation and therefore relatively more importance of outlier observations.

4. Methodology

The theoretical framework of this paper is traditional human capital theory, which links individual and firm behavior for the understanding of firm-sponsored training (Becker, 1964). Training is considered to be result of optimizing decisions made by both the worker and the employer for whom training represents an investment. Employers and workers will train if the net present value of training is positive. The expected rate of return of training depends on the cost, the investment horizon, the increase in productivity and the increase in wages. Employers will train their workers if they expect the subsequent productivity increments to be higher than an alternative investment with similar risks. Employees, on the other hand, will be willing to invest in training following the same logic under the expectation of future higher wages.

The model differentiates between *firm-specific* training, particular to the specific needs of the firm that hence cannot be exported, from *general* training, which is portable. If workers quit after obtaining general training, the firm is not able to reap the full benefits of its investment, thus this model predicts that firms will tend to sponsor only specific training. General training has especial prominence for economic development purposes due to its portability to other firms, which enables employees to generate returns later in their life.

An alternative model to explain firm's willingness to provide general training has been presented by Acemoglu and Pischke (1998, 1999). The degree of wage compression will determine the share of training costs between employers and employees. The more

compressed the wage structure, often seen in situation in non-competitive labor markets, the higher the incentive for employers to provide training in order to reap the productivity gains that are not passed to employees in the form of higher wages. This theory seems to better explain the fact that employers do pay for substantial amounts of general training. On the other hand, it has particular relevance at an international policy making level because it suggests that differences in countries' labor markets and institutional practices -such as wage setting, and firing and hiring regulations-, may significantly impact the extent to which private sector will become a provider of training at an optimal level (OECD, 1999).

Based on these considerations, we propose the following simple model of training determinants at the firm level:

$$T_i = T(ISO_i, O_i), \qquad (4.1)$$

where T is a measure of training provision for firm i, ISO is ISO certification status of firm i and O is a vector containing other characteristics of firm I thought to influence the firm's training decision. The measure of training provision could be, for example, a binary measure of whether the firm trains at all or a measure of the amount of training provided, say, the number of hours of training provided or the number or fraction of workers receiving training. Moving to the explanatory variables, whether an enterprise is ISO certified or not is thought to affect training positively, since the standards prescribed by ISO would seem to require a higher quality of labor to ensure adherence. One issue here, of course, is that ISO certification status is potentially endogenous. In particular, firms may choose ISO and training simultaneously. On the other hand, endogeneity might be due to reverse causality, with training of workers leading firms to become ISO certified as fewer errors are made. Since the nature of the data does not allow us to include an instrumental variable for ISO certification status that is, a variable that affects ISO certification status without at the same time affecting the firm's training decision directly, however, in the analyses we have to merely treat ISO certification status (and the other explanatory variables) as predetermined.

While ISO certification status is the factor in the firm's training decision process that has our main interest, other factors may also be important. A natural first candidate is the educational level of workers, which is thought to affect training positively. The reason for this is that employees who have already shown some aptitude for learning new skills in terms

of formal schooling also would seem to be more likely to receive additional human capital investments from the employer in the form of training (Lynch and Black, 1995). Whether a firm exports or not and how much is thought to affect the training decision positively; presumably the pressure from (Western) consumers on firms operating in foreign markets will force the firm to produce goods of a higher quality which in turn will require higher quality labor, as well. Additionally, larger firms would seem to be more likely to train due to economies of scale.

Contrary to what was the case for the previously discussed factors, it is not clear a priori in which direction the firm's capital-labor ratio affects the firm's training decision. At one extreme, training may serve as a substitute to physical capital so that more capital intensive firms will train less and less capital intensive firms will train more. At the other extreme, however, training may serve as a complement to physical capital so that more capital intensive firms will train more and less capital intensive firms will train less.

To allow the possibility of omitted individual heterogeneity due to the institutional frameworks and economic conditions and opportunities differing widely across countries, (4.1) is estimated separately across the five countries. Estimations are carried out for both of the two different types of measures of training—binary measure, measuring whether the firm provides training or not and continuous measure, measuring the proportion of workers trained—and all three different types of training described in the previous section—any training, training of unskilled workers and training by external providers.

The estimation of (4.1) for the case of the binary training measure will be carried out by estimation of univariate probit models. Due to the possible censoring of training at zero or one censoring may be an issue for the second, continuous measure of traioning intensity. Specifically, OLS will, if censoring is present, lead to biased estimates. To address this issue, these analyses will therefore be carried out by estimating tobit models, allowing for censoring both from below (at zero) and from above (at one).

5. Results

This section presents the results. First, we review the results for the probit regressions of the binary training decision that is, whether to train or not. In the subsequent sub-section follows the results for the tobit regressions of the continuous training decision that is, how much to train (in terms of the proportion of workers). Descriptive statistics for the analyses samples are reported in Table A1, Appendix A.

5.1 To Train or not to Train?

We first look at the firm's binary training decision that is, whether the firm trains any workers. Starting with the results for any training (that is, not discriminating between whether the training was given to skilled or unskilled workers and/or provided internally or externally) there is a large effect from ISO certification status (Table 5.1). The effect ranges from about 6 percentage-points for Honduras to about 26 percentage-points for Morocco. Although the impact is statistically significant only for Indonesia and Morocco, the impact is large in substantive terms for all countries, particularly Ethiopia, Indonesia, Morocco and Nicaragua, where it exceeds 15 percentage-points. In turn, this indicates that ISO certification status is an important determinant of the firm's training decision. This corresponds to the results of Dowlatshahi and Urias (2004), which to our knowledge is the only study that examines the possible impact of ISO certification status on firm training. Again, as previously discussed, wile ISO certification status is potentially endogenous, we do not have readily available any instrumental variable(s).

Education affects firm training positively with effects ranging between about 0.5 and about 5 percentage-points. For Nicaragua, for example, each year of education is found to increase the probability of training with about 3 percentage-points, so that, on average, a worker with 5 years of education, say, is about 15 percentage points more likely to receive training that a worker with no education. Larger firms are more likely to train workers than smaller firms. The evidence for the capital-labor ratio, foreign ownership and exporting status is more mixed, with both negative and positive effects.

Table 5.1 Marginal Probabilities from Probit Regressions for any Training

	Ethiopia	Honduras	Indonesia	Morocco	Nicaragua
Log(number of employees)	0.098***	0.168***	0.074***	0.096***	0.155***
	[0.016]	[0.026]	[0.016]	[0.013]	[0.030]
Education (years)	0.006	0.054***	0.017***	0.005	0.031***
	[0.007]	[0.012]	[0.003]	[0.003]	[0.011]
Capital-labor ratio (log)	0.017*	0.009	-0.006	0.029***	-0.021
	[0.009]	[0.016]	[0.011]	[0.009]	[0.018]
Foreign ownership share	-0.016	-0.206*	0.044	0.086***	0.17
	[0.114]	[0.112]	[0.056]	[0.030]	[0.112]
Exports share	0.148*	0.011	-0.002	-0.043	-0.144
	[0.088]	[0.101]	[0.051]	[0.034]	[0.102]
Unionization	0.023	0.167	0.052	0.063	0.105
	[0.064]	[0.151]	[0.047]	[0.039]	[0.130]
ISO certified	0.179	0.059	0.159***	0.263***	0.167
	[0.154]	[0.111]	[0.049]	[0.080]	[0.144]
Garments	0.093	-0.022	0.149**	-0.065**	-0.045
	[0.165]	[0.160]	[0.063]	[0.031]	[0.147]
Food	0.014	0.047	0.210***	-0.026	0.223
	[0.118]	[0.156]	[0.070]	[0.041]	[0.145]
Other industries	-0.028	-0.013	0.100*	0.014	0.028
	[0.115]	[0.152]	[0.051]	[0.033]	[0.134]
Pseudo-R^2	**0.301**	**0.153**	**0.168**	**0.226**	**0.140**
Number of Observations	**362**	**434**	**677**	**799**	**445**

Notes: ***: statistically significant at 1 percent; **: statistically significant at 5 percent; *: statistically significant at 10 percent. Industry reference category is "Textiles". Numbers in brackets are robust Huber (1967)-White (1980) Sandwich standard errors.

Perhaps surprisingly unionized firms are more likely to provide training, although the impact is imprecisely measured and so is not statistically significant. One reason for expecting a negative impact is that unions, according to standard economic theory, are thought to generally reduce training by bargaining for higher wages and thereby reducing the ability of employers to lower wages to finance firm-specific training through an apprentice-ship wage, say. On the other hand, if unions have a longer time-horizon than management, they may be willing to trade off wage increases for increased training of workers.

Turning to the results of training of unskilled workers, the results differ somewhat from the results for any training presented previously (Table 5.2). Most notably, ISO certification status now has a negative impact for Ethiopia and Honduras. For Indonesia, Morocco and Nicaragua, however, the impacts remain positive and large, between 3.6 and 8.5 percentage-points. The impact from education has decreased substantially but education still has a positive impact, except for Ethiopia, where it is close to zero.

In turn, this implies that the training of unskilled workers is much less responsive to the human capital stock of the workforce than is that of workers in general. Unskilled workers, therefore, face a double jeopardy by both having low stocks of human capital (since they are unskilled/lowskilled in the first place) and also receiving relatively less training per year of schooling, relative to skilled workers.

Table 5.2 Marginal Probabilities from Probit Regressions for Training of Unskilled Workers

	Ethiopia	**Honduras**	**Indonesia**	**Morocco**	**Nicaragua**
Log(number of employees)	0.033***	0.080***	0.021**	0.013***	0.032*
	[0.009]	[0.019]	[0.009]	[0.004]	[0.017]
Education (years)	-0.003	0.014	0.005***	0.0001	0.010
	[0.004]	[0.009]	[0.002]	[0.001]	[0.007]
Capital-labor ratio (log)	0.007	0.018	-0.008	0.008***	0.003
	[0.006]	[0.014]	[0.006]	[0.003]	[0.010]
Foreign ownership share	-0.039	-0.038	-0.017	0.017*	0.056
	[0.061]	[0.077]	[0.034]	[0.009]	[0.063]
Exports share	0.084*	-0.045	0.046	0.022*	-0.052
	[0.048]	[0.070]	[0.029]	[0.011]	[0.072]
Unionization	-0.027	-0.049	0.005	0.0001	0.082
	[0.030]	[0.098]	[0.031]	[0.011]	[0.085]
ISO certified	-0.037	-0.052	0.085**	0.036	0.064
	[0.036]	[0.070]	[0.034]	[0.028]	[0.092]
Garments	0.010	-0.052	-0.023	-0.017	0.051
	[0.077]	[0.097]	[0.031]	[0.011]	[0.132]
Food	-0.034	-0.013	0.062	0.027	0.214
	[0.049]	[0.106]	[0.045]	[0.031]	[0.165]
Other industries	-0.036	-0.086	0.027	0.022	0.045
	[0.066]	[0.105]	[0.030]	[0.016]	[0.092]
Pseudo-R^2	**0.137**	**0.082**	**0.114**	**0.188**	**0.091**
Number of Observations	**362**	**434**	**677**	**799**	**445**

Notes: ***: statistically significant at 1 percent; **: statistically significant at 5 percent; *: statistically significant at 10 percent. Industry reference category is "Textiles". Numbers in brackets are robust Huber (1967)-White (1980) Sandwich standard errors.

Moving to the results for external training, the negative impact from ISO certification status is seen to persist for Honduras, although it is imprecisely measured and therefore not statistically significant (Table 5.3). For the other countries in the primary analysis sample the impact remains positive and large, ranging from about 8 percentage points for Nicaragua to about 22 percentage-points for Morocco. The estimate for average years of education is now up a bit compared to what was the case for unskilled workers, ranging between 0.5 and 3 percentage-points.

Table 5.3 Marginal Probabilities from Probit Regressions for Training by External Providers

	Ethiopia	Honduras	Indonesia	Morocco	Nicaragua
Log(number of employees)	0.057***	0.116***	0.068***	0.067***	0.126***
	[0.011]	[0.020]	[0.012]	[0.010]	[0.022]
Education (years)	0.012***	0.030***	0.013***	0.005**	0.013
	[0.004]	[0.009]	[0.002]	[0.003]	[0.009]
Capital-labor ratio (log)	0.009*	0.007	0.006	0.027***	-0.007
	[0.005]	[0.014]	[0.009]	[0.007]	[0.015]
Foreign ownership share	-0.006	-0.002	-0.001	0.056**	0.140*
	[0.052]	[0.083]	[0.044]	[0.023]	[0.077]
Exports share	0.028	-0.021	-0.059	-0.028	-0.151*
	[0.050]	[0.074]	[0.040]	[0.027]	[0.084]
Unionization	0.032	-0.095	0.009	0.058*	0.040
	[0.042]	[0.090]	[0.036]	[0.034]	[0.085]
ISO certified	0.094	-0.048	0.106***	0.224***	0.078
	[0.125]	[0.072]	[0.041]	[0.075]	[0.119]
Garments	0.307	-0.076	0.099*	-0.057**	-0.187***
	[0.213]	[0.107]	[0.051]	[0.025]	[0.059]
Food	0.148	0.052	0.077	-0.049**	0.143
	[0.116]	[0.127]	[0.058]	[0.022]	[0.140]
Other industries	0.112**	-0.078	0.031	0.007	0.010
	[0.056]	[0.119]	[0.038]	[0.026]	[0.108]
Pseudo-R^2	**0.385**	**0.149**	**0.185**	**0.244**	**0.185**
Number of Observations	**362**	**434**	**677**	**799**	**445**

Notes: ***: statistically significant at 1 percent; **: statistically significant at 5 percent; *: statistically significant at 10 percent. Industry reference category is "Textiles". Numbers in brackets are robust Huber (1967)-White (1980) Sandwich standard errors.

5.2 Determinants of how much to Train

The analysis of the previous subsection examined the firm's binary training decision that is, whether to train at all. While this is interesting in its own right, examining the degree to which firms train that is, how much training is provided, will potentially shed additional light on the relationship between international standards and training. Results from the tobit regressions for the percentage of workers trained overall are provided in Table 5.4. The main impression from the table is that ISO certification again has a large positive impact, supporting the earlier findings for any training. Only for Honduras is this not the case; the impact estimate is imprecisely measured here, however, and therefore not statistically significant. Education has a positive and statistically significant impact for all countries, except for Ethiopia. Unionization has a positive impact on the proportion of workers trained, although it is not statistically significant.

Table 5.4 Coefficients from Tobit Regressions of Training Intensity, any Training

	Ethiopia	Honduras	Indonesia	Morocco	Nicaragua
Log(number of employees)	0.115***	0.091***	0.088***	0.161***	0.147***
	[0.027]	[0.032]	[0.023]	[0.027]	[0.042]
Education (years)	0.006	0.055***	0.023***	0.013*	0.055***
	[0.010]	[0.016]	[0.005]	[0.008]	[0.015]
Capital-labor ratio (log)	0.023	0.023	-0.011	0.068***	-0.027
	[0.017]	[0.022]	[0.017]	[0.020]	[0.025]
Foreign ownership share	0.155	-0.081	0.060	0.202***	0.151
	[0.170]	[0.138]	[0.079]	[0.064]	[0.152]
Exports share	0.154	0.062	0.020	-0.047	-0.202
	[0.141]	[0.124]	[0.071]	[0.066]	[0.147]
Unionization	0.013	-0.018	0.094	0.032	-0.006
	[0.096]	[0.193]	[0.067]	[0.064]	[0.153]
ISO certified	0.037	-0.060	0.231***	0.327***	0.215
	[0.171]	[0.137]	[0.063]	[0.088]	[0.168]
Garments	0.064	-0.107	0.151*	-0.162**	-0.074
	[0.194]	[0.200]	[0.084]	[0.068]	[0.239]
Food	0.018	-0.103	0.225**	-0.027	0.375
	[0.166]	[0.198]	[0.089]	[0.094]	[0.230]
Other industries	-0.078	-0.205	0.164**	0.045	0.078
	[0.161]	[0.193]	[0.074]	[0.065]	[0.217]
Constant	-0.955***	-0.755**	-1.220***	-1.313***	-1.008***
	[0.261]	[0.321]	[0.143]	[0.158]	[0.311]
Pseudo-R^2	**0.203**	**0.046**	**0.162**	**0.238**	**0.078**
Number of Observations	**362**	**434**	**677**	**799**	**445**

Notes: ***: statistically significant at 1 percent; **: statistically significant at 5 percent; *: statistically significant at 10 percent. Reference categories are "Textiles". The estimations take into account censoring from below (at zero) and from above (at one).

The results for training intensity for unskilled workers and training by external providers (Tables 5.5 and 5.6) are similar to those of any training intensity. One issue here, however, is that the average proportion of trained workers across firms are quite low for unskilled workers and training by outside providers (see Table A1, Appendix A), which in turn leads to relatively little variation in these variables. These results should therefore be treated with special caution and are mainly included here for comprehensiveness.

Summing up, the results indicate that the five countries in our analysis sample have distinctly different experiences as far as the determinants of training are concerned. Further, international standards as proxied by ISO certification status proved important overall as a major determinant of firms' decisions to train their workers. Other aspects of globalization such as foreign ownership and exporting share proved important, as well, although the pattern was less consistent than what was the case for ISO. Lastly, human capital in terms of

formal education appear to be complements to training so that firms with a higher stock of worker human capital also will train more. This was true both for the average worker, as well as for unskilled workers.

Table 5.5 Coefficients from Tobit Regressions of Training Intensity, Unskilled Workers

	Ethiopia	**Honduras**	**Indonesia**	**Morocco**	**Nicaragua**
Log(number of employees)	0.098**	0.117***	0.060*	0.183***	0.079
	[0.038]	[0.042]	[0.031]	[0.062]	[0.063]
Education (years)	-0.010	0.016	0.017**	-0.007	0.038*
	[0.014]	[0.020]	[0.007]	[0.020]	[0.023]
Capital-labor ratio (log)	0.025	0.061**	-0.039	0.102*	0.005
	[0.025]	[0.029]	[0.024]	[0.052]	[0.037]
Foreign ownership share	-0.083	0.071	0.018	0.272*	0.173
	[0.258]	[0.170]	[0.109]	[0.142]	[0.218]
Exports share	0.229	-0.061	0.154	0.296*	-0.153
	[0.187]	[0.159]	[0.100]	[0.159]	[0.219]
Unionization	-0.080	-0.090	0.040	-0.061	0.202
	[0.136]	[0.251]	[0.092]	[0.150]	[0.214]
ISO certified	-0.137	-0.182	0.269***	0.301*	0.160
	[0.275]	[0.186]	[0.087]	[0.182]	[0.240]
Garments	0.030	-0.095	-0.089	-0.258	0.286
	[0.252]	[0.236]	[0.124]	[0.172]	[0.423]
Food	-0.063	-0.061	0.123	0.307	0.666
	[0.216]	[0.235]	[0.122]	[0.194]	[0.411]
Other industries	-0.132	-0.200	0.102	0.207	0.206
	[0.207]	[0.229]	[0.101]	[0.156]	[0.397]
Constant	-0.970***	-1.359***	-1.335***	-2.230***	-1.769***
	[0.368]	[0.424]	[0.219]	[0.480]	[0.556]
Pseudo-R^2	**0.108**	**0.058**	**0.141**	**0.200**	**0.075**
Number of Observations	**362**	**434**	**677**	**799**	**445**

Notes: ***: statistically significant at 1 percent; **: statistically significant at 5 percent; *: statistically significant at 10 percent. Reference categories are "Textiles". The estimations take into account censoring from below (at zero) and from above (at one).

Table 5.6 Coefficients from Tobit Regressions of Training Intensity, Training by External Providers

	Ethiopia	Honduras	Indonesia	Morocco	Nicaragua
Log(number of employees)	0.034***	0.085***	0.031***	0.061***	0.086***
	[0.008]	[0.024]	[0.006]	[0.012]	[0.024]
Education (years)	0.008**	0.034***	0.006***	0.008**	0.018**
	[0.003]	[0.012]	[0.001]	[0.003]	[0.008]
Capital-labor ratio (log)	0.004	0.019	0.0001	0.033***	-0.007
	[0.004]	[0.016]	[0.004]	[0.009]	[0.014]
Foreign ownership share	0.038	-0.015	0.010	0.066**	0.068
	[0.043]	[0.094]	[0.020]	[0.028]	[0.083]
Exports share	0.015	-0.023	-0.069***	-0.043	-0.087
	[0.036]	[0.087]	[0.019]	[0.030]	[0.085]
Unionization	0.023	-0.041	0.008	0.034	-0.003
	[0.025]	[0.138]	[0.018]	[0.028]	[0.083]
ISO certified	0.022	-0.102	0.041**	0.149***	0.066
	[0.042]	[0.101]	[0.016]	[0.037]	[0.095]
Garments	0.104*	0.030	0.063***	-0.058*	-0.300*
	[0.061]	[0.132]	[0.022]	[0.030]	[0.153]
Food	0.070	0.053	0.046*	-0.069	0.148
	[0.054]	[0.132]	[0.023]	[0.045]	[0.128]
Other industries	0.095*	-0.042	0.043**	0.026	0.01
	[0.052]	[0.128]	[0.019]	[0.028]	[0.122]
Constant				-	
	-0.437***	-0.981***	-0.360***	0.562***	-0.618***
	[0.089]	[0.239]	[0.042]	[0.072]	[0.177]
Pseudo-R^2	**0.825**	**0.096**	**0.471**	**0.425**	**0.163**
Number of Observations	**362**	**434**	**677**	**799**	**445**

Notes: ***: statistically significant at 1 percent; **: statistically significant at 5 percent; *: statistically significant at 10 percent. Reference categories are "Textiles". The estimations take into account censoring from below (at zero) and from above (at one).

6. Conclusion

While several previous studies have examined what matters in the firm's decision to train its workers (Lynch and Black, 1995; Tan and Batra, 1995; Tan and Lopez-Acevedo, 2003) few, if any, of these studies have looked specifically at international product and management standards as a potential important factor influencing the firm's training decision.

This paper examines training determinants using recent employer surveys for five developing countries across the continents. In so doing, we emphasize the potential impact from international product and management standards but also include other potentially

important determinants of firm training. Among the major findings are that ISO certification is an important determinant of firm training, both in statistical and substantive terms.

While the endogenity of ISO certification may be an issue, this has potentially important policy implications. First, globalization (which is one aspect of international product and management standards) is not necessarily a "bad thing" as far as training of the workforce is concerned. Further, another aspect of globalization, namely foreign ownership, is found to also promote training, as is also firms' exporting share. Second, demanding international standards, for example ISO, to be adhered to by firms may not necessarily decrease the firm's investments in human capital in terms of training accordingly. On the contrary, the demands of international standards such as the ISO will likely require firms to increase the technical capabilities of their workers, as these standards will require higher and more consistent quality of production and management. Third, in this process unions may play a role, as well. Although the evidence here is much weaker, it does, however, raise the issue of the labor unions being potentially important players in terms of upgrading the skills of the work force in developing countries. Fourth, the results hint at the potential importance of Corporate Social Responsibility (CSR) for the firm's training decision. While CSR is a fuzzy concept, the understanding adopted here is that CSR measures values such as environmental or "green" production and consumption, on the producer and consumer side, respectively. With this definition, CSR is to some extent captured by the components inherent in the ISO 14000 definition. In turn, CSR therefore potentially accounts for a substantial fraction of the variation in firm provided training.

While this study shed additional light on the determinants of the firm's decision to train its workforce, especially as this relates to the potential importance of international product and management standards and CSR, more research is needed. In particular, the quest to learn more about what determines the firm's training decision is severely limited by data constraints, especially as far as the CSR component is concerned. In particular, while we have argued that several of our variables capture elements of CSR it is hard to define exactly what CSR is. Future work on the linkages between training and CSR would benefit tremendously from incorporating questions more related to values into future surveys. For example, it would be useful to know about management's attitudes towards consumer values more broadly, their willingness to adapt to these and the weight they apply to these values as

well as the other aspects of CSR. Admittedly, it may be difficult to obtain truthful answers to these questions so that we are, once again, stuck with whatever proxies we can find in existing firm surveys.

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APPENDIX A: Descriptive Statistics for Analyses Samples

Table A1 Descriptive Statistics for Analyses Samples

	Ethiopia		Honduras		Indonesia		Morocco		Nicaragua	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Any training	0.224	0.417	0.530	0.500	0.290	0.454	0.165	0.372	0.407	0.492
Unskilled training	0.086	0.280	0.224	0.417	0.109	0.312	0.039	0.193	0.139	0.347
External training	0.152	0.359	0.263	0.441	0.185	0.388	0.129	0.335	0.238	0.426
Any training, proportion trained	0.047	0.154	0.243	0.333	0.082	0.215	0.036	0.141	0.170	0.292
Unskilled training, proportion trained	0.017	0.082	0.085	0.214	0.028	0.127	0.011	0.076	0.052	0.170
External training, proportion trained	0.008	0.031	0.047	0.146	0.011	0.040	0.012	0.054	0.046	0.122
Log(total number of employees)	2.874	1.841	3.268	1.570	5.025	1.657	4.088	1.164	2.761	1.118
Education (years)	9.051	3.319	8.206	2.276	7.521	5.623	7.313	3.164	8.854	2.586
Capital-Labor Ratio (log)	7.076	2.434	7.464	1.539	0.256	1.563	0.856	1.547	7.012	1.569
Foreign ownership	0.035	0.165	0.135	0.329	0.138	0.327	0.164	0.343	0.082	0.259
Exporting enterprise	0.049	0.199	0.236	0.391	0.295	0.413	0.436	0.472	0.139	0.297
Unionization	0.204	0.404	0.030	0.171	0.523	0.500	0.133	0.339	0.065	0.247
ISO certification status	0.025	0.156	0.062	0.242	0.219	0.414	0.045	0.208	0.045	0.207
Textiles	0.033	0.179	0.032	0.177	0.204	0.403	0.233	0.423	0.034	0.181
Garments	0.088	0.284	0.184	0.388	0.223	0.417	0.374	0.484	0.126	0.332
Food	0.265	0.442	0.260	0.439	0.168	0.374	0.095	0.294	0.180	0.384
Other	0.613	0.488	0.523	0.500	0.405	0.491	0.298	0.458	0.661	0.474
Number of Observations	**362**		**434**		**677**		**799**		**445**	

APPENDIX B: Training Intensity across various Firm Characteristics

Table B1 Training Intensity, any Training

	Ethiopia	Honduras	Indonesia	Morocco	Nicaragua
Full sample average	0.047	0.243	0.082	0.036	0.170
ISO Certification Status:					
No ISO certification	0.047	0.242	0.053	0.028	0.166
Has ISO certification	0.046	0.247	0.188	0.202	0.261
Education (Average, Years)					
< 6 yrs	0.044	0.174	0.038	0.025	0.083
6 to 12	0.036	0.253	0.078	0.034	0.173
12 and above	0.103	0.301	0.139	0.119	0.270
Firm size:					
1-15 employees	0.023	0.217	0.013	0.006	0.133
16-100 employees	0.079	0.259	0.034	0.034	0.225
101-250 employees	0.056	0.241	0.070	0.031	0.191
250+ employees	0.091	0.299	0.153	0.080	0.255
Unionization:					
Non-unionized firms	0.038	0.243	0.043	0.033	0.166
Unionized firms	0.082	0.222	0.118	0.057	0.222
K-L Ratio (2003 prices):					
Less than USD100	0.015	0.322	0.082	0.036	0.226
USD100 or more	0.049	0.239	0.083	0.038	0.166
Industry:					
Textiles	0.108	0.390	0.064	0.045	0.128
Garments	0.044	0.291	0.064	0.014	0.109
Food	0.064	0.253	0.069	0.044	0.283
Other	0.036	0.211	0.107	0.053	0.153
Foreign ownership:					
Less than 10 percent	0.042	0.236	0.066	0.020	0.163
10 percent or more	0.136	0.279	0.170	0.096	0.230
Exporting share:					
Less than 10 percent	0.044	0.225	0.051	0.033	0.176
10 percent or more	0.086	0.280	0.132	0.038	0.149
Number of Observations	**362**	**434**	**677**	**799**	**445**

Table B2 Training Intensity, Training of Unskilled Workers

	Ethiopia	Honduras	Indonesia	Morocco	Nicaragua
Full sample average	0.017	0.085	0.028	0.011	0.052
ISO Certification Status:					
No ISO certification	0.017	0.088	0.013	0.009	0.050
Has ISO certification	0.021	0.047	0.082	0.062	0.083
Education (Average, Years)					
< 6 yrs	0.018	0.099	0.006	0.016	0.020
6 to 12	0.013	0.082	0.033	0.009	0.058
12 and above	0.033	0.086	0.048	0.010	0.046
Firm size:					
1-15 employees	0.012	0.059	0.000	0.004	0.037
16-100 employees	0.022	0.094	0.011	0.008	0.080
101-250 employees	0.019	0.107	0.006	0.009	0.011
250+ employees	0.028	0.150	0.059	0.037	0.060
Unionization:					
Non-unionized firms	0.015	0.085	0.014	0.011	0.049
Unionized firms	0.025	0.088	0.041	0.013	0.094
K-L Ratio (2003 prices):					
Less than USD100	0.011	0.051	0.029	0.011	0.046
USD100 or more	0.017	0.087	0.000	0.000	0.052
Industry:					
Textiles	0.031	0.179	0.026	0.013	0.012
Garments	0.016	0.123	0.014	0.007	0.054
Food	0.032	0.083	0.014	0.029	0.120
Other	0.010	0.067	0.043	0.010	0.034
Foreign ownership:					
Less than 10 percent	0.016	0.075	0.019	0.005	0.049
10 percent or more	0.031	0.141	0.075	0.035	0.073
Exporting share:					
Less than 10 percent	0.017	0.074	0.013	0.005	0.050
10 percent or more	0.020	0.108	0.052	0.017	0.055
Number of Observations	**362**	**434**	**677**	**799**	**445**

Table B3 Training Intensity, Training by External Providers

	Ethiopia	Honduras	Indonesia	Morocco	Nicaragua
Full sample average	0.008	0.047	0.011	0.012	0.046
ISO Certification Status:					
No ISO certification	0.008	0.048	0.009	0.008	0.045
Has ISO certification	0.013	0.030	0.020	0.085	0.064
Education (Average, Years)					
< 6 yrs	0.002	0.028	0.004	0.003	0.017
6 to 12	0.008	0.048	0.009	0.015	0.047
12 and above	0.016	0.094	0.021	0.032	0.078
Firm size:					
1-15 employees	0.004	0.041	0.000	0.003	0.037
16-100 employees	0.007	0.062	0.005	0.012	0.060
101-250 employees	0.029	0.028	0.031	0.011	0.036
250+ employees	0.015	0.045	0.013	0.019	0.081
Unionization:					
Non-unionized firms	0.005	0.047	0.008	0.010	0.045
Unionized firms	0.019	0.066	0.014	0.022	0.061
K-L Ratio (2003 prices):					
Less than USD100	0.003	0.052	0.011	0.011	0.051
USD100 or more	0.008	0.047	0.002	0.038	0.046
Industry:					
Textiles	0.002	0.047	0.003	0.012	0.041
Garments	0.007	0.074	0.014	0.003	0.003
Food	0.006	0.042	0.008	0.008	0.091
Other	0.009	0.041	0.014	0.023	0.042
Foreign ownership:					
Less than 10 percent	0.007	0.045	0.010	0.007	0.045
10 percent or more	0.028	0.061	0.018	0.029	0.051
Exporting share:					
Less than 10 percent	0.007	0.042	0.014	0.015	0.046
10 percent or more	0.016	0.058	0.006	0.009	0.045
Number of Observations	**362**	**434**	**677**	**799**	**445**