Employment quality and wages effect from global engagement: Evidence from Ethiopian Manufacturing Firms

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Abstract

This paper analyses the effect of exposure to international trade and foreign ownership on the employment quality (workforce composition) and wages in manufacturing industries. This study used the unbalanced long panel dataset of Ethiopian manufacturing firms over the period 2000–2011 and deploying alternative econometric estimation technique (OLS, FE and GMM-SYS) by estimating dynamic models of employment and wages. The results show that firms' international exposure has a positive contribution to employment creation and wage growth in Ethiopian manufacturing. This affirms the fact that Ethiopian's exports are more labor-intensive and this has mitigated the country's labor surplus. Besides, trade and foreign ownership are found to have an absolute quality-bias which affirms the presence of learning by exporting on the Ethiopian manufacturing sector. We also found that Foreign Direct Investment (FDI) magnifies the wage gap between casual and permanent workers. Whereas, export participation has a positive, but not significant effect on the wage of permanent workers, while it has a weakly positive significant effect on casual workers' wage.

Keywords: International trade, employment, wage, foreign ownership

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1. Introduction

The purpose of this paper is to examine whether the higher productivity advantages of global engagement may be converted into benefits for workers in the form of higher wages and better employment quality[2]. We just look at two dimensions of global engagement. The first is based on whether the firms export, and the second on whether they are foreign owned. Foreign trade, through a positive business climate, flexible labor markets, high-quality education and skill training systems, is one of the main driving forces to spurring economic growth and development. It brings up enhanced opportunities for firms and industries in the world to be transmitted to the domestic markets through technological upgrading and thus to be more profitable. The successful exploitation of this opportunity, albeit depending on whether they own the required attributes and become efficient firms/industries. In turn, this process has its own implications for employment and its quality and wages in the local economy and this argument builds on two possible empirical observations. The first notions are exporting firms pay higher wages and hire more workers than non-exporters and the second one is the existence of a direct link between exports, wages and skill utilization in the industry and firm levels. Yet, there is also a considerable skepticism about employment creation and improvement in wages as a result of trade openness. In other words, those economies and firms that are unable to adjust themselves to the new situation and fail to secure the required attributes suffer from the globalization process (Brambilla, Depetris-Chauvin, & Porto, 2014; Were, 2011).

Similarly, the attraction of foreign investors is a fundamental goal for all policy makers over the globe, and even more so in developing countries, where lack of capital is one of the key constraints to economic prosperity. The first reason why the government of developing countries of particular interest to inward Foreign Direct Investment (FDI), which makes the workers to receive higher wages than those paid by domestically- owned firms, is the degree of creating new and qualifies jobs in the industrial sector, especially when it is concentrated in the labor-intensive sector. The second one is due to the fact that FDI is seen as a driver for economic development as it may bring foreign capital, foreign technology, management know-how, jobs and access to new markets (Boly, Coniglio, Prota, & Seric, 2014). In general, however, trade liberalization has also implied important challenges for developing countries' labor markets (Stiglitz, 2002). On the one hand, new technologies were often characterized by a labor-saving naturalistic and may involve increasing unemployment, at least in some traditional manufacturing sectors. On the other hand, globalization and technological upgrading may bring the productivity gains which

[2]Employment quality is defined as worker contract status and its improvement measured by a decrease in the use of casual worker (an increase in the share of workers with formal labor contracts) (Rand & Torm, 2012).

were often coupled with a growing gap between the employment and the wages of various types' of workers.

Ethiopia, like many developing countries, implemented a comprehensive program including trade liberalization and deregulation reforms to attract foreign capital into the growth endeavor of the country and thereby increasing employment and improving wages in the domestic economy. This was initially due to the growing pressure from Bretton Woods's institutions (WB & IMF) as preconditions for donor funding, following the fall of the Derg government in 1991. A major component of trade reforms was a policy shift from import-substitution to export-promotion strategy, and a gradual removal of tariff and nontariff barriers to trade. Trade liberalization was undertaken as a measure of increasing trade openness, which would enhance enterprise efficiency and export growth, subsequently leading to growth in employment and economic growth. Trade—through the export-led growth strategy—is now envisaged in the Growth and Transformation Plan II (GTP II), which is a continuity of GTP I, as the strategy and serve as a springboard towards the attainment of the lower middle-income country' status by the year 2025 (National Planning Commission, 2016). Besides, the government establishes industrial zones which allow export oriented manufacturing activities can freely operate without state interference and also gives preferential treatment with respect to taxation, infrastructure, and less industrial regulations for foreign investors. In the same way, Ethiopian government amended its investment laws several times to remove restrictions on foreign investments and to establish an enabling environment for foreign investors since the late 1990s. And a variety of special incentives have been put in place in order to attract FDI, under the rationale that FDI can generate positive spillover effects within the local economy. The result has been a dramatic increase in FDI flows to Ethiopia's manufacturing sector and making it one of the top five host economies in LDCs in FDI flows during 2015. The net FDI inflows to Ethiopia have increased from 135 million USD in 2000 to 2.2 billion USD in 2015 especially because of its privileged exports under the African Growth and Opportunity Act (AGOA) and economic partnership agreements (EPAs) (UNCTAD, 2016). Thus, manufacturing FDI accounting for 72 percent of foreign capital invested in 2015 (EIC, 2016). Yet, the employment effect of FDI only shows a marginal increment from 27,462 in 2000 to 44,118 in 2014 (ILO, 2016).

Much of the available empirical studies that examining the effect of international trade on employment are mostly confined to the experience of the developed countries. Some of them are the USA (Artuç, Chaudhuri, & McLaren, 2010; Slaughter, 2001), the UK (Greenaway, Hine, & Wright, 1999), and France & Britain (Biscourp & Kramarz, 2007; Chetwin & Bairam, 2001). More recently, some studies have started to explore the labor market effects of international trade from a developing country's perspective, such as India (Hasan, Mitra, Ranjan, & Ahsan, 2012; Raj & Sen, 2012; Sen, 2009), China (Fu & Balasubramanyam, 2005), Brazil (Moreira & Najberg, 2000), Vietnam (Kien & Heo, 2009; Ko, Rangkakulnuwat, & Paweenawat, 2015)), Turkey (Meschi, Taymaz, & Vivarelli, 2016) and Mexico (Revenga, 1997). Further, there are

some cross country studies on this issue, such as research on developing countries (Harrison, 1996), the EU (Abraham & Brock, 2003), the OECD Countries (R. E. Baldwin, 1995) andinn 97 different countries (Carrere, Fugazza, Olarreaga, & Robert-Nicoud, 2014). However, no obvious directions have emerged from the literature so far. Some researchers conclude that international trade considerably and positively affects employment (Fu & Balasubramanyam, 2005; Kien & Heo, 2009; Sen, 2009). On the contrary, Greenaway et al. (1999); Revenga (1997) find that trade openness leads to a reduction in the level of derived labor demand. Likewise, other studies have found no significant evidence of the impacts of trade on employment (Lang, 1998; Raj & Sen, 2012; Sasidharan, 2015).

Similarly, the empirical literature on the relationship between foreign ownership and employment in developing countries is thus far limited. Several papers analyze the impact of foreign acquisitions on employment in developed countries: most of the existing evidence suggests that firm-level employment levels remain unchanged or increase following foreign acquisition (see, for example, (Bandick & Karpaty, 2007; Brännlund, Nordström, Stage, & Svedin, 2016) for Sweden; (Girma, 2005) for the UK; (Balsvik & Haller, 2010) for Norway). The study of Lipsey, Sjöholm, and Sun (2010) for Indonesia and Boly et al. (2014) for 19 sub-Saharan African countries are among the very few which explore the contribution of FDI to employment growth in less developed countries. The authors find that foreign-owned manufacturing plants contribute positively to employment growth. Further, Barthel, Busse, and Osei (2011) show that foreign firms in Ghana are larger, on average, in terms of workers employed (and provide for more formal training programs for workers) than domestic firms.

The empirical evidence of the wage premium effect of foreign trade and FDI is still limited. Its results often vary greatly across different contexts, making it hard to make generalized inferences. Some studies indicate that an export destination matters for the impact of exporting on wage premium. That is, a positive linkage between export participation and wages prevails when exporting to the less competitive African market is made whereas exports to competitive markets outside Africa generate a disciplining effect on wage premium (Milner & Tandrayen, 2007). Similarly, others have also found positive impacts of the presence of firms in exporting markets on wages (Du Caju, Rycx, & Tojerow, 2011; Munch & Skaksen, 2008). Some other researchers obtained no significant impact of foreign ownership on wages ((P. S. Martins & Esteves, 2015) for Brazil and (Brännlund et al., 2016) for Sweden). Likewise, there was a consensus that foreign firms pay higher wages than their domestic counterparts, mainly in developing countries ((Te Velde & Morrissey, 2003) for Sub-Saharan Africa; (Lipsey & Sjöholm, 2004; Strobl & Thornton, 2002) for Indonesia). However, with the increasing availability of linked employer-employee data, this consensus has been challenged at least in developed countries. For example, Heyman, Sjöholm, and Tingvall (2007) show that foreign takeovers in Sweden reduced individual wages relative to their counterparts in domestic firms, while Andrews, Bellmann, Schank, and Upward (2007) for Germany, Malchow-Møller,

Markusen, and Schjerning (2013) for Denmark and Huttunen (2007) for Finland find small positive effects.

The above mentioned studies do not differentiate between the casual and permanent workers rather they focused on overall or aggregate level employment and wages. The effect of exposure to international openness on the employment quality (workforce composition) and their wages in developing countries' economies in general, and in their manufacturing industries, in particular, is barely observed. There have been a few empirical works in this regard. Among the few studies on this topic, Were (2011) for Kenya and V. H. Vu, Lim, Holmes, and Doan (2012) for Vietnam are considered as the pioneering studies of the impact of export participation on casual[3] workers. A positive impact is observed when using a panel data fixed effects approach for Kenya in 1994-5, but this is not the case for 2003 using cross-sectional data. While, in the Vietnamese context, it is obtained that there is a negative relationship between export activities and employment quality even if its impact including on wages vary greatly with respect to levels of technology. They only focus on the effect of trade variables on the share of casual workers and don't depict the full picture of international openness effect.

Promoting international trade policies via various strategies have received due attention in Ethiopia, however, its implications for workforce composition and earnings structure is a paucity in the firm-level literature. To the best of our knowledge, the only study that has been done in Ethiopian context is by Getinet Haile, Srour, and Vivarelli (2016) on the impact of technological change on permanent employment of skilled and unskilled workers over the period 1996 – 2004. Their empirical results suggest weak evidence of the overall skill enhancing effect of trade liberalization and globalization. On the other hand, the present study expands the scope of previous research and adds to the existing works on the subject in several ways. First, this study uses the most recent firm dataset which derives from survey data collected by the Ethiopian Central Statistics Authority (CSA) available from 2000 to 2011. Second, the present study rather focuses on the other side of employment aspects such as workforce composition in terms of quality which is never done in the Ethiopian context. Finally, this paper separately analyzing the firms' involvement in international markets via the effect of exposure to trade (export-orientation) and technology transfer via FDI on employment and wages in terms of use of different categories of workers (temporary versus permanent) at the firm level within a dynamic framework. This, in turn, enables to distinguish between quantity and price effect and allow evaluating the absolute and relative quality bias. In other words, having two equations for both employment and wages can provide a more thorough understanding of the nature of the possible labor-saving and employees' quality-biased nature of the impact of global engagement.

[3]Often have no formal labor contracts with the employer and their services can be terminated any time at short notice or without notice. Besides, they usually employed on temporary basis and operate without non-wage employment benefits such as medical cover, transport allowance and severance pay. In the empirical literature, the words precarious, non-standard, flexible forms of employment are used interchangeably in reference to irregular, part-time, casual, seasonal workers (Were, 2011).

All these things, in fact, have their own implications for poverty, especially in the urban areas where such casual forms of employment are becoming prevalent and this category of informal workers operates without security and non-wage employment benefits. Besides, the fastest growing part of the labor force in many countries, including Ethiopia has been in temporary work and part-time employment. In sum, a better understanding of the links between trade integration and the performance of labor markets is crucial for the implementation of sound policy responses to the generalized trend towards different types of labor and their earnings.

The rest of the paper is structured as follows. Section 2 presents the data used in the empirical analysis. Section 3 sheds light on the process of trade liberalization, employment and wage outcomes in Ethiopia and presents some descriptive evidence on the manufacturing sector. Section 4 specifies the empirical model and estimation techniques in the regression analysis. The empirical results and discussion follow in section 5. The last section provides a summary with some final remarks.

2. Data Source

The study relies on the annual census data collected for manufacturing establishments with 10 and above employees by the Ethiopian Central Statistic Authority (CSA) between 2000 and 2011. The data give information concerning the number of proprietors/enterprises involved in manufacturing, income obtained, volume and value of production, inputs (local and imported), sales (local and exported), paid-up capital, costs of production, type of ownership (domestic and foreign), value added, employment and investment, and others in the sector. Employment is measured as the number of workers in each quarter of the Ethiopian year. Total employment was therefore calculated as the average of these quarters. It is the sum of permanent and temporary employees and the latter adjusted for year equivalent labor. The seasonal and temporary workers include those workers who are employed for a whole or a part of the year. These workers are not regularly on the payroll of the establishment. The ownership of the firm as foreign or domestic by the share of the initial paid up capital is also one of the main variables in our estimation. If the share of non-Ethiopian in the initial paid up capital is greater than 50% of the firm's total initial paid up capital, we can categorize the firm as foreign owned firm. Besides, the survey also involves a data on wages and salaries which include all payments in cash or in kind made to employees during the reference year in connection with the work done for the establishments but it excludes commissions, bonuses, professional and hardship, allowances. The census covers all major manufacturing sectors in all regions of the country based on 4-digits international standard industrial classification (ISIC) - Revision 3.1. The industrial sectors involve manufacturers of food and beverage, textile, apparel, leather and footwear, wood, paper and printing, chemicals, rubber and plastic, nonmetal, fabricated metal, and furniture.

Of the 12-year unbalanced panel comprises 15111 firms/year observations; we used the four two-digit sectors accounting for 38 percent for the empirical one. In other words, we grouped the four two-digit sector firms into three broad sectors for analysis purpose: food and beverage, textile and apparel and leather and tanning and the first group accounts for 70%, while the other two sectors take the remaining share equally (15% each) in our sample. Observations with missing output and/or input variables and also those who observed only for one year was deleted since the empirical part relies on lagged values of the regressor for identification purposes like other studies that have used this dataset, namely (Getinet Haile et al., 2016; Siba & Gebreeyesus, 2017). Moreover, since the CSA census was conducted only for establishments which employ ten persons or more, observations of micro firm establishments with fewer than 10 persons also dropped and left with 4388 firms/year observations comprises 70 and 30 percent of the three group industry and the whole Ethiopian manufacturing firms respectively over the sample period.

Throughout the analysis, all financial variables are deflated to 2000 prices generated from the various deflators to avoid biases that might arise because of inflation. Further details on deflators and variable construction can be found in the Appendix C1.

3. Overview of trade and employment in Ethiopia

3.3.1. Trade reforms and Merchandise trade in Ethiopia

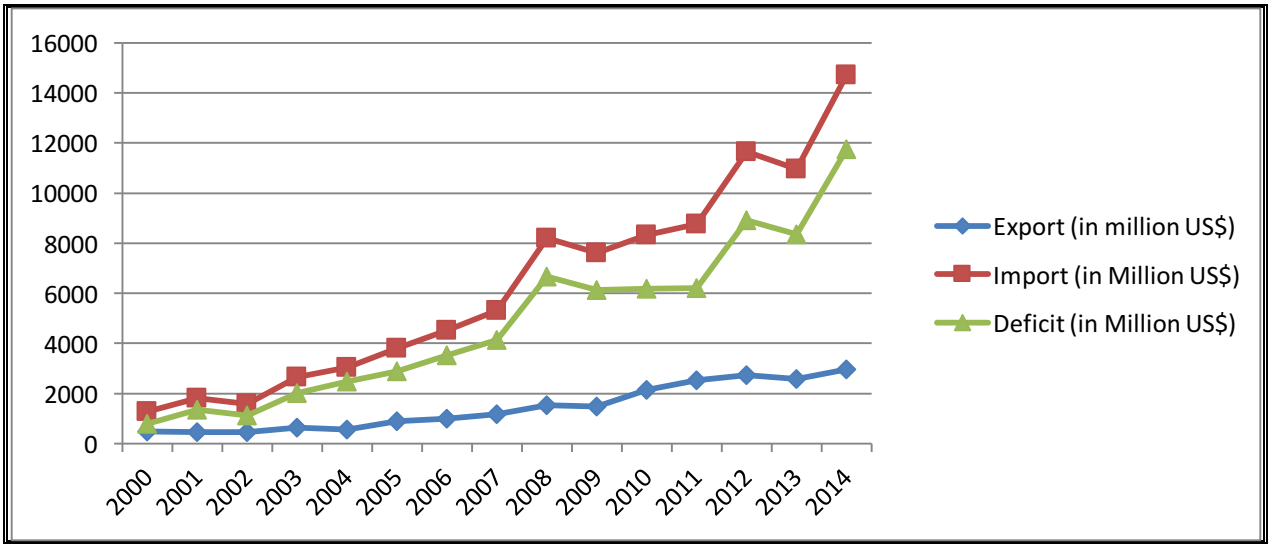
Ethiopia‘s external trade policy has undergone substantial reform starting the mid-1990s in line with the policy based lending program of the WB and IMF. The heart of the reform process has been reduction and harmonization of tariffs, exchange rate devaluation, and relaxation of quantitative trade barriers. The tariff reform process has resulted in a decline in the maximum tariff rate from 230 to 80 percent in the first round. This tariff revision continued for seven times. Currently, a six-band international harmonized system (HS) tariff schedule is used with a minimum rate of 5 percent on capital goods and a maximum rate of 35 percent on most finished products, whereas intermediate inputs and raw material inputs face lower tariff rates. The above measures accompanied by a progressive reduction in non-tariff barriers with the implementation of trade facilitation programs (i.e., adoption of the Harmonized Commodity Description and Coding System of the World Customs Organization for classification of internationally traded goods, introduction of the Automated System for Customs Data Management of UNCTAD, application of the GATT/WTO valuation system (Ferede, Kebede, & Tarfasa, 2015).

Ethiopia also continues to participate actively in multilateral and regional economic groupings. These negotiations are accession to the World Trade Organization (WTO), the New Economic Partnership Agreement (EPA) with the European Union, Common Market for Southern and Eastern Africa (COMESA), Free Trade Agreement (FTA), Tripartite free trade area (TFTA)

consisting of COMESA, the East African Community (EAC) and Southern African Development Community (SADC) member countries, Intergovernmental Authority for Development (IGAD) and the Sana'a Forum for Co-operation (SFC). It should be noted that although all of the above agreements demand increased liberalization of the country's trade regime and eventual total elimination of tariff and non-tariff barriers, a coherent trade policy is lacking in Ethiopia.

The total value of exports revealed a slight progress relative to the preceding years since 2009. Accordingly, export receipt reached to $2,978 million in 2014 from $2,591 million in 2013 with 15% higher than the previous year. Similarly, import expenditure has grown up continuously since 2009 with the exception of a slight decrease in 2013. Import payment has been reached to the highest point in 2014 accounting $14,718 million. The 2014 import payment was about 34.3 percent higher compared to the previous year's import expenditure. In the past decade, export and import growth had averaged 15 and 21 percent per year, respectively (see figure 3.1).

Figure 3. 1: Trend in Merchandise Statistics in Million US$ and Growth Rate (2000-14)



Time	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Export GR	-5.9	4.5	35.6	-13.8	62.0	11.5	18.4	30.4	-3.2	43.8	18.4	7.8	-5.5	14.9
Import GR	42.7	-11.8	67.1	13.9	25.0	19.1	17.8	54.0	-7.1	9.2	5.2	33.1	-6.0	34.3
Deficit GR	72.5	-17.3	80.3	22.7	16.8	21.5	17.7	60.7	-8.0	0.8	0.6	43.5	-6.2	40.4

Source: Own computation from WDI, 2016

The merchandise trade deficit has continued to widen since 2003 as shown the figure above. The deficit in 2014 increased to 40.4 percent relative to that of 2013 (it increased from $8,364 million to $11,740 million). The deficit has exerted an upward pressure since 2006. The growing pressure of the deficit has reached its peak and became more recognizable in 2014 after falling in 2013. The trade balance has been deteriorating due to the faster growth in goods imports. That is, the trade deficit was driven by poor export performance and a large external debt financed imports of capital goods for public investment programs following the growth of the national

economy. Currently, the country has implemented GTP II (Growth and Transformation Plan) which requires huge public investments to achieve the sets goals and has contributed a lot for the divergence of the import payments. This caused the importance of expanding exports to reduce the serious foreign exchange constraint that acts as a bottleneck for the growth of the economy. Hence, the government should figure out the problem to increase the country's foreign exchange earnings by pursuing concrete policy measures and incentive schemes to improve the unsatisfactory performance and overall economic growth. Besides, the export receipt has been highly dependent on agricultural raw materials whose price grows much lower than that of finished industrial goods and thus this worsened the vulnerability of receipt instability from merchandise export and could not be able to adequately respond in covering the growing import demand. This caused import expenditure to grow by about 34.3 percent in 2014 while the export receipt grew only by about 14.9 percent in the same year.

3.3.2. Performance of FDI in Ethiopia

FDI is considered as one path for economic growth of a country as it could bring different advantages, particularly to host nations that are job creation and the enhancement of capital, technology and know-how. That is why FDI as a component of capital formation has got importance in the Ethiopian economy notable after 1992. The current Ethiopian government took several policy reforms specially that of the privatization and pro investment strategies and through the use of Industrial Parks (IP) to attract Foreign Direct Investment (FDI (GA Haile & Assefa, 2006). However, out of the total investment projects licensed between 1992- 2012, FDI's share is about 15.71 percent, which is one of the meager flows in Africa (EIA, 2012a).

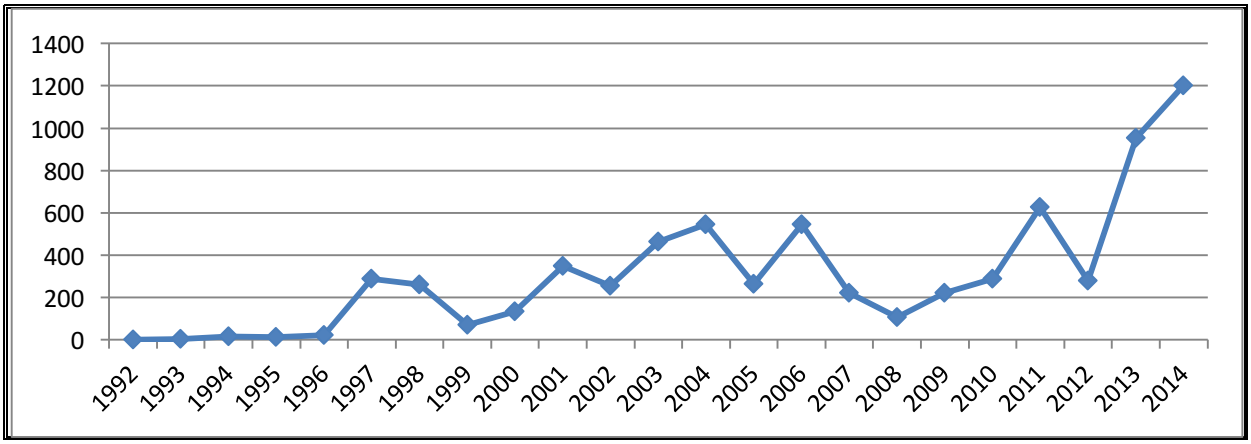
FDI inflows to Ethiopia overall is increasing from the period 1992 to 2014 with annual average of 310 million US$ but the annual financial inflows has been fluctuating over the years due to the political instability in those periods (WBI, 2016). Figure 3.2 indicates the highest FDI inflows before 2000 was registered in 1997 with a value of 288 million dollars. During the Ethio-Eritrea border conflict (1998-2000) the inflow of FDI had fallen to a large extent. Besides, during the 2005 country's election crisis time, however, the FDI flows declined to $265 million from $545 million in the preceding year of 2004. The decline in 2007/08 reflects the global financial crisis worldwide as well as economic instability in Ethiopia. On the other side, there is a foreign capital boom in 2004 and 2006, which is directly related to massive petroleum exploration in the country particularly in Ogaden region (UNCTAD, 2007). In sum, after 2000 FDI inflows to Ethiopia have been fluctuating until it rise to 953 million dollars in 2013 and then reached 1200 million US$ in 2014 (see Figure 3.2).

Moreover, despite the improvements in the overall economic contexts, Ethiopia's share of FDI inflows to Africa remains below 2 percent (UNCTAD, 2011). Inauspiciously the share of FDI in the Ethiopian GDP has increased steadily from an annual average of 1.6 percent over the 1992 to 2002 to a 2.2 percent from 2003 to 2014 as we see from Figure 2 below. It also shows that the

percentage share of FDI to GDP remains the least, as it was recorded 5.43 in 2003 and 2004, which was the highest over the past two decades.

When we see the sectoral distribution of FDI flow, manufacturing sector becomes increasingly important to attract more FDI than the other sectors. It accounted for about 68.27%, while the agriculture and service sectors shares only 9.36% and 22.37% of the total FDI inflows to Ethiopia from 1992 to 2015 respectively. It's also remains limited by country of origin and accordingly the majority of FDI inflows to Ethiopia are from developing countries such as China, India, Turkey, and Saudi Arabia.

Figure 3. 2: FDI, net inflows (BoP, current Million US$): 1992-2014



Time	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014
FDI, net inflows (% of GDP)	0.00	0.2	0.3	3.3	1.6	3.2	5.4	3.6	0.4	1.0	0.6	2.2

Source: Own computation from WDI, 2016

3.3.3. Employment situation in Ethiopia

Ethiopia is a predominantly agricultural country, where over 80% of the population reside in rural areas and are actively involved in agricultural production. The country's employment structure has not changed considerably over the past decade. The agricultural sector share of total employment still significant and employs more than three-quarters of all workers. Employment increased by 15 million between 1999 and 2013, with agriculture absorbing 72 percent of this increase, followed by trade (7 percent), manufacturing (5 percent) other services (4 percent), and public services (3 percent) as we can see from Table 3.1. Employment growth varied across sectors. The commerce sector experienced the smallest average growth rate, only 1.4%, between 1999 and 2013 followed by agriculture and manufacturing, which is 3.2% and 3.9% respectively. Employment in the manufacturing sector increased marginally from 4.4% to 4.7% of total employment between 1999 and 2013. In particular, the trade sector has played a pivotal role in absorbing a substantial number of workers in the country next to agriculture. Over 2.8 million laborers work in the trade sector, which accounts for 7.7% of total new jobs (P. Martins, 2014).

Table 3. 1: Total Employment by Sector, 1999-13

	Employment by Sector (Thousands)			Employment by Sector (% Total Employment)			Employment by Sector (Annual Growth, %)		
	1999	2005	2013	1999	2005	2013	1999-05	2005-13	1999-13
Agriculture	19,869.0	25,208.0	30,821.0	79.8	80.2	77.3	4.0	2.5	3.2
Mining	16.0	82.0	195.0	0.1	0.3	0.5	31.8	11.5	19.8
Manufacturing	1,107	1,529	1,882	4.4	4.9	4.7	5.5	2.6	3.9
Utilities	28	33	90	0.1	0.1	0.2	2.7	13.4	8.7
Construction	229	446	825	0.9	1.4	2.1	11.8	8.0	9.6
Commerce	2,342	2,406	2,845	9.4	7.7	7.1	0.5	2.1	1.4
Transport	123	146	378	0.5	0.5	0.9	3.0	12.6	8.4
Finance	20	38	134	0.1	0.1	0.3	11.6	17.1	14.7
Public services	578	729	1,212	2.3	2.3	3.0	3.9	6.6	5.4
Other services	585	818	1,492	2.4	2.6	3.7	5.7	7.8	6.9
TOTAL	24,897	31,435	39,874	100	100	100	4.0	3.0	3.4

Source: P. Martins (2014) cited on the World Bank 4th Ethiopia Economic Update (2015)

3.3.4. Employee status and wages by varies category of the firm

Table 3.2 compares the average of certain indicators such as employment (casual and permanent) and their share, average wages of casual and permanent workers, capital per worker and output per worker of exporters and non-exporters by industry. Generally, exporting firms employed more workers, regardless of employee category and industry in absolute numbers while the proportion of total casual and skilled workers among the total workforce is almost the same. That is, exporting firms employed an average of 4.6, 4.4 and 5.2 times bigger total, permanent and casual workers compared to non-exporting firms, respectively. Besides, paid higher wages for both casual and permanent workers, had more capital per worker, and produced more output per worker. On average exporters paid 1.6 times higher wages to permanent and casual workers, produced 1.8 times more output per worker, and 1.4 times more capital intensive. These differences are similar to those reported from Kenya in Were (2011).

Regarding the employee characteristics by sector, the textile and apparel industry employed the highest average number of workers irrespective of their type followed by food and beverage sector for total employees and casual workers. Textile& apparel and the food & beverage sector had paid the highest average wage for casual and permanent workers respectively. On the other

hand, leather and tanning, which also had the highest proportion of exporting, had the highest capital-labor ratio, followed by food and beverage industry. While food and beverage sector ranked first in terms of productivity measured by output labor ratio and skilled labor employment, it had the least proportion of permanent workers.

Table 3. 2: Characteristics of exporting and non-exporting firms, by industry (2000–2011)

	Export status	Share of firms	Total workers	Permanent Workers	Casual workers	Mean wage of Permanent workers	Mean wage of casual workers	Share of casual workers	Share of Skilled[4] workers	O/L	K/L
Food & beverage	Non-exporting	94.9	101.2	79.3	22.7	5125.1	2916.5	15.6	42.0	97695.7	52046.8
	Exporting	5.1	826.4	548.3	278.0	10873.4	5049.6	23.9	48.1	206453.9	139713.3
	All	100.0	138.5	103.7	35.8	5423.5	3087.4	16.1	42.4	103287.4	56554.1
Textile & apparel	Non-exporting	77.6	342.4	311.8	34.3	4239.5	2967.7	13.5	36.9	41958.3	26829.5
	Exporting	22.4	771.5	696.3	75.1	5776.4	5064.7	13.7	27.6	91167.0	31178.1
	All	100.0	438.5	398.8	43.5	4587.3	3497.9	13.5	34.8	52987.8	27804.2
Leather & footwear	Non-exporting	68.9	75.3	67.2	9.1	4121.2	2827.6	12.0	25.7	59774.0	103327.2
	Exporting	31.1	269.3	248.0	21.3	6861.1	3933.3	8.1	33.9	161938.2	60110.5
	All	100.0	135.6	124.1	12.9	4982.4	3250.9	10.8	28.3	91544.6	89887.8
All sectors	Non-exporting	88.5	128.8	107.4	22.6	4897.039	2916.1	14.9	39.5	86223.4	54790.1
	Exporting	11.5	586.7	469.2	117.5	7821.3	4701.0	14.7	36.6	156025.5	77071.3
	Proportion exporter /non-exporter		4.6	4.4	5.2	1.6	1.6	1.0	0.9	1.8	1.4
N	Non-exporting	3,899	3,899	3,857	3,899	3,857	1,833	3,899	3,848	3,899	3,899
	Exporting	507	507	507	507	507	310	507	507	507	507

Source: Own computation of CSA data

[4] They are "administrative and technical employees" which include the salaried directors and managers, technicians, superintendents, research workers, draftsmen and designers, engineers, chemists, architects, accountants, book-keepers, office machine operators, receptionists, sales men, delivery personnel, guards and other office staff while the "production workers" are those workers directly engaged in production i.e., persons engaged in fabricating, processing, assembling, maintenance, repair, janitorial, record keeping and other associated activities. This data is based on full time permanent workers only.

While table 3.3 shows employee status by firm size (based on the level of employment); small (10-29), medium (30-99) and large (=>100). The Table shows that exporting is positively related to firm size, that is, the proportion of exporting firms increased as one moves from small to larger firms even if it declines over time. This could be due to scale economies associated with large firms. It also shows that casualization is positively related to size i.e. the proportion of casual workers is relatively high among large firms compared to medium to small firms. In other words, the number of full-time, long-term salaried employees seems to be decreasing, as the system evolves towards the employment of a diverse pool of workers who are non-standard forms of employment to cut on costs as the latter usually do not enjoy fringe benefits and other employment benefits. Likewise, the share of skilled workers and foreign-owned firms are characterized by increased with firm size but decline over time. That is why the proportion of women's employment is now rising with time as they are relatively unskilled and a cheap source of labor so that they are likely to be most affected by adverse changes in the labor market. In terms of gender, formal sector employment is male-dominated, and women currently constitute only about 29% in 2000 and 35% in 2010 of total labor force. The average wage and productivity have been a consistent rise in with the firm size and the time. Finally, even if the share of exporting firms increases with size, it declines with time.

Table 3. 3: Employees status by firm size and time

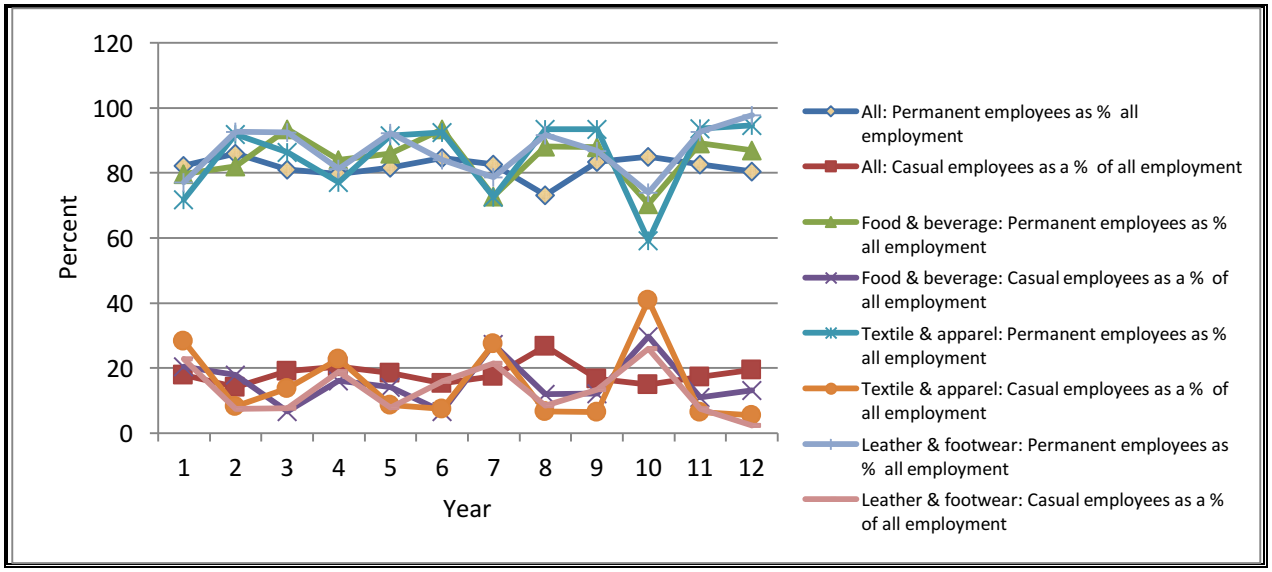
Year	Category	Total firms	Total workers	Share of casual workers	Average wage	Mean O/L	Share of female	Share of exporters	Share of skilled workers	Share of foreign owned
2000	Small	96	1644.9	9.4	2623.7	46532	28.3	0.0	35.1	2.0
	Medium	57	3162.8	12.7	4110.3	84029	28.4	17.5	37.5	3.5
	Large	94	56173.6	18.3	5538.2	104561	30.9	23.4	44.9	6.4
	All	247	60981.4	17.8	4075.9	77269	29.3	13.0	39.4	4.1
2004	Small	147	2484.8	18.7	2396.0	36092	33.2	0.0	33.4	2.7
	Medium	107	5844.0	19.0	3877.9	82655	31.9	8.4	39.2	4.7
	Large	106	57356.3	18.7	5930.1	93085	30.3	33.0	43.0	8.4
	All	360	65685.1	18.7	4567.9	66742	30.1	12.2	38.0	5.0
2010	Small	174	3101.3	8.8	3084.6	297223	34.9	4.6	36.7	1.7
	Medium	169	9278.5	15.0	4388.9	135442	33.7	7.1	32.6	4.1
	Large	146	70163.4	18.0	6562.7	113680	38.3	17.8	35.3	5.5
	All	489	82543.2	17.3	8132.1	186511	35.6	9.4	34.1	3.7

Source: Own computation of CSA data

The available data shows that during the sample period, overall employment has been increasing, and permanent workers are about four times as numerous compared to casual workers. In other

words, casual employment as a proportion of total employment has been shown a constant trend which is an average of 18%, relative to regular or permanent employment for all sectors (see Figure 3.3). More importantly, the distribution of casual workers varied marginally by sector. Leather and tanning, take the lead by employing the highest proportion of permanent workers, which is about 87% during the sample period while the other two sectors, food & beverage and textile & apparel, have the same share of permanent workers which is about 84% on average in the same period.

Figure 3. 3: Casual and permanent employment as % of total employment



Source: Own computation of CSA data

4. Methods and Estimation Technique

Using the Cobb–Douglas production function and GMM estimation, this section investigates the impacts of Ethiopian's global engagement on workforce composition and earnings using firm-level data. The section starts with the model's specification and then presents the estimation method.

3.4.1. Model Specification

3.4.1.1. The impact of globalization on employment quality

The Cobb–Douglas production function is used to derive the employment equation and thus to deal with the impact of international trade on employment. This approach has been used by a few studies (Greenaway et al., 1999; Milner & Wright, 1998; Revenga, 1997) by using industry rather than firm-level data.

Accordingly, a Cobb-Douglas production function for a representative firm is assumed:

$$Q_{it} = A^{\lambda} K_{it}^{\alpha} L_{it}^{\beta} \quad \text{.....(1)}$$

Where i denotes firm, t denotes time, Q represents real output, A represents total factor productivity, K represents capital stock, L represents units of labor utilized, α *and* β denote factor share coefficients, and λ allows for growth in efficiency in the production process.

A firm pursuing a profit maximizing strategy will choose the level of labor and capital, where the marginal revenue of labor equals the wage (w) and the marginal revenue of capital equal its user cost (c). Solving this system simultaneously to eliminate capital from the expression for firms' output yields the following equation:

$$Q_{it} = A^{\lambda} \left(\frac{\alpha L_{it}}{\beta} * \frac{w_i}{c} \right)^{\alpha} L_{it}^{\beta} \quad \text{.....(2)}$$

By taking logarithms to linearize and rearranging the above equation, we derive the firm's derived demand for labor as:

$$\ln L_{it} = \phi_0 + \phi_1 \ln\left(\frac{w}{c}\right) + \phi_2 \ln Q_{it} \quad \text{.....(3)}$$

$$where: \phi_0 = -(\lambda \ln A + \alpha \ln \alpha - \alpha \ln \beta)/(\alpha + \beta)$$

$$\phi_1 = -\alpha/(\alpha + \beta), \ \phi_2 = 1/(\alpha + \beta)$$

Following the previous studies at industry level as done by Greenaway et al. (1999) and (!!! INVALID CITATION !!!) and at firm level (see Were (2011)), increased openness through export participation and technology transfer via FDI may promote technical efficiency of the production process. This is due to the pressures of competition in the international markets and knowledge spillovers from FDI-funded imports and other foreign contacts. Therefore, parameter A in the production function may be hypothesized to evolve over time in the following manner:

$$A_{it} = e^{\delta_0 T_i} EX_{it}^{\delta_1} FO_{it}^{\delta_2}, \quad \delta_0, \delta_1, \delta_2 > 0$$

Where T is time trend, EX is export ratio and FO is the inflows of FDI at the firm level to capture the degree of openness. Thus, Equation (3) rewrites as follows:

$$\ln L_{it} = \phi_0 + \phi_1 \ln w_{it} + \phi_2 \ln Q_{it} + \phi_3 EX_{it} + \phi_4 FO_{it} + \phi_5 Z_{it} + F_{location} + F_{time} + F_{\text{sec}tor} + (\mu_{it} + \varepsilon_i) \quad \text{.....(4)}$$

All variables – apart from dummies – are expressed in natural logarithms. L_{it} is total employment in firm i at time t, w_{it} is real average wage (computed as firm's total real wage bill divided by total employment) in firm i at time t and Q_{it} is real output in firm i at time t. We would expect the coefficient of wages to be negative $(\phi_1 < 0)$ and the coefficient of output to be positive $(\phi_2 < 0)$. Besides, EX_{it} and FO_{it} are the variable of interest to measure the degree of global engagement of firm i in time t and captured by a dummy covariates. The signs of ϕ_3 *and* ϕ_4 are uncertain as greater export orientation and FDI can lead to more employment intensity of production as firms substitute away from capital to labor (which usually would be the cheaper factor in a labor surplus economy like Ethiopia) to compete more effectively in world markets, but can also lead to productivity gains and labor shedding (Sasidharan, 2015).

Attention is also given to other explanatory variables (Z_{it}) such as the firm age, which expects to have positively related to their size and mode of operation (1= firm operates more than one shift and 0 otherwise) which is a proxy variable for production capacity. Arguably, more shifts can be taken as an indication of more capacity and hence more able to employ more workers. Location dummy, $F_{location}$, is included to capture its region-specific effect. It takes the value of one if the firm is situated in Addis Ababa (capital city) where larger and more technologically advanced firms and financial center are located, and zero otherwise. It is expected to have an employment enhancing effect through higher competitiveness. F_{time} *and* $F_{\text{sec}tor}$ represent time and sector fixed effects, that might impact differently on the relationship between globalization and employment, are also controlled in the model to account for unobserved shocks that may affect the variables. Finally, the error term is composed of the idiosyncratic disturbance term (μ_{it}) and the time invariant firm fixed effect to account for unobservable firm-specific characteristics (ε_i).

One of the advantages of panel data is that it allows researchers to understand the dynamics of adjustment as many economic relationships are dynamic (Baltagi, 2008). In addition, the costs of labor adjustment and persistence in the employment evolution call for transforming the model from a static to a dynamic one, in order to take into account firm's attrition and delays in hiring/firing workers (see (Arellano & Bond, 1991; Greenaway et al., 1999; Getinet Haile et al., 2016; Lachenmaier & Rottmann, 2011). These dynamic relationships are characterized by the presence of lagged total employment (L_{it-1}), and it takes the following final extended form:

$$\ln L_{it} = \phi_0 + \gamma \ln L_{it-1} + \phi_1 \ln w_{it} + \phi_2 \ln Q_{it} + \phi_3 EX_{it} + \phi_4 FO_{it} + \phi_5 Z_{it} + F_{location} + F_{time} + F_{sector} + (\mu_{it} + \varepsilon_i) \text{.....(5)}$$

Practically, labors are not a homogeneous factor of production since firms employ workers on different terms and different skills. Thus, our study also uses the composition of the workforce (the number of casual and permanent workers) based on labor contract status that a worker holds, represents the 'empowerment' of employees to define labor (Rand & Torm, 2012; Were, 2011). This permits us to analyze the effect of trade variables on demand for different categories of labor.

The above empirical model is extended to capture this effect through defining a separate labor demand equation for each work group of temporary and permanent workers. Equation (6) and (7) are therefore expressed for studying the effect on employment trends (*quantity effect*) for both types of labor within a dynamic specification of the following form:

$$\ln L^c_{it} = \phi_0 + \gamma \ln L^c_{it-1} + \phi_1 \ln w^c_{it} + \phi_2 \ln Q_{it} + \phi_3 EX_{it} + \phi_4 FO_{it} + \phi_5 Z_{it} + F_{location} + F_{time} + F_{sector} + (\mu_{it} + \varepsilon_i) \text{.....(6)}$$

$$\ln L^p_{it} = \phi_0 + \gamma \ln L^p_{it-1} + \phi_1 \ln w^p_{it} + \phi_2 \ln Q_{it} + \phi_3 EX_{it} + \phi_4 FO_{it} + \phi_5 Z_{it} + F_{location} + F_{time} + F_{sector} + (\mu_{it} + \varepsilon_i) \text{.....(7)}$$

Where L^c_{it} *and* L^p_{it} are respectively the numbers of casual and permanent workers of firm i at time t; whereas w^c_{it} *and* w^p_{it} are the real average wages of casual and permanent labor respectively. The other variables are defined in the same way as in Equation (5). The effect of trade liberalization on equation (6) is hypothesized to be indeterminate. On the one hand, it may be positive based on the argument that increased competitive pressures associated with exporting exacerbate the demand for casual workers, whereby firms seek low-cost. On the other hand, exporting firms may possibly employ a less proportion of casual workers if the technologies transferred through trade are biased in favor of skilled permanent labor.

Besides, the estimation of two-equation setting (as opposed to the alternative strategy for estimating a standard cost share single equation) allows for exploring the autoregressive employment dynamics of casual and permanent workers separately. Therefore, estimating equations (6) and (7) and testing the differences in coefficient magnitudes allow to assess the impact of technology and trade variables on relative employment quality, and permit to investigate the *relative* versus *absolute* quality bias (see Section 1). Absolute quality bias would appear when openness related variables have a positive and significant coefficient for permanent workers and negative or not significant coefficients for casual workers, while relative quality bias implies a faster increase of demand for permanent workers with respect to casual labors. In other words, absolute quality bias implies a diverging pattern between permanent and casual labor demand, while relative quality bias does not.

3.4.1.2. The Impact of globalization on Wages

In order to investigate the impact of global engagement on the wage differential, a basic dynamic specification controlling firm characteristics, following among the substantial number of studies (for example (Holtz-Eakin, Newey, & Rosen, 1988; Revenga, 1997)), is specified as follows:

$$\ln w_{it} = \phi_0 + \gamma \ln w_{it-1} + \phi_1 \ln L_{it} + \phi_2 \ln Q_{it-1} + \phi_3 EX_{it} + \phi_4 FO_{it} + \phi_5 Z_{it} + F_{location} + F_{time} + F_{sector} + (\mu_{it} + \varepsilon_i) \text{.....(8)}$$

To test their impacts on wage differential, thus studying the *price effect*, we also estimate two wage equations of each type of workers by following Meschi et al. (2016) and is presented as follows (where the variables are defined as in (6) and (7)).

$$\ln w^c_{it} = \phi_0 + \gamma \ln w^c_{it-1} + \phi_1 \ln L^c_{it} + \phi_2 \ln Q_{it-1} + \phi_3 EX_{it} + \phi_4 FO_{it} + \phi_5 Z_{it} + F_{location} + F_{time} + F_{sector} + (\mu_{it} + \varepsilon_i) \text{.....(9)}$$

$$\ln w^p_{it} = \phi_0 + \gamma \ln w^p_{it-1} + \phi_1 \ln L^p_{it} + \phi_2 \ln Q_{it-1} + \phi_3 EX_{it} + \phi_4 FO_{it} + \phi_5 Z_{it} + F_{location} + F_{time} + F_{sector} + (\mu_{it} + \varepsilon_i) \text{.....(10)}$$

Where w^c_{it} & w^p_{it} *and* w^c_{it-1} & w^p_{it-1} are the real average wages of casual and permanent workers and their corresponding lags, respectively. We used lagged real output of each firm, Q_{it-1}, to avoid endogeneity since wage can be seen as a component of firm's output (Meschi et al., 2016). The firm size, L_{it}, which proxies by total employment, is expected to have a positive relationship with the wage premium because workers in larger firms are paid higher wages (Idson & Oi, 1999). It has been shown that foreign engaged firms from tending to pay higher wages than domestic firms, probably due to the formers' greater use of technology (See for instance (Aitken, Harrison, & Lipsey, 1996; Brambilla et al., 2014)). Regarding firm-level factors Z_{it}, this study closely follows the model specification of A. B. Bernard et al. (1995). The location of a firm $(F_{location})$ may be an important determinant of wages, in part due to differences in labor market tightness and differences in the cost of living among regions. The year and industry dummies $(F_{time}\ and\ F_{sector})$, which account respectively for the economy-wide demand shocks and industry-specific shocks that may have an impact on our results are also included in the analysis.

Table 3.4: Descriptive statistics of regression variables

Variables	N	Mean	Std. Dev.	Min	Max
Total Employment	4,388	179.57	475.02	10	11,972
Casual Employment	4,388	33.61	207.07	0	7,518

Permanent Employment	4,347	147.34	353.74	1	4,454
Total Average wage	4,389	4,367.23	4,346.33	102	91,070
Wage of Casual workers	2,138	3,015.28	4,439.40	0	44,281
Wage of Permanent workers	4,347	4,956.28	5,379.30	0	144,103
Output	4,388	15,900,000.00	50,800,000.00	1,895	1,240,000,000
Export Dummy	4,388	0.12	0.32	0	1
Foreign Ownership	4,388	0.05	0.21	0	1
No. of Shifts	4,388	0.39	0.49	0	1
Firm Age	4,388	16.23	17.14	0	97
Location Dummy	4,388	0.53	0.50	0	1

3.4.2. Estimation Method

Most of the previous empirical works for estimating dynamic employment and wage equations have used simple OLS and fixed effects regression analysis. However, these methods are confronted by the endogeneity and heterogeneity problem and the estimators are biased. In other words, the presence of firm-specific effects causes a correlation between the lagged dependent variables and the individual fixed effect (ε_i)which implies a violation of the assumption of strict exogeneity of the estimators in dynamic specification. This makes OLS, fixed effects, random effects, and feasible generalized least squares (FGLS) techniques to yield biased and inconsistent estimates (Baltagi, 2008; M. N. Harris & Mátyás, 2004; Hsiao, 1986). To deal with this problem, the most favored approaches to date that give unbiased and consistent results are IV and GMM. However, the present study has used the GMM estimator for two reasons. First, the GMM estimator is more efficient than the simple IV estimator if heteroscedasticity is present and it is no worse asymptotically than its counterpart if heteroscedasticity is not present (Baum, Schaffer, & Stillman, 2003). Second, since the IV method does not use all available moment conditions and it does not take into account the differences structure on the residual disturbances, its use may lead to consistent, but not necessarily efficient, estimates of the model's parameters (Baltagi, 2008).

Arellano and Bond (1991) have first utilized the first-differenced GMM (DIF-GMM) technique as an alternative to the Anderson and Hsiao (1982) approach which developed a formulation for obtaining consistent FE-IV estimators. In their model, the instrument matrix includes all previous level values of the lagged dependent variable, where they obtain the DIF-GMM estimator which helps to overcome the problem of endogeneity. As pointed out by Blundell and Bond (1998) and S. R. Bond, Hoeffler, and Temple (2001), however, the DIF-GMM estimator has been found to have poor finite sample properties, in terms of bias and imprecision, when (1) there is strong

persistence in the time, where the lagged levels are weakly correlated with the differences in the explanatory variables and (2) if cross-section variability dominates time variability (S. R. Bond et al., 2001).

Later on, an improved panel data GMM called system GMM (SYS-GMM) method has been proposed by Arellano and Bover (1995) and has been fully developed by Blundell and Bond (1998) by imposing additional moment conditions to perform an efficiency improvement to the DIF-GMM model. In particular, SYS-GMM estimator is deduced from the estimation of a system of two simultaneous equations, one in first differences (with lagged levels as instruments) which is similar to the GMM-DIFF estimator and the other in levels (with lagged first differences as instruments). This estimator is defined under extra moment restrictions that are available under quite reasonable conditions relating to the properties of the initial condition process. Exploiting these extra moment restrictions offers efficiency gains and permits the identification of the effects of time-invariant variables. Besides, this specification allows us to control for potential endogeneity problems, sectoral unobserved time-invariant heterogeneity and time effects (Blundell and Bond, 1998). Therefore, the SYS-GMM estimator is more appropriate than the DIF-GMM for our empirical model and is used as the main method for estimating the employment and wage equations.

In order to have a benchmark on the coefficients estimated using system-GMM and for proper robustness checking, we also estimate the employment and wage functions using pooled OLS and fixed effects. To take into account the biases of estimated input coefficients due to the heterogeneity of production technology across sectors, we also estimated the two functions at 2-ISIC digits level. The estimated coefficients of inputs are reported in Appendix 3.A**.** The validity of instruments is tested using a Sargan test of over identifying restrictions and Arellano-Bond test for autocorrelation.

5. Results

The results of our empirical analysis are reported in Tables 3.5, 3.6 and 3.8 below which presents the OLS, FE and SYS-GMM estimators for the total employment and wages and their corresponding decomposition equations. Despite the biases and inconsistency in the OLS and fixed effects estimations, their results are still useful for verifying the estimation results of SYS-GMM. The fixed effects estimator yields a downward bias (Nickell, 1981); whereas the OLS estimator produces upward-biased estimates for the lagged dependent variable in the presence of firm-specific effects and a dynamic specification (Hsiao, 1986).

As one can see in employment and wage equations (Table 3.5), the coefficients behave exactly as expected. The SYS-GMM shows a positive and significant value of the lagged total employment coefficient, further asserting the persistence in the time series and the presence in

adjustment costs to changing employment level. The implication of this is that employers usually based their current employment decisions on the previous level of employment. The same holds true for the lagged real average wage coefficient on wage equation. That is, the value of the lagged dependent variables is large and statistically significant for both equations and lay between the upper bound of the OLS model and the lower bound of the fixed effects and this confirms the importance of the dynamic of the models and the chosen SYS-GMM methodology.

The other regressors also show positive coefficients reflecting employment and wage-enhancing effects of varying levels of significance. The coefficient of real output for employment equation and its lag for wage equation has the expected sign and is statistically significant at the 1 percent level in all specifications for both equations. On the contrary, the average wage coefficient shows a negative and significant value, which is consistent with the expected sign indicating a negative relationship between labor demand and wages. In other words, increases in output cause a rise of wages as firms take on more labor to meet their production needs, while expansions in employment independent of increased output generally cause a fall of wages. This result is also consistent with a study in Tunisia by Haouas, Yagoubi, and Heshmati (2005), and in India by Sasidharan (2015). Similarly, the positive sign of the capacity variable indicates that as the firm operates more than one shift, the demand for labor rises. On the contrary, the firm's location doesn't matter on labor demand and wage wherever the firm located. Finally, firms with age are also found to have an employment and wage-enhancing effect.

The results show that the estimated coefficient of exports is positive and statistically significant at conventional levels and indicating that being exporter additionally contributes to job creation for Ethiopian's abundant labor force, thus reducing its unemployment level. Besides, export participation may help firms to expand their markets (Van Biesebroeck, 2005), and then firms need more laborers to meet the expansion in market demand. Similarly, a positive effect of exports on wage structure is compatible with the hypothesis that the increase in profits generated by achieving a competitive position in export markets does generate higher wages. The estimated coefficient of the foreign ownership variable is positive and significant, albeit being weakly significant, indicating its contribution to employment and wage growth in the manufacturing sector. Its magnitude and significance level are; however, lower than that for the exports variable which could be due to the employment and wage multiplier for FDI are not as big as that for exports.

Table 3. 5: Regression results from the total employment and wage equations

	Employment equations			Wage equations		
	OLS	FE	SYS-GMM	OLS	FE	SYS-GMM
Employment				-0.099***	-0.024*	-0.094***
				0.012	0.013	0.043
Lagged Employment	0.614***	0.218***	0.250***			
	0.012	0.014	0.063			
Real Average Wage	-0.165***	-0.186***	-0.311***			
	0.017	0.018	0.057			
Lagged Real Average Wage				0.605***	0.092***	0.131***
				0.014	0.016	0.044
Real Output	0.221***	0.268***	0.248***			
	0.008	0.009	0.034			
Lagged Real output				0.207***	0.130***	0.093***
				0.008	0.009	0.024
Export Dummy	0.172***	0.195***	0.671***	-0.038	0.156***	0.489**
	0.036	0.042	0.256	0.035	0.039	0.140
Foreign Dummy	0.091*	0.090*	0.513*	0.107**	0.173***	0.132*
	0.047	0.054	0.376	0.049	0.050	0.097
No. of Shifts Dummy	0.086***	0.065**	0.157***	0.001	-0.034	0.020
	0.022	0.023	0.036	0.022	0.022	0.031
Firm Age	0.073***	0.105***	0.210***	0.030***	0.032**	0.066***
	0.011	0.014	0.036	0.011	0.014	0.024
Location Dummy	0.076***	0.091**	0.021	0.156***	-0.013	-0.020
	0.022	0.033	0.069	0.023	0.032	0.048
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	No	Yes	Yes	No	Yes
Observations	4,388	4,388	4,388	4,388	4,388	4,388
No. of firms	818	818	818	818	818	818
No. of instruments			94			99
AR(2)			0.275			0.304
Hansen test			0.173			0.224

Notes: We report *P*-values for all test statistics. Robust standard error in parentheses, ***, **, * indicate statistical significance at 1%, 5% and 10 % level respectively.

As mentioned above, we carry out the same exercise by classifying the industries into three sub-groupings. Results reported in Appendix C2.1. In all of the separate regression the lagged employment, real output, firm age, and export participation have a positive and statistically significant effect on employment level which is similar to the combined sector as a whole. A rise

in the average wage rate has a decline while the foreign ownership has a raising effect on the employment demand but not in the leather & tanning sector. Finally, the diagnostic statistics, which are reported in the tables, are satisfactory in all cases. The Sargan test does not reject the null hypothesis implies the over-identifying restrictions or instruments used in the SYS-GMM are valid. The null hypothesis of no second-order autocorrelation not rejected. Thus, specification tests support the overall validity of the model.

The second focus of this paper is to address whether differential labor demand and wage-enhancing effect exist in the employment and wage of casual and permanent workers with separate regressions as reported in Table 3.6 and 3.7. It shows both types of workers exhibits persistence as the change of employment and wage depends significantly on its lagged values. This suggests that the dynamic of the models is important. Also, the magnitude of this two coefficient value of the two groups of equations obtained from SYS-GMM estimation lies within the upper and lower bounds set by the OLS and FE estimators, respectively.

Table 3. 6: Employment equations for casual and permanent workers

	Casual workers equation			Permanent workers equation		
	OLS	FE	SYS-GMM	OLS	FE	SYS-GMM
Lagged permanent Workers				0.603***	-0.001	0.201***
				(0.012)	(0.020)	(0.045)
Lagged casual workers	0.492***	0.079**	0.202***			
	0.024	0.033	0.055			
Casual workers Wage	-0.341***	-0.318***	-0.221**			
	0.034	0.040	0.107			
Permanent workers wage				-0.240***	-0.217***	-0.241***
				(0.014)	(0.022)	(0.051)
Real Output	0.278***	0.197***	0.188***	0.219***	0.249***	0.300***
	0.023	0.045	0.074	0.008	0.013	0.029
Export Dummy	0.278**	0.206	0.112	0.239***	0.086	0.582**
	0.102	0.150	0.220	0.039	0.052	0.155
Foreign Dummy	-0.157	-0.528***	-0.110	0.132**	0.064	0.121*
	0.132	0.195	0.348	0.052	0.066	0.191
No. of Shifts Dummy	0.045	-0.043	0.295**	0.060**	0.041	0.108***
	0.076	0.098	0.124	0.024	0.027	0.036
Firm Age	0.060*	0.144	0.166***	0.080***	0.091***	0.191***
	0.001	0.098	0.068	0.012	0.025	0.031
Location Dummy	-0.017	0.584*	-0.221	0.098***	-0.020	0.112*
	0.078	0.312	0.152	0.023	0.085	0.066

Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	No	Yes	Yes	No	Yes
Observations	2,138	2,138	2,138	4,347	4,347	4,347
No. of firms	608	608	608			818
No. of instruments			123			134
AR(2)			0.735			0.971
Hansen test			0.978			0.165

Notes: We report *P*-values for all test statistics. Robust standard error in parentheses, ***, **, * indicate statistical significance at 1%, 5% and 10 % level respectively.

The SYS-GMM coefficient values of the employment equations reveal that the output and wages have the expected signs and are statistically significant for both groups of workers. That is, the expansion of production raises the demand for both types of labor; whereas increases in average wage rates lower the employment level of both types. The coefficient value with permanent workers has a slightly higher magnitude albeit there is no significant difference between these two values of output as we can see from t-test result (refer to Table 3.8) and thus output does not entail a relative quality bias in terms of employment. The average wage for casual workers has higher coefficient, which probably implied that the demand for casual workers is more elastic given the ease with which such workers can be substituted vis-a-vis their permanent counterparts. The capacity (number of shifts) variable shows similar results, positive and significant for both casual and permanent labors, but this increase seems to be higher for casual workers. However, in this case also, no conclusion can be made regarding the presence of a relative quality bias as the t-test for the significance of the difference between the two values is insignificant (see Table 3.8). Firm age also shows a positive and significant result for both groups of workers, but no statistical significant difference between the two coefficients. This doesn't assert the existence of relative quality bias effect. Firms situated at the capital city are obtained to have an employment enhancing effect for permanent workers but not for casual workers. This effect has also absolute quality bias effect which explained by the statistically significant difference in the two coefficients and hence firms located in the capital region hire more permanent and less casual workers vis-a-vis their counterparts in other regions. Hence, full-time or long-term contracts with employees may be the preferred choice for firms in the capital city.

The exporting firms[5] and those with a share of foreign ownership have significant effects only for permanent workers and witnessed an absolute quality bias effect. This indicates that export activities of firms and presence of foreign ownership increase the employment of long-term salaried employees, while do not significantly affect the employment of temporary workers. This, in turn, improves the empowerment of workers through allowing them to enjoy the

[5] The t-test for the difference between the two coefficients of this variable is not found to be statistically significant due to the coefficient for casual workers being not significant (see table 3.8).

associated benefits of being legal. Besides, since employees with permanent employment contracts are likely to be more skilled, technology transfer via international market involvement appears in Ethiopia which supports the learning by exporting hypothesis[6]. In other words, this is likely to imply that technology transfers embodied in trade flows bring productivity improvements through obtaining efficiency gains, and acquiring knowledge of international best practices (Vivarelli, 2014), which may, in turn, affect the employment's level and composition. Positive and significant results for this variable would indicate that exporters within the Ethiopian manufacturing sector are indeed benefitting from this channel of technology transfer. Therefore, the employment enhancing effect of export variable and foreign ownership observed in the total employment equation stems largely from the effect on the higher demand for permanent labors.

Looking at Table 3.7 also reports the findings for the two types of workers wage equations. The estimated coefficients of the real output and employment have the expected signs and also in line with theoretical priors. Increases in firm output raise the wage for both types of workers, with a slightly higher magnitude for permanent workers with a statistical significant difference between the two coefficients, and implies relative quality bias (see Table 3.8). Whereas increases in labor demand for a specific category of workers turn out to be negatively correlated with the wage rate of the corresponding category. Coming to other characteristics, shift variable has a positive, but weakly significant effect on the wage of casual workers. Firm age has a widening wage differential effect in favor of permanent worker's wage and also has an absolute quality bias effect (see table 3.8). Location doesn't matter for both groups of worker wage. We also see that foreign ownership magnify the wage gap between casual and permanent workers. In particular, it has a positive significant effect on permanent works, while does not affect the casual worker's wage, and thus widening wage inequality. Looking at the export participation, we obtain a positive significant effect on the wage of both groups of workers. In particular, when the EX dummy turns to 1, wages of permanent workers increase by almost 40%, and those of casual workers by almost 34% but the gap isn't statistically significant (see table 3.8). In sum, the resulting technological transfer and thus possibly productivity gains from opening up to international trade have a worrying effect on workers quality dispersion and wage differentials

To further investigate the impact of global engagement on the employment quality across sectors, we also estimated the two employment quality equations at 2-ISIC digits level. The estimated coefficients for casual and permanent workers are reported respectively in Appendix C2.2 and C2.3. In all of the separate regression the lagged employment and real output have a positive and the statistical significance effect of each type of employment regardless of model choices as it observed in the combined sector result. The labor demand regardless of its quality

[6] It is related with the revealed quality biased impact of exporting which encourages hiring more permanent which are relatively more skilled than casual workers as a response to a more sophisticated foreign demand and a tougher international competition.

declines with a rise in wage rate but not for permanent workers in the leather & tanning sector in which it has insignificant effect. Lastly, a positive effect of export participation is observed in food & beverages and leather & tanning industries for permanent workers, but there is no significant association with the employment of casual workers in all sectors. Likewise, a positive association is witnessed between foreign ownership and permanent workers in food & beverages sector, but not for casual workers in all sectors. This is almost corroborated our findings obtained from the combined sector. Again, the Sargan test for instrumental validity is satisfied and the Arellano–Bond test for the existence of second-order autocorrelation cannot reject the null hypothesis that the residuals have no second-order correlation.

Table 3. 7: Wage equations for casual and permanent workers

	Casual Workers wage equation			Permanent Workers wage equation		
Variable	OLS	FE	SYS-GMM	OLS	FE	SYS-GMM
Permanent workers				-0.080***	-0.014	-0.090*
				0.012	0.013	0.050
Lagged casual workers wage	0.408***	0.217***	0.153***			
	(0.027)	(0.029)	(0.074)			
Casual workers	-0.199***	-0.167***	-0.197***			
	(0.019)	(0.019)	(0.057)			
Lagged Permanent workers Wage				0.640***	0.147***	0.241***
				0.014	0.017	0.113
Lagged Real Output	0.301***	0.186***	0.140***	0.188***	0.130***	0.158**
	(0.015)	(0.019)	(0.058)	0.008	0.009	0.028
Export Dummy	-0.036	0.178**	0.345**	-0.049	0.157***	0.405**
	(0.080)	(0.084)	(0.277)	0.038	0.040	0.179
Foreign Dummy	-0.089	0.018	-0.045	0.111**	0.165***	0.496**
	(0.108)	(0.108)	(0.522)	0.049	0.051	0.247
No. of Shifts Dummy	0.073	0.115*	0.164*	-0.003	-0.035	0.020
	(0.061)	(0.060)	(0.086)	0.023	0.022	0.034
Firm Age	-0.057**	-0.063**	-0.033	0.025***	0.032***	0.065***
	(0.028)	(0.029)	(0.088)	0.011	0.014	0.026
Location Dummy	0.209***	-0.139**	0.046	0.141***	0.033	-0.069
	(0.064)	(0.0.65)	(0.166)	0.023	0.031	0.053
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	No	Yes	Yes	No	Yes
Observations	2,138	2,138	2,138	4,347	4,347	4,347
No. of firms	608	608	608	818	818	818

No. of instruments	127	94
AR(2)	0.250	0.682
Hansen test	0.160	0.111

Notes: We report *P*-values for all test statistics. Robust standard error in parentheses, ***, **, * indicate statistical significance at 1%, 5% and 10 % level respectively.

Table 3.8: t-statistic for comparing coefficients of the two equations of employment and wage

Variables	Labor demand equation	Wage equation
Real output	2.05	15.85***
Export Dummy	0.13	0.03
Foreign ownership	5.07**	4.12**
No. of shifts	0.08	1.00
Firm age	0.39	5.42**
Location Dummy	3.2*	0.65

***, **, and * indicate the statistical significance at the 1, 5, and 10 %, respectively

6. Concluding Remarks

This study aimed to investigate empirically how labor demand and wages in manufacturing industries is affected by international trade involvement within the Ethiopian manufacturing sector over the period 2000–2011. In order to determine these differential responses to trade liberalization, we estimate dynamic models of employment and wages using a panel data estimation technique by using alternative econometric estimators. The study provides some key findings as follows.

Firstly, firms' international exposure has a positive contribution to employment creation and wage growth in Ethiopian manufacturing. This affirms the fact that Ethiopian's exports are more labor intensive and this has mitigated the country's labor surplus or reduces the unemployment level. In other words, integration into the international market has generated new jobs for workers with a higher wage and may play in shaping the demand for labor in a developing country like Ethiopia. Thus, the government should give due attention to attract investors and to increase exports through designing different incentives and enhancement of infrastructure quality, opening industry parks, creating a favorable investment climate with the requisite credit and financial infrastructure, among others, to be more beneficiary.

Secondly, trade and foreign ownership are found to have an absolute quality-bias effect on employment which affirms the presence of learning by exporting on the Ethiopian manufacturing sector. This is explained by the employment of long-term salaried employees, which improves

the empowerment of workers. Besides, this suggests that the effect of exporting activity and foreign ownership on total firm-level employment is largely the result of its effect on permanent labor. Thus, this also needs to bring more quality workers via designing appropriate economic policies which able to couple trade openness with training and education policies targeted to produce a qualified labor supply in line with the demand of employers. These measures would allow the country to deepen its participation in global networks and strengthen its competitive position to take advantage of the opportunities arising from increasing globalization, openness and liberalized markets. Besides, proximity to the capital city is found to lead to an absolute quality bias for derived labor demand in favor of permanent workers. Similarly, a positive and significant relationship was found between level of employment and output in the sector. This underscores the fact that efforts to improve the level of production in the sector via infrastructural development, especially power supply will boost productivity, which will, in turn, enhance the level of employment generation in the sector.

Finally, employees in foreign-owned firms are paid higher wages for permanent workers and worsen income distribution by increasing wage differentials between the two types of workers which in turn assures the presence of quality differences. Exporters, on the other hand, have a positive significant effect on the wage of both groups of workers but no significant difference.

Appendix C

Appendix C1: Variable description

All variables in monetary terms adjusted to the constant price of the year 2000

Variables	Description
Total employment	Total number of permanent and adjusted temporary employees
Casual workers	Number of temporary workers
Permanent workers	Number of permanent workers
Real average wage	Ratio of total wage of employees to total number of employees
Casual workers wage	Real average wages of the casual workers
Permanent workers wage	Real average wages of the permanent workers
Real output	Total sales deflated by LMMIS deflator obtained from MoFED
Exporter	1 if firms participate in exporting market, 0 otherwise
Foreign ownership	1 for firms involve >50% foreign capital, 0 otherwise
Firm age	Number of years since established
Fixed-Effect Dummies	
Sector dummies:	There are three sector dummies, including Food and Beverage, Textiles and Apparel, Leather and Tanning products in which the last as the reference group
Location dummy:	1 if situated in Addis Ababa, 0 otherwise

Table C2.1: Employment equations for the three 2-digit subsectors

Total Employment	Food and Beverages			Textile and Apparel			Leather and Tanning		
	OLS	FE	SYS-GMM	OLS	FE	SYS-GMM	OLS	FE	SYS-GMM
Lagged Employment	0.597***	0.015	0.298***	0.690***	0.127**	0.470***	0.395***	-0.017	0.084
	0.015	0.023	0.076	0.028	0.053	0.099	0.037	0.054	0.125
Real Average Wage	-0.174***	-0.251***	-0.345***	-0.167**	-0.196***	-0.249*	0.246	-0.042	-0.090
	0.017	0.018	0.081	0.053	0.058	0.137	0.052	0.066	0.144
Real Output	0.222***	0.184***	0.235***	0.218***	0.332***	0.309***	0.246***	0.259***	0.270***
	0.009	0.013	0.037	0.022	0.029	0.087	0.024	0.034	0.071
Export Dummy	0.237***	0.182**	0.523**	0.086	0.222***	0.692**	0.234***	0.130	0.308
	0.055	0.078	0.234	0.074	0.081	0.311	0.078	0.103	0.323
Foreign Dummy	0.131**	0.115	0.385*	0.031*	0.157	0.038*	-0.063	-0.029	0.075
	0.061	0.079	0.326	0.123	0.133	0.598	0.089	0.151	0.182
No. of Shifts Dummy	0.086***	0.086***	0.138***	-0.048	-0.099	-0.130	0.113*	-0.001	0.096
	0.025	0.028	0.038	0.080	0.075	0.204	0.064	0.074	0.082
Firm Age	0.005***	0.003*	0.012***	0.005**	-0.003	0.012**	0.010***	0.002	0.022***
	0.001	0.002	0.003	0.002	0.004	0.005	0.002	0.007	0.005
Location Dummy	0.073**	-0.049	-0.040	0.031	0.468*	0.070	0.098	-0.365*	-0.021
	0.025	0.089	0.074	0.064	0.282	0.131	0.062	0.213	0.138
Constant	-0.090	3.416***	1.645***	-0.467	0.876	0.0179	-1.541***	0.779	-0.037
	0.139	0.235	0.682	0.441	0.637	1.667	0.430	0.727	(1.481)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Observations	3098	3098	3098	638	638	638	656	656	656
No. of firms	599	599	599	107	107	107	112	112	112
No. of instruments			91			90			92
AR (2)			0.402			0.853			0.395
Hansen test			0.168			0.797			0.862

Notes: We report *P*-values for all test statistics. Robust standard error in parentheses, ***, **, * indicate statistical significance at 1%, 5% and 10 % level respectively.

Table C2.2: Casual workers equations for the three 2-digit subsectors

Casual workers	Food and Beverages			Textile and Apparel			Leather and Tanning		
	OLS	FE	SYS-GMM	OLS	FE	SYS-GMM	OLS	FE	SYS-GMM
Lagged casual workers	0.514***	0.080**	0.301***	0.460***	0.160*	0.387***	0.238***	-0.028	0.188*
	0.028	0.040	0.078	0.057	0.072	0.105	0.098	0.106	0.206
Casual workers Wage	-0.320***	-0.256***	-0.255**	-0.434***	-0.546***	-0.352**	-0.489***	-0.917***	-0.340*
	0.039	0.046	0.122	0.074	0.086	0.238	0.143	0.185	0.598
Real Output	0.281***	0.193***	0.306***	0.325***	0.193	0.345**	0.153**	0.614***	0.136*
	0.026	0.053	0.075	0.055	0.091	0.148	0.096	0.174	0.226
Export Dummy	0.394***	0.590**	0.627*	0.401	-0.002	0.009	-0.067	-0.085	0.408
	0.140	0.207	0.338	0.187	0.249	0.403	0.347	0.473	0.486
Foreign Dummy	-0.109	-0.474**	-0.169	-0.704**	-1.455***	-0.510	-0.051	-0.356	-0.768
	0.162	0.230	0.247	0.321	0.421	0.884	0.388	0.896	1.298
No. of Shifts Dummy	0.102	0.053	0.188	-0.242*	-0.252	-0.306	0.340	0.261	-0.895
	0.085	0.123	0.112	0.187	0.204	0.371	0.366	0.572	0.986
Firm Age	-0.000	0.001	0.002	0.013***	0.005	0.014**	0.027***	0.049*	0.032***
	0.002	0.009	0.004	0.005	0.017	0.006	0.007	0.028	0.010
Location Dummy	-0.042	0.541	-0.071	-0.062	2.927***	-0.090	0.019	0.297	-0.392
	0.094	0.381	0.151	0.171	0.901	0.190	0.281	0.853	0.517
Constant	-0.498	1.097		0.100	3.321**		0.577	0.922	
	0.413	0.927		0.953	1.604		1.592	2.813	
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Observations	3098	3098	3098	638	638	638	656	656	656
No. of firms	599	599	599	107	107	107	112	112	112
No. of instruments			210			131			111
AR(2)			0.547			0.969			0.693
Hansen test			1.000			1.000			1.000

Notes: We report *P*-values for all test statistics. Robust standard error in parentheses, ***, **, * indicate statistical significance at 1%, 5% and 10 % level respectively.

Table C2.3: Permanent workers equations for the three 2-digit subsectors

Permanent workers	Food and Beverages			Textile and Apparel			Leather and Tanning		
	OLS	FE	SYS-GMM	OLS	FE	SYS-GMM	OLS	FE	SYS-GMM
Lagged Permanent workers	0.539***	-0.019	0.245***	0.704***	0.068	0.644***	0.345***	0.011	0.147*
	0.015	0.023	0.048	0.026	0.059	0.077	0.038	0.052	0.086
Permanent workers Wage	-0.137***	-0.218***	-0.100	-0.313***	-0.143**	-0.299*	-0.013	-0.160**	-0.088
	0.019	0.020	0.069	0.066	0.072	0.153	0.060	0.077	0.124
Real Output	0.235***	0.224***	0.310***	0.229***	0.350***	0.338***	0.263***	0.271***	0.319***
	0.010	0.014	0.030	0.025	0.031	0.079	0.028	0.041	0.057
Export Dummy	0.254***	0.238***	0.480**	0.057	-0.248***	0.147	0.319***	0.335**	0.373*
	0.061	0.083	0.173	0.081	0.089	0.173	0.090	0.124	0.206
Foreign Dummy	0.164***	0.207***	0.084	0.072	-0.147	-0.012	-0.079	-0.085	-0.158
	0.067	0.084	0.146	0.133	0.146	0.201	0.103	0.182	0.175
No. of Shifts Dummy	0.053**	0.062*	0.078*	-0.001	-0.037	-0.183	0.158**	0.010	0.126
	0.027	0.031	0.041	0.086	0.083	0.122	0.074	0.089	0.102
Firm Age	0.006***	0.002	0.009***	0.003*	-0.002	0.004	0.011***	0.002	0.018***
	0.001	0.002	0.002	0.002	0.004	0.004	0.002	0.008	0.004
Location Dummy	0.132***	-0.014	0.177***	0.063	0.426	0.133	0.134*	-0.293	0.087
	0.028	0.097	0.066	0.071	0.310	0.120	0.072	0.255	0.108
Constant	-0.358***	2.806***		0.448	0.289		-1.841***	0.999	
	0.152	0.257		0.526	0.752		0.519	0.874	
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Observations	3098	3098	3098	638	638	638	656	656	656
No. of firms	599	599	599	107	107	107	112	112	112
No. of instruments			226			196			190
AR(2)			0.929			0.750			0.508
Hansen test			0.898			1.000			1.000

Notes: We report *P*-values for all test statistics. Robust standard error in parentheses, ***, **, * indicate statistical significance at 1%, 5% and 10 % level respectively.

Reference

Abegaz, B. (1999). Aid and reform in Ethiopia. *background paper for WORLD BANK (2001), available at http://www. worldbank. org/research/aid/africa/intro. htm*.

Abraham, F., & Brock, E. (2003). Sectoral employment effects of trade and productivity in Europe. *Applied Economics, 35*(2), 223-238.

AfDB. (2014). Annual Report.

AfDB, O., & Undp, U. (2012). African Economic Outlook 2012. *Country Note Burundi*.

Aggrey, N., Eliab, L., & Joseph, S. (2010). Export Participation and Technical Efficiency in East African Manufacturing Firms. *Current Research Journal of Economic Theory, 2*(2), 62-68.

Aitken, B., Harrison, A., & Lipsey, R. E. (1996). Wages and foreign ownership A comparative study of Mexico, Venezuela, and the United States. *Journal of international Economics, 40*(3-4), 345-371.

Almeida, R., & Fernandes, A. M. (2008). Openness and technological innovations in developing countries: evidence from firm-level surveys. *The Journal of Development Studies, 44*(5), 701-727.

Altăr, M., & Cazacu, A.-M. (2016). Testing Self-Selection And Learning By Exporting Hypotheses. The Case Of Romania. *ECONOMIC COMPUTATION AND ECONOMIC CYBERNETICS STUDIES AND RESEARCH, 50*(1), 5-22.

Álvarez Espinoza, R., & Görg, H. (2005). Multinationals and plant exit: evidence from Chile: Discussion paper series/Forschungsinstitut zur Zukunft der Arbeit.

Alvarez, R., & Lopez, R. A. (2005). Exporting and performance: evidence from Chilean plants. *Canadian Journal of Economics/Revue canadienne d'économique, 38*(4), 1384-1400.

Alvarez, R., & Vergara, S. (2013). Trade exposure, survival and growth of small and medium-size firms. *International Review of Economics & Finance, 25*, 185-201.

Anderson, T. W., & Hsiao, C. (1982). Formulation and estimation of dynamic models using panel data. *Journal of econometrics, 18*(1), 47-82.

Andersson, L. (2001). Openness and total factor productivity in Swedish manufacturing, 1980–1995. *Review of World Economics, 137*(4), 690-713.

Andrews, M. J., Bellmann, L., Schank, T., & Upward, R. (2007). The takeover and selection effects of foreign ownership in Germany: an analysis using linked worker-firm data.

Arcelus, F. J., & Arocena, P. (2000). Convergence and productive efficiency in fourteen OECD countries: a non-parametric frontier approach. *International Journal of Production Economics, 66*(2), 105-117.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies, 58*(2), 277-297.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of econometrics, 68*(1), 29-51.

Arnold, J. M., & Hussinger, K. (2005). Export behavior and firm productivity in German manufacturing: a firm-level analysis. *Review of World Economics, 141*(2), 219-243.

Artuç, E., Chaudhuri, S., & McLaren, J. (2010). Trade shocks and labor adjustment: A structural empirical approach. *The American Economic Review, 100*(3), 1008-1045.

Aw, B. Y., Chung, S., & Roberts, M. J. (2000). Productivity and turnover in the export market: micro-level evidence from the Republic of Korea and Taiwan (China). *The World Bank Economic Review, 14*(1), 65-90.

Aw, B. Y., Roberts, M. J., & Winston, T. (2007). Export market participation, investments in R&D and worker training, and the evolution of firm productivity. *The world economy, 30*(1), 83-104.

Baldwin, J., & Yan, B. (2011). The death of Canadian manufacturing plants: heterogeneous responses to changes in tariffs and real exchange rates. *Review of World Economics, 147*(1), 131-167.

Baldwin, J. R., & Gu, W. (2003). Export-market participation and productivity performance in Canadian manufacturing. *Canadian Journal of Economics/Revue canadienne d'économique, 36*(3), 634-657.

Baldwin, R. E. (1995). The effects of trade and foreign direct investment on employment and relative wages: National Bureau of Economic Research.

Balsvik, R., & Haller, S. A. (2010). Picking "lemons" or picking "cherries"? Domestic and foreign acquisitions in Norwegian manufacturing. *The Scandinavian Journal of Economics, 112*(2), 361-387.

Baltagi, B. (2008). *Econometric analysis of panel data*: John Wiley & Sons.

Bandick, R., & Karpaty, P. (2007). *Foreign acquisition and employment effects in Swedish manufacturing*: University of Nottingham.

Barthel, F., Busse, M., & Osei, R. (2011). The characteristics and determinants of FDI in Ghana. *The European Journal of Development Research, 23*(3), 389-408.

Basile, R. (2001). Export behaviour of Italian manufacturing firms over the nineties: the role of innovation. *Research policy, 30*(8), 1185-1201.

Baum, C. F., Schaffer, M. E., & Stillman, S. (2003). Instrumental variables and GMM: Estimation and testing. *Stata journal, 3*(1), 1-31.

Bernard, A., & Jensen, J. B. (2005). Firm Structure, Multinationals, and Manufacturing Plant Deaths.

Bernard, A. B., Eaton, J., Jensen, J. B., & Kortum, S. (2003). Plants and productivity in international trade. *The American Economic Review, 93*(4), 1268-1290.

Bernard, A. B., & Jensen, J. B. (1999a). Exceptional exporter performance: cause, effect, or both? *Journal of international Economics, 47*(1), 1-25.

Bernard, A. B., & Jensen, J. B. (1999b). Exporting and productivity.

Bernard, A. B., & Jensen, J. B. (1999c). Exporting and productivity: National bureau of economic research.

Bernard, A. B., & Jensen, J. B. (2004). Why some firms export. *Review of Economics and Statistics, 86*(2), 561-569.

Bernard, A. B., & Jensen, J. B. (2007). Firm structure, multinationals, and manufacturing plant deaths. *The Review of Economics and Statistics, 89*(2), 193-204.

Bernard, A. B., Jensen, J. B., & Lawrence, R. Z. (1995). Exporters, jobs, and wages in US manufacturing: 1976-1987. *Brookings papers on economic activity. Microeconomics, 1995*, 67-119.

Bernard, A. B., & Sjoholm, F. (2003). Foreign owners and plant survival: National Bureau of Economic Research.

Bernard, A. B., & Wagner, J. (1997). Exports and success in German manufacturing. *Weltwirtschaftliches Archiv, 133*(1), 134-157.

Bernard, A. B., & Wagner, J. (2001). Export entry and exit by German firms. *Weltwirtschaftliches Archiv, 137*(1), 105-123.

Biggs, T., Shah, M., Srivastava, P., & Mundial, B. (1995). *Technological capabilities and learning in African enterprises*: World Bank Washington^ eD. CDC.

Bigsten, A., Collier, P., Dercon, S., Fafchamps, M., Gauthier, B., Willem Gunning, J., . . . Söderbom, M. (2004). Do African manufacturing firms learn from exporting? *Journal of development studies, 40*(3), 115-141.

Bigsten, A., & Gebreeyesus, M. (2009). Firm productivity and exports: Evidence from Ethiopian manufacturing. *The Journal of Development Studies, 45*(10), 1594-1614.

Bigsten, A., Gebreeyesus, M., Siba, E., & Söderbom, M. (2011). The effects of agglomeration and competition on prices and productivity: Evidence for Ethiopia's manufacturing sector. *Center for the Study of African Economies Working Paper, WPS/2011, Oxford, UK*.

Bigsten, A., & Söderbom, M. (2006). What have we learned from a decade of manufacturing enterprise surveys in Africa? *The World Bank Research Observer, 21*(2), 241-265.

Biscourp, P., & Kramarz, F. (2007). Employment, skill structure and international trade: Firm-level evidence for France. *Journal of international Economics, 72*(1), 22-51.

Blalock, G., & Gertler, P. J. (2004). Learning from exporting revisited in a less developed setting. *Journal of Development Economics, 75*(2), 397-416.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics, 87*(1), 115-143.

Boly, A., Coniglio, N. D., Prota, F., & Seric, A. (2014). Diaspora investments and firm export performance in selected sub-Saharan African countries. *World Development, 59*, 422-433.

Bond, S., & Van Reenen, J. (2007). Microeconometric models of investment and employment. *Handbook of econometrics, 6*, 4417-4498.

Bond, S. R., Hoeffler, A., & Temple, J. R. (2001). GMM estimation of empirical growth models.

Bosco Sabuhoro, J., Larue, B., & Gervais, Y. (2006). Factors determining the success or failure of Canadian establishments on foreign markets: A survival analysis approach. *The International Trade Journal, 20*(1), 33-73.

Bover, O., & Arellano, M. (1997). Estimating dynamic limited dependent variable models from panel data. *investigaciones economicas, 21*(2), 141-165.

Brambilla, I., Depetris-Chauvin, N., & Porto, G. G. (2014). Wage and Employment Gains from Exports: Evidence from Developing Countries: Working paper, African Center for Economic Transformation (ACET).

Brännlund, R., Nordström, J., Stage, J., & Svedin, D. (2016). Foreign ownership and its effects on employment and wages: the case of Sweden. *IZA Journal of European Labor Studies, 5*(1), 8.

Bridges, S., & Guariglia, A. (2008). Financial constraints, global engagement, and firm survival in the United Kingdom: evidence from micro data. *Scottish Journal of Political Economy, 55*(4), 444-464.

Bunn, P., & Redwood, V. (2003). Company accounts-based modelling of business failures and the implications for financial stability.

Cameron, A. C., & Trivedi, P. K. (2009). *Microeconometrics using stata* (Vol. 5): Stata press College Station, TX.

Campa, J. M., & Shaver, J. M. (2002). Exporting and capital investment: On the strategic behavior of exporters. *IESE research papers, 469*.

Carrere, C., Fugazza, M., Olarreaga, M., & Robert-Nicoud, F. (2014). Trade in unemployment.

Castellani, D., Serti, F., & Tomasi, C. (2010). Firms in international trade: Importers' and exporters' heterogeneity in Italian manufacturing industry. *The world economy, 33*(3), 424-457.

Chetwin, W., & Bairam, E. I. (2001). The effects of international trade on employment: heterogeneity among 2-digit ISIC manufacturing industries.

Clementi, G. L., & Hopenhayn, H. A. (2006). A theory of financing constraints and firm dynamics. *The quarterly journal of economics, 121*(1), 229-265.

Clerides, S. K., Lach, S., & Tybout, J. R. (1998). Is learning by exporting important? Micro-dynamic evidence from Colombia, Mexico, and Morocco. *The quarterly journal of economics, 113*(3), 903-947.

Coelli, T. (1998). A multi-stage methodology for the solution of orientated DEA models. *Operations Research Letters, 23*(3), 143-149.

Coelli, T. J., Rao, D. S. P., O'Donnell, C. J., & Battese, G. E. (2005). *An introduction to efficiency and productivity analysis*: Springer Science & Business Media.

Cox, D. (1972). Regression Models and LifeJITables (with discussion). *JourJI nal of the Royal Statistical Society, Series B, 34*.

Crespi, G., Criscuolo, C., & Haskel, J. (2008). Productivity, exporting, and the learning-by-exporting hypothesis: direct evidence from UK firms. *Canadian Journal of Economics/Revue canadienne d'économique, 41*(2), 619-638.

Cruz, A., Newman, C., Rand, J., & Tarp, F. (2017). Learning by exporting: The case of Mozambican manufacturing. *Journal of African Economies, 26*(1), 93-118.

Damijan, J. P., Polanec, S., & Prašnikar, J. (2004). Self-selection, export market heterogeneity and productivity improvements: Firm level evidence from Slovenia: LICOS Discussion paper.

De Loecker, J. (2007). Do exports generate higher productivity? Evidence from Slovenia. *Journal of international Economics, 73*(1), 69-98.

Del Gatto, M., Di Liberto, A., & Petraglia, C. (2011). Measuring productivity. *Journal of Economic Surveys, 25*(5), 952-1008.

Delgado, M. A., Farinas, J. C., & Ruano, S. (2002). Firm productivity and export markets: a non-parametric approach. *Journal of international Economics, 57*(2), 397-422.

Denis, D. J., & Mihov, V. T. (2003). The choice among bank debt, non-bank private debt, and public debt: evidence from new corporate borrowings. *Journal of financial Economics, 70*(1), 3-28.

Disney, R., Haskel, J., & Heden, Y. (2003). Entry, exit and establishment survival in UK manufacturing. *The Journal of Industrial Economics, 51*(1), 91-112.

Du Caju, P., Rycx, F., & Tojerow, I. (2011). Wage structure effects of international trade: evidence from a small open economy.

EIA. (2012a). Ethiopia Investment Agency. Unpublished data. Addis Ababa, Ethiopia.

EIC. (2016). Ethiopian Investment Commission. Unpublished data. Addis Ababa, Ethiopia.

Farinha, M., & Santos, J. (2006). The survival of start-ups: Do their funding choices and bank relationships at birth matter: Citeseer.

Fatou, C., & Choi, J. E. (2013). Working Paper 191-Do Firms Learn by Exporting or Learn to Export: Evidence from Senegalese Manufacturers' Plants.

Ferede, T., & Kebede, S. (2015). Economic growth and employment patterns, dominant sector, and firm profiles in Ethiopia: Opportunities, challenges and Prospects: Bern: Swiss Program for Research on Global Issues of Development. http://www. r4d-employment. com/wp-content/uploads/2014/09/Ethiopia-Country-Paper. pdf.

Ferede, T., Kebede, S., & Tarfasa, S. (2015). Economic growth and employment patterns, dominant sector, and firm profiles in Ethiopia: Opportunities, challenges and Prospects: Bern: Swiss Program for Research on Global Issues of Development. http://www. r4d-employment. com/wp-content/uploads/2014/09/Ethiopia-Country-Paper. pdf.

Fernandes, A. M., & Isgut, A. (2005). Learning-by-doing, learning-by-exporting, and productivity: evidence from Colombia.

Fotopoulos, G., & Louri, H. (2000). Determinants of hazard confronting new entry: does financial structure matter? *Review of Industrial Organization, 17*(3), 285-300.

Frazer, G. (2005). Which firms die? A look at manufacturing firm exit in Ghana. *Economic Development and cultural change, 53*(3), 585-617.

Fryges, H., & Wagner, J. (2010). Exports and profitability: first evidence for German manufacturing firms. *The world economy, 33*(3), 399-423.

Fu, X. (2005). Exports, technical progress and productivity growth in a transition economy: a non-parametric approach for China. *Applied Economics, 37*(7), 725-739.

Fu, X., & Balasubramanyam, V. N. (2005). Exports, foreign direct investment and employment: The case of China. *The world economy, 28*(4), 607-625.

Geroski, P. A., & Gregg, P. (1997). *Coping with recession: UK company performance in adversity* (Vol. 38): Cambridge University Press.

Gibson, J. K., & Harris, R. I. (1996). Trade liberalisation and plant exit in New Zealand manufacturing. *The Review of Economics and Statistics*, 521-529.

Giovannetti, G., Ricchiuti, G., & Velucchi, M. (2011). Size, innovation and internationalization: a survival analysis of Italian firms. *Applied Economics, 43*(12), 1511-1520.

Girma, S. (2005). Safeguarding jobs? Acquisition FDI and employment dynamics in UK manufacturing. *Review of World Economics, 141*(1), 165-178.

Girma, S., Greenaway, A., & Kneller, R. (2004). Does exporting increase productivity? A microeconometric analysis of matched firms. *Review of International Economics, 12*(5), 855-866.

Girma, S., Greenaway, D., & Kneller, R. (2003). Export market exit and performance dynamics: a causality analysis of matched firms. *Economics letters, 80*(2), 181-187.

Görg, H., & Spaliara, M.-E. (2009). Financial health, exports, and firm survival: A comparison of British and French firms.

Görg, H., & Strobl, E. (2003). Multinational companies, technology spillovers and plant survival. *The Scandinavian Journal of Economics, 105*(4), 581-595.

Granér, M., & Isaksson, A. (2002). Export performance in the Kenyan manufacturing sector. *Structure and Performance of Manufacturing in Kenya, Hampshire: Palgrave*.

Greenaway, D., Guariglia, A., & Kneller, R. (2007). Financial factors and exporting decisions. *Journal of international Economics, 73*(2), 377-395.

Greenaway, D., Hine, R. C., & Wright, P. (1999). An empirical assessment of the impact of trade on employment in the United Kingdom. *European journal of political economy, 15*(3), 485-500.

Greenaway, D., & Kneller, R. (2004). Exporting and productivity in the United Kingdom. *Oxford Review of Economic Policy, 20*(3), 358-371.

Greenaway, D., & Kneller, R. (2007). Industry differences in the effect of export market entry: learning by exporting? *Review of World Economics, 143*(3), 416-432.

Hahn, C. H. (2005). *Exporting and performance of plants: evidence on Korea.* Paper presented at the International Trade in East Asia, NBER-East Asia Seminar on Economics, Volume 14.

Haile, G., & Assefa, H. (2006). Determinants of Foreign Direct Investment in Ethiopia: A time-series analysis.

Haile, G., Srour, I., & Vivarelli, M. (2016). Imported technology and manufacturing employment in Ethiopia. *Eurasian Business Review*, 1-23.

Hailu, K. B., & Tanaka, M. (2015). A "true" random effects stochastic frontier analysis for technical efficiency and heterogeneity: Evidence from manufacturing firms in Ethiopia. *Economic Modelling, 50*, 179-192.

Hansen, H., Rand, J., & Tarp, F. (2009). Enterprise growth and survival in Vietnam: does government support matter? *The Journal of Development Studies, 45*(7), 1048-1069.

Haouas, I., Yagoubi, M., & Heshmati, A. (2005). The impacts of trade liberalization on employment and wages in Tunisian industries. *Journal of International Development, 17*(4), 527-551.

Harhoff, D., & Körting, T. (1998). Lending relationships in Germany–Empirical evidence from survey data. *Journal of Banking & Finance, 22*(10), 1317-1353.

Harris, M. N., & Mátyás, L. (2004). A comparative analysis of different IV and GMM estimators of dynamic panel data models. *International Statistical Review, 72*(3), 397-408.

Harris, R. I., & Li, Q. C. (2010). EXPORT-MARKET DYNAMICS AND THE PROBABILITY OF FIRM CLOSURE: EVIDENCE FOR THE UNITED KINGDOM. *Scottish Journal of Political Economy, 57*(2), 145-168.

Harrison, A. (1996). Openness and growth: A time-series, cross-country analysis for developing countries. *Journal of Development Economics, 48*(2), 419-447.

Hasan, R., Mitra, D., Ranjan, P., & Ahsan, R. N. (2012). Trade liberalization and unemployment: Theory and evidence from India. *Journal of Development Economics, 97*(2), 269-280.

Helpman, E., & Krugman, P. R. (1985). *Market structure and foreign trade: Increasing returns, imperfect competition, and the international economy*: MIT press.

Helpman, E., Melitz, M. J., & Stephen, R. Y. (2004). Exports Versus FDI with Heterogenous Firms, American Economic Review 94.

Heyman, F., Sjöholm, F., & Tingvall, P. G. (2007). Is there really a foreign ownership wage premium? Evidence from matched employer–employee data. *Journal of international Economics, 73*(2), 355-376.

Holtz-Eakin, D., Newey, W., & Rosen, H. S. (1988). Estimating vector autoregressions with panel data. *Econometrica: Journal of the Econometric Society*, 1371-1395.

Hölzl, W. (2005). Tangible and intangible sunk costs and the entry and exit of firms in a small open economy: the case of Austria. *Applied Economics, 37*(21), 2429-2443.

Hsiao, C. (1986). Analysis of Panel DataCambridge University Press. *Cambridge, UK*.

Hung, J., Salomon, M., & Sowerby, S. (2004). International trade and US productivity. *Research in International Business and Finance, 18*(1), 1-25.

Huttunen, K. (2007). The effect of foreign acquisition on employment and wages: Evidence from Finnish establishments. *The Review of Economics and Statistics, 89*(3), 497-509.

Idson, T. L., & Oi, W. Y. (1999). Workers are more productive in large firms. *The American Economic Review, 89*(2), 104-108.

Imbruno, M. (2008). International trade and firm productivity within the Italian manufacturing sector: Self-selection or Learning-by-exporting? *Quaderni DSEMS, 21*, 2008.

Isgut, A. (2001). What's different about exporters? Evidence from Colombian manufacturing. *Journal of development studies, 37*(5), 57-82.

Jacobs, R., Smith, P. C., & Street, A. (2006). *Measuring efficiency in health care: analytic techniques and health policy*: Cambridge University Press.

Jovanovic, B. (1982). Selection and the Evolution of Industry. *Econometrica: Journal of the Econometric Society*, 649-670.

Kien, T. N., & Heo, Y. (2009). Impacts of trade liberalization on employment in Vietnam: a system generalized method of moments estimation. *The Developing Economies, 47*(1), 81-103.

Kim, S.-I., Gopinath, M., & Kim, H. (2009). High productivity before or after exports? An empirical analysis of Korean manufacturing firms. *Journal of Asian Economics, 20*(4), 410-418.

Kimura, F., & Fujii, T. (2003). Globalizing activities and the rate of survival:: Panel data analysis on Japanese firms. *Journal of the Japanese and International Economies, 17*(4), 538-560.

Kimura, F., & Kiyota, K. (2006). Exports, FDI, and productivity: Dynamic evidence from Japanese firms. *Review of World Economics, 142*(4), 695-719.

Ko, K., Rangkakulnuwat, P., & Paweenawat, S. (2015). The Effect of International Trade on Labor Demand in ASEAN5. *Economics Bulletin, 35*(2), 1034-1041.

Kraay, A. (1999). Exports and economic performance: Evidence from a panel of Chinese enterprises. *Revue d'Economie du Developpement, 1*(2), 183-207.

Krugman, P., & Obstfeld, M. (2003). Intemational Economics. *Adison\/Vesley, Boston*.

Kumbhakar, S., & Lovell, C. (1998). K (2000) Stochastic Frontier Analysis. *Cambridge University Press, Cambridge UK, 14*, 5-22.

Kumbhakar, S. C., & Lovell, C. K. (2003). *Stochastic frontier analysis*: Cambridge university press.

Kuntchev, V., Ramalho, R., Rodríguez-Meza, J., & Yang, J. S. (2012). What have we learned from the Enterprise Surveys regarding access to finance by SMEs? *Enterprise Analysis Unit of the Finance and Private Sector Development, The World Bank Group*.

Lachenmaier, S., & Rottmann, H. (2011). Effects of innovation on employment: A dynamic panel analysis. *International journal of industrial organization, 29*(2), 210-220.

Lang, K. (1998). The effect of trade liberalization on wages and employment: the case of New Zealand. *Journal of labor Economics, 16*(4), 792-814.

Levinsohn, J., & Petrin, A. (2003). Estimating production functions using inputs to control for unobservables. *The Review of Economic Studies, 70*(2), 317-341.

Lipsey, R. E., & Sjöholm, F. (2004). Foreign direct investment, education and wages in Indonesian manufacturing. *Journal of Development Economics, 73*(1), 415-422.

Lipsey, R. E., Sjöholm, F., & Sun, J. (2010). Foreign ownership and employment growth in Indonesian manufacturing: National Bureau of Economic Research.

Liu, J.-T., Tsou, M.-W., & Hammitt, J. K. (1999). Export activity and productivity: evidence from the Taiwan electronics industry. *Weltwirtschaftliches Archiv, 135*(4), 675-691.

López, R. A. (2006). Imports of intermediate inputs and plant survival. *Economics letters, 92*(1), 58-62.

Lundvall, K., & Battese, G. E. (2000). Firm size, age and efficiency: evidence from Kenyan manufacturing firms. *The Journal of Development Studies, 36*(3), 146-163.

Malchow-Møller, N., Markusen, J. R., & Schjerning, B. (2013). Foreign firms, domestic wages. *The Scandinavian Journal of Economics, 115*(2), 292-325.

Martins, P. (2014). Structural change in Ethiopia: an employment perspective. *Browser Download This Paper*.

Martins, P. S., & Esteves, L. A. (2015). Foreign Ownership, Employment and Wages in Brazil: Evidence from Acquisitions, Divestments and Job Movers. *Technology and Investment, 6*(01), 22.

McPherson, M. A. (1995). The hazards of small firms in Southern Africa. *The Journal of Development Studies, 32*(1), 31-54.

Melitz, M. J. (2003). The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica, 71*(6), 1695-1725.

Meschi, E., Taymaz, E., & Vivarelli, M. (2016). Globalisation, technology and the labour market: A microeconometric analysis for Turkey: United Nations University-Maastricht Economic and Social Research Institute on Innovation and Technology (MERIT).

Milner, C., & Tandrayen, V. (2007). The Impact of Exporting and Export Destination on Manufacturing Wages: Evidence for Sub-Saharan Africa. *Review of Development Economics, 11*(1), 13-30.

Milner, C., & Wright, P. (1998). Modelling labour market adjustment to trade liberalisation in an industrialising economy. *The Economic Journal, 108*(447), 509-528.

Moen, Ø. (2002). The born globals: a new generation of small European exporters. *International Marketing Review, 19*(2), 156-175.

Moreira, M. M., & Najberg, S. (2000). Trade liberalisation in Brazil: creating or exporting jobs? *The Journal of Development Studies, 36*(3), 78-99.

Munch, J. R., & Skaksen, J. R. (2008). Human capital and wages in exporting firms. *Journal of international Economics, 75*(2), 363-372.

Musso, P., & Schiavo, S. (2008). The impact of financial constraints on firm survival and growth. *Journal of Evolutionary Economics, 18*(2), 135-149.

Nafziger, E. W., & Terrell, D. (1996). Entrepreneurial human capital and the long-run survival of firms in India. *World Development, 24*(4), 689-696.

National Bank of Ethiopia. (2015/16). Annual Report. Addis Ababa, Ethiopia.

NBE. (2011). Annual Report. Addis Ababa: National Bank of Ethiopia.

NBE. (2013/14). Annual Report: National Bank of Ethiopia.

Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica: Journal of the Econometric Society*, 1417-1426.

Nickell, S., Nicolitsas, D., & Dryden, N. (1997). What makes firms perform well? *European economic review, 41*(3), 783-796.

NKURUNZIZA, J. (2005). Credit can precipitate firm failure: Evidence from Kenyan manufacturing in the 1990s, CSAE WPS: Oxford.

Ofa, S., Spence, M., Mevel, S., & Karingi, S. (2012). Export diversification and intra-industry trade in Africa. *Economic Commission for Africa. Addis Ababa*.

Olley, G. S., & Pakes, A. (1992). The dynamics of productivity in the telecommunications equipment industry: National Bureau of Economic Research.

Park, A., Yang, D., Shi, X., & Jiang, Y. (2010). Exporting and firm performance: Chinese exporters and the Asian financial crisis. *The Review of Economics and Statistics, 92*(4), 822-842.

Pérez, S. E., Llopis, A. S., & Llopis, J. A. S. (2004). The determinants of survival of Spanish manufacturing firms. *Review of Industrial Organization, 25*(3), 251-273.

Petrin, A., Poi, B. P., & Levinsohn, J. (2004). Production function estimation in Stata using inputs to control for unobservables. *Stata journal, 4*, 113-123.

Poddar, T. (2004). *Understanding Indias export dynamism of the 1990s.* Paper presented at the European Trade Study Conference.

Raj, S. N. R., & Sen, K. (2012). Did International Trade Destroy or Create Jobs in Indian Manufacturing? *The European Journal of Development Research, 24*(3), 359-381.

Rand, J., & Torm, N. (2012). The benefits of formalization: Evidence from Vietnamese manufacturing SMEs. *World Development, 40*(5), 983-998.

Ranjan, P., & Raychaudhuri, J. (2011). Self-selection vs learning: Evidence from Indian exporting firms. *Indian Growth and Development Review, 4*(1), 22-37.

Revenga, A. (1997). Employment and wage effects of trade liberalization: the case of Mexican manufacturing. *Journal of labor Economics, 15*(S3), S20-S43.

Roberts, M. J., & Tybout, J. R. (1997). The decision to export in Colombia: an empirical model of entry with sunk costs. *The American Economic Review*, 545-564.

Roper, S., Love, J. H., & Hígon, D. A. (2006). The determinants of export performance: Evidence for manufacturing plants in Ireland and Northern Ireland. *Scottish Journal of Political Economy, 53*(5), 586-615.

Sasidharan, S. (2015). Impact of Foreign Trade on Employment and Wages in Indian Manufacturing. *South Asia Economic Journal, 16*(2), 209-232.

Sen, K. (2009). International trade and manufacturing employment: Is India following the footsteps of Asia or Africa? *Review of Development Economics, 13*(4), 765-777.

Sharma, C., & Mishra, R. K. (2011). Does export and productivity growth linkage exist? Evidence from the Indian manufacturing industry. *International review of applied economics, 25*(6), 633-652.

Shiferaw, A. (2006). Entry, survival, and growth of manufacturing firms in Ethiopia. *ISS Working Paper Series/General Series, 425*, 1-36.

Siba, E., & Gebreeyesus, M. (2017). Learning to export and learning from exporting: The case of Ethiopian manufacturing. *Journal of African Economies, 26*(1), 1-23.

Sinani, E., & Hobdari, B. (2010). Export market participation with sunk costs and firm heterogeneity. *Applied Economics, 42*(25), 3195-3207.

Slaughter, M. J. (2001). International trade and labor–demand elasticities. *Journal of international Economics, 54*(1), 27-56.

Söderbom, M., Teal, F., & Harding, A. (2006). The determinants of survival among African manufacturing firms. *Economic Development and cultural change, 54*(3), 533-555.

Stampini, M., & Davis, B. (2009). Does nonagricultural labor relax farmers' credit constraints? Evidence from longitudinal data for Vietnam. *Agricultural economics, 40*(2), 177-188.

Stiebale, J. (2011). Do Financial Constraints Matter for Foreign Market Entry? A Firm-level Examination. *The world economy, 34*(1), 123-153.

Stiglitz, J. E. (2002). Employment, social justice and societal well-being. *International Labour Review, 141*(1-2), 9-29.

Strobl, E., & Thornton, R. J. (2002). Do large employers pay more in developing countries? The case of five African countries.

Sun, X., & Hong, J. (2011). Exports, ownership and firm productivity: Evidence from China. *The world economy, 34*(7), 1199-1215.

Te Velde, D. W., & Morrissey, O. (2003). Do workers in Africa get a wage premium if employed in firms owned by foreigners? *Journal of African Economies, 12*(1), 41-73.

Tybout, J. R. (2003). Plant-and firm-level evidence on "new" trade theories. *Handbook of international trade, 1*, 388-415.

UNCTAD. (2007). Transnational Corporations, Exctractive Industries and Development. New work and Geneva: United Nations Conference on Trade and Development.

UNCTAD. (2011). *World Investment Report: non-equity modes of international production and development*: UN.

UNCTAD. (2016). World Investment Report 2016. *Investor nationaIity: PolIcy challenges, United Nations, Geneva*.

Van Biesebroeck, J. (2005). Exporting raises productivity in sub-Saharan African manufacturing firms. *Journal of international Economics, 67*(2), 373-391.

Vartia, L. (2004). Assessing plant entry and exit dynamics and survival–Does firms' financial status matter? *Mimeograph, European University Institute*.

Vivarelli, M. (2014). Innovation, employment and skills in advanced and developing countries: A survey of economic literature. *Journal of Economic Issues, 48*(1), 123-154.

Vu, H., & Lim, S. (2013). Exports and Firm survival: The first evidence from Vietnam private manufacturing SMEs. *Economics Bulletin, 33*(2), 1259-1268.

Vu, V. H. (2012). Higher productivity in Exporters: self-selection, learning by exporting or both? Evidence from Vietnamese manufacturing SMEs.

Vu, V. H., Lim, S., Holmes, M. J., & Doan, T. (2012). Firm exporting and employee benefits: first evidence from Vietnam Manufacturing SMEs.

Wade, R. (1990). *Governing the market: Economic theory and the role of government in East Asian industrialization*: Princeton University Press.

Wagner, J. (2001). A note on the firm size–export relationship. *Small Business Economics, 17*(4), 229-237.

Wagner, J. (2002). The causal effects of exports on firm size and labor productivity: first evidence from a matching approach. *Economics letters, 77*(2), 287-292.

Wagner, J. (2007a). Exports and productivity: A survey of the evidence from firm-level data. *The world economy, 30*(1), 60-82.

Wagner, J. (2007b). Productivity and Size of the Export Market. *Jahrbücher für Nationalökonomie und Statistik, 227*(4), 403-408.

Wagner, J. (2012). Exports, imports and profitability: First evidence for manufacturing enterprises. *Open Economies Review, 23*(5), 747-765.

Wagner, J. (2013). Exports, imports and firm survival: first evidence for manufacturing enterprises in Germany. *Review of World Economics, 149*(1), 113-130.

WB. (2015). Fourth Ethiopia economic update: overcoming constraints in the manufacturing sector *Washington, DC: World Bank Group. Web: http://documents. worldbank. org/curated/en/2015/07/24756616/fourthethiopia-economic-update-overcoming-constraints-manufacturing-sector*.

Were, M. (2011). Is There a Link Between Casual Employment and Export-Orientation of Firms? The Case of Kenya's Manufacturing Sector. *The Review of Black Political Economy, 38*(3), 227.

Wooldridge, J. (2009). Introductory Econometrics: A Modern Approach (Mason, OH: South-Western). *R. Desbordes and V. Verardi, 181*.

Wooldridge, J. M. (2005). Simple solutions to the initial conditions problem in dynamic, nonlinear panel data models with unobserved heterogeneity. *Journal of applied econometrics, 20*(1), 39-54.

World Bank. (2016). *World Development Indicators 2016*. Excel. Retrieved from: http://databank.worldbank.org/data/download/archive/WDI_excel_2016_04.zip

Yasar, M., Nelson, C. H., & Rejesus, R. (2006). Productivity and exporting status of manufacturing firms: Evidence from quantile regressions. *Review of World Economics, 142*(4), 675-694.

Zingales, L. (1998). The survival of start-ups: Do their funding choices and bank relationships at birth matter

The Journal of Finance, 53(3), 905-938.