Trade liberalisation and the labour market in Morocco

Novella Bottini

University of Pavia, and LIUC

and

Michael Gasiorek
University of Sussex, and GREQAM

Preface

In the last two decades, trade liberalisation has mainly been a characteristic of developing countries. The consequences have been substantial and widespread in all the branches of these societies. In particular, we would investigate how trade policy affects household's welfare through the labour market channel. The existing literature suggests that in developing countries tariff reductions impact more on wages than on the employment level. Recently, some authors have shown evidence of the importance of examining the determinant of the low net employment change and they show the importance of the churning effect, i.e. the workers' reallocation. Following the methodology suggested by Davis and Haltiwanger (1990), we analyse the churning effect in the Moroccan economy. The data derives from the Annual Industrial Census. The sample covers 1,300 enterprises and contains data for five macro-sectors for 1990 and 2002 in Morocco. The five sectors covered are: clothing and textiles, food processing, chemicals and plastics, metallurgy, and electrical machines. One of the substantial advantages of this survey is that it contains extremely detailed information at the firm level. For each firm we have information on the sales, production, exports, and start-up data. In particular we have detailed information on labour supply for each firm, with employment divided by gender, skills and employment period. After a general overview of the sample firms' characteristics, we compute the indexes of job creation and job destruction at sectoral level. Gross job creation (POS) is defined as the sum of the new places available through expansion of existing firms and creation of new establishments within the sector. Similarly, gross job destruction (NEG) is computed by adding up employment losses over shrinking and dying establishments within a sector. Adding up POS_{st} and NEG_{st} produces SUM_{st}, a measure of the gross job reallocation rate in sector s between t-1 and t. After classifying firms on the base of their trade orientation, size and sector of activity, the results show a significant simultaneous job creation and destruction in all the cases. Following Davis and Haltiwanger (1992), WE decompose excess job reallocation in two components. One component represents the contribution of reshuffling employment among sectors, and the other component represents the contribution of excess job reallocation within sectors. The job reallocation decomposition suggests that the churning effect is mostly explained by movement of workers within sectors. Consequently, the swing across sectors is negligible and firms' heterogeneity is the key determinant of the churning effect. Finally, since the Moroccan data set contains quite detailed information about the type of labour used in each plant, we can treat employment as an heterogeneous unit repeat the churning analysis for sub-groups of labour. In particular, separate studies are done for temporary and permanent workers, male and female workers and for white collar versus blue collar workers. Results show that churning is higher among temporary workers, woman and white collar. Finally, trade liberalisation impact more on temporary workers by increasing their job instability.

1. Introduction

Trade liberalisation has been a worldwide phenomenon since the second world war. It has been a characteristic of developed and developing countries' trade behaviour over different periods of time. Developed countries started to reduce tariffs as early as the 50s. Since then, they have become more outwardly oriented than developing countries and their average tariff levels are now below that of developing countries. On the other hand, trade liberalisation has been a more recent process in developing countries, where outward oriented trade reforms have been implemented only in the last two decades. Developing countries' more rapid and greater decrease in tariffs (*vis a vis* developed counties in the last few decades) does not imply however that they are more outwardly oriented: these rapid decreases are simply a response to the high protectionist policies that these countries developed in the past.

The increasing trade openness among developing countries has brought economists to question the link between trade liberalization and poverty. The general wisdom accepts that trade liberalization boosts growth and plays a crucial role among pro-poor policies in the long-run (Mc Culloch N., Cirera X. , and Winters L.A., 2001). The empirical evidence broadly supports this view, and, in particular, lends little support to the position that trade liberalization generally has an adverse impact on growth and poverty (Dollar (1992), Sachs and Warner (1995), Edwards (1998), Frankel and Romer (1999), and Rodriguez and Rodrik (2001)). Equally, however, it does not assert that trade policy is always among the most important determinants of poverty reduction or that the static and micro-economic effects of liberalization will always be beneficial for the poor (Dollar and Kray (2001), Winters (2002 and 2004)).

Indeed, establishing a link between intertemporal variation in trade policy measures and an aggregate poverty measure is a difficult task. The main problems concern the definition and the measurement of trade liberalisation and poverty (Winters (2004), Deaton (2003), and Ravallion (2003)). One way of trickling the problem is to relate changes in trade policy to particular phenomena that are highly correlated with poverty. To this end, it is instructive to first understand through which channels poverty can be affected (Goldberg and Pavenik, 2004). Trade liberalization affects households' welfare through three main channels: the participation and earnings of household members in labour market, household consumption, and household production (Goldberg and Pavenik, 2004).

This paper focuses on the labour market channel: trade liberalisation, by changing the level of total employment, the relative wages or the labour market composition, has an impact on poverty, wage and income distribution, and the quality of employment.

In particular, trade liberalisation has been considered one of the causes of increased unemployment and inequality that predominantly detrimentally effect the poor. It has been also blamed for a "race to the bottom" in the labour market in the form of lower compliance with labour market standards, more

extensive use of part-time and temporary labour, and a decrease in job quality for the neo-employed (Goldberg and Pavcnik, 2004).

The trade approach, based on the Stolper-Samuelson theorem, assumes that wages are flexible and labour is fully employed. Given these assumptions, price changes caused by trade liberalisation will be reflected in a wage change, with employment staying the same. Moreover the wage of the more abundant factors will increase, i.e. the unskilled workers' wages in developing countries[1]. On the other hand, the development approach embraces the concept that labour supply is perfectly elastic (because there is a large pool of workers who move in or out of jobs when circumstances change). In this case, trade liberalisation will cause changes in the general level of employment (Winters, L.A., 2004a). In reality both effects will occur. The balance between them lies in the labour market institutions, which determine the relative flexibility of wages and employment, in the efficiency of the capital market and in the social policies (Hoeckman and Winters, 2005).

The existing literature suggests that in developing countries wage responses to trade policy are greater than employment change (see for example Hoeckman and Winters (2005), Goldberg and Pavcnik (2004)). Three hypotheses have been proposed to clarify the greater response of wages to trade liberalisation: imperfect competition in product market (Currie and Hanson (1999) for Morocco, Revenga (1997) for Mexico, Harrison (1994) for Cote d'Ivoire, Levinsohn (1993) for Turkey, Khambhampati *et al.* (1997) for India and Rama (2003) for different countries), labour market rigidities (Heckman and Pages (2000) and Feliciano (2001), Revenga (1997), Bell (1997) and Currie and Hanson (1997)) and the existence of the informal sector (Attanasio, Goldberg and Pavnick (2004), Hoeckman and Winters (2005)). These studies show a small change in the total level of employment in the aftermath of trade liberalisation. However looking at total levels of employment does not reveal much about the dynamics in the labour market. Indeed, trade growth impacts on labour markets by changing the composition of employment, mainly within firms, and by creating and destroying jobs, with negligible net impact on total employment. So, as reported by a recent World Bank study (2001) on globalisation "small declines in employment may hide substantial job churning". For example, for OECD nations for which data are available, total turnover averaged more than 20% during the 1980s, although net employment growth was generally in the range 0.5-2 percent (Grey, 1995). The analysis of turnover and its components represents a way of viewing net employment change, for both the whole economy and for particular sectors. It is important to stress the distinction between job turnover and labour turnover. Job turnover measures the creation and destruction of positions, i.e. how employment

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[1] In this case we focus on trade liberalisation between developed and developing countries. However, if developing countries are also liberalising trade with other developing countries, which might be even more labour abundant than this simple conclusions may not hold.

positions are reallocated across establishments, while labour turnover measures the movement of workers into (hires) and out (fires) of jobs.

Using a panel data for a sample of Moroccan private firms over the period 1990-2002, we would investigate how trade liberalisation impact on workers by changing the composition of employment. In particular, we focus on the churning effect following the Davis and Haltiwanger's methodology (1990, 1992). They measure gross job creation (POS) as the sum of the new places available through expansion of existing firms and creation of new establishments within the sector. Similarly, they quantify gross job destruction (NEG) by adding up employment losses over shrinking and dying establishments within a sector. By adding up POS_{st} and NEG_{st} they get SUM_{st}, a measure of the gross job reallocation rate in sector s between t-1 and t. After classifying firms on the basis of their trade orientation, size and sector of activity, the results provide evidence of a significant simultaneous job creation and destruction in all the cases. Following Davis and Haltiwanger (1992), we decompose excess job reallocation in two components: between and within groups job turnover. This decomposition suggests that the churning effect in Morocco is mostly explained by movement of workers within sectors. The swing across sectors is negligible. Finally, since the Moroccan data set contains quite detailed information about the type of labour used in each plant, we can treat employment as an heterogeneous unit repeat the churning analysis for sub-groups of labour. In particular, separate studies are done for temporary and permanent workers, male and female workers and for white collar versus blue collar workers. Results show that churning is higher among temporary workers, woman and white collar. Finally, trade liberalisation impact more on temporary workers by increasing their job instability.

The remainder of the paper is organized as follow. Section 2 provides some background on the liberalisation process and trade policy in Morocco; section 3 describes the data set main features using some descriptive statistics. With Section 4 we enter in the core part of this paper: the churning analysis. As a first step, in Section 5, we examine employment growth among firms with different trade orientation and size. Both a non-parametric and a parametric approach are applied. After that, Section 6 investigates the phenomenon of simultaneous job creation and job destruction by computing the Davis and Haltiwanger's indexes. Then, following the Davis and Haltiwanger's methodology, in Section 7 excess job reallocation is decomposed in between-within sector movement. In Section 7 we do a further step: after decomposing total employment in sub-groups on the base of employee gender, job and employment relations, the churning analysis is run for each class. Section 8 concludes.

2. Trade Policy in Morocco

The aim of his work is to analyse the possible impact of the trade liberalisation process on the Moroccan labour market, and through this to shed light both on the adjustment process and through this also on poverty. First, therefore , an overview of Moroccan trade policy over the last two decades is necessary.

Following independence in 1956, Morocco's development strategy was primarily based on import-substituting industrialisation and agricultural self-sufficiency in a highly protected domestic market. The trade reform started in Morocco during the 1980s. As a result of pressure due to a payment crisis in 1983, Morocco virtually eliminated quantitative restrictions on imports and reduced maximum tariffs from 165% to 45% over a 6-year period. The major accomplishment of the tariff reform was to reduce the dispersion in tariff protection within the manufacturing sector. Average import penetration increased only slightly, in part due to domestic contraction combined with the devaluation. (Currie and Hanson, 1999). Nevertheless, in the 1990s Morocco was still far from an open economy. An important contribution to Moroccan liberalisation process has come from the multilateral trade agreements, signed with different partners since the middle of 1990s. Here it is important to note that in 1995 Morocco joined the WTO, where the principal hoped for benefits should arise from the general liberalisation of world trade rules, opening up new opportunities and challenges and leading to higher longer run rates of growth. However, it is clear that to take advantage of these openings, Moroccan industry needs to become more competitive. In 1995, Morocco also signed a quadrilateral FTA with Tunisia, Egypt and Jordan, which expanded in following years to include other Arab states, and a bilateral FTA with Turkey. Following the Barcelona Agreement an accord with the EU was agreed in February 1996. The agreement envisaged a freeing up of trade in industrial goods over 12 years from the date of implementation. Given that Morocco already had tariff free access for most goods to the EU market the Association Agreement largely involves the asymmetric reduction of tariffs by Morocco on EU exports. Tariffs on capital goods imported from the EU were eliminated from 2000, and tariffs on raw materials, spare parts and products without a local equivalent were removed in four stages up to 2003. From 2003 tariffs on imported manufactured goods that have a local equivalent began to be removed at a rate of 10 percentage points a year. On the economic integration side, a landmark accord was finally agreed with the EU in February 1996, bringing to an end three years of difficult, and sometimes acrimonious, exchanges. The agreement envisages a freeing up of trade in industrial goods over the next 12 years, with Rabat gradually dismantling its industrial tariffs. It's worth noting that Moroccan trade is heavily dominated by Europe, which is the destination and origin of more than three-quarters of exports and imports. France is the main trading partner, taking over one-third of exports and providing over one-fifth of imports. Spain is the second trading partner, typically taking

16-18% of exports and providing 10-12% of imports. The UK, Italy and Germany are other important trading partners. Another wave of agreements started in the new millennium. The FTA with the US was signed in June 2004 and was expected to come into effect in March 2005. This agreement covers industrial and agricultural goods, services, telecommunications, customs, intellectual property, employment and the environment. In 2004-05 Morocco signed further trade and investment agreements with a range of countries in Eastern Europe, Asia, Latin America and Africa. These accords will lead to a wider dismantling of tariffs over the longer term, a diversification of trade partners and a lower dependence from the EU economy.

As well as considering formal trading arrangements it is also important to consider the evolution of macro economic policy and the Moroccan exchange rate. Since 1993, the Bank al-Maghrib (the central bank) has used a basket of currencies, weighted on a trade basis, to set the value of the dirham. The weightings are not disclosed, but at end-2003 the basket was estimated to be weighted at 60% against the euro and 40% against the US dollar, which roughly reflects the proportions in which Morocco's exports are priced. During 1999 and 2000 the euro was weak against the US dollar, and the dirham rose against the euro and the euro-zone currencies, reducing the competitiveness of some Moroccan exports, notably textiles, and causing a fall in export sales and job losses. Exporters of textiles and fruit and vegetables, and some tourism operators, called in 2000 for the dirham to be devalued. But the government has preferred to maintain a relatively strong dirham to preserve hard-won macroeconomic benefits, such as low imported inflation. Devaluation would increase the cost of imports and of servicing external debt, encourages demands for wage rises and discourages investment. In April 2001, however, the central bank moved to devalue the currency for the first time in 11 years, following persistent lobbying from exporters who claimed that they were losing out in export markets to rivals from states with convertible currencies. The IMF and the World Bank welcomed the move and urged Morocco to treat it as the first step to a more flexible exchange rate. In summary then the Moroccan economy is one which has for many years developed behind high protective trade barriers, but which has made significant steps towards the liberalisation of its' trade regime over the last 10-15 years, as well as significant steps towards greater regional integration with its Northern and Southern neighbours.

Exchange Rate (DH per dollar, yearly average)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Exchange Rate: Dirham/US$	8.47	8.80	9.51	9.60	9.80	10.63	11.30	11.02	9.54	8.90	8.84	8.78

Source: EIU Reports

3. Data Set: an overview

The data for this paper are derived from the Annual Industrial Census. The data set covers enterprises 11,054 and contains data for five macro-sectors for 1990 and 2002. Due to the lack of data for the 1980's, we cannot analyse the impact of the first trade reform set, but we can only observe the effect of the Barcelona Declaration and the FTA with north African countries. The five sectors covered are: clothing and textiles, food processing, chemicals and plastics, metallurgy, and electrical machines. One of the substantial advantages of this sample is that it contains extremely detailed information at the firm level. For each firm we have information on sales, production, exports, and start-up data. In particular we have detailed information on the labour supply for each firm, with employment divided by gender, and temporary versus permanent workers. After cleaning the data set, by excluding the firms with more than two years missing value in employment and inconsistent start-up date, some irregularities in the data (for example increase in the production grater than 80%, null value for employment and/or sales), we get a non-balanced panel data set with 4,762 firms and a total of 61,906 observations.

The Annual Industrial Census is based on the five macro-industries: Food and Beverages, Textiles and Clothing, Chemical and Plastic, Metallurgy, and Electrical Machines. As shown in table 1, the chemical industry is the largest industry in the Moroccan Economy, as it accounts for 34.78% of total firms in 2000. Moreover, Table 2 suggests that it has increased its importance during the 1990-2002 period. The food processing and the metallurgy industry have both shown the same increasing trend. On the other

Sector	Sample 1998		Sample 2000	
	Number of Firms	%	Number of Firms	%
Clothing and Textile	184	23.24%	157	17.44%
Food Processing	198	21.16%	200	22.22%
Chemical and Plastic	258	30.28%	313	34.78%
Metallurgy	186	21.83%	210	23.33%
Electrical Machines	26	3.05%	20	2.22%
	852		900	

hand, clothing and electronic machine industry reduced their size in term of firms quantity.

More generally, Moroccan industry is divided into 20 sectors, which are listed in Table 2 below. From the table it can be seen that there are a few industries that dominate the Moroccan economy. These are Food and Beverages, which in 1990 account for 27 percent of manufacturing employment, 33 percent of manufacturing sales, Textiles (17%, 10%), Cloths (21%, 5.5%) and Chemicals (5%, 16.4%). Looking at the dynamic trend, Table 2 suggest that the Food and Beverage industry has expanded its sales (40% in 2002) and decreased its employment weight (20% in 2002); the textile industry has suffered losses in term of employment and sales (7% and 5% in 2002), at the contrary the cloths industry has increased

its employment and sales (31% and 7.8%) and the chemical industry has remained quite stable (5% and 17.6% in 2002). After ranking the sectors with regard to their importance in the Moroccan economy, the main features of the sample will be described. With respect to aims of this paper, two features have to be highlighted: trade orientation and employees' composition. In our sample, only a small fraction of firms (20%) could be classified as exporter; i.e. they have a percentage of export, computed as the ratio of total export on total sales, always greater than zero in their life. 56% of firms deal with domestic markets and are defined as non-exporters. The remaining 23% competes on the international market irregularly. Moreover, the vast majority of exporting establishments export a large fraction of total sales. On average, 73% of exporters report an export ratio greater than 60% of total sales. From the trade orientation point of view, one could see a lot of variation among sectors. The food and beverages, the cloths, the textile and the chemical industries are the most outward-oriented sectors, as they account for the 22%, 11%, 15% and 33% of total manufacturing export. On the other hand, the publishing and the plastic industries are the most inward-oriented, with percentages of export of 0.001% and 0.1% respectively. Considering the dynamic trend, among the largest sector, the cloth industry is the only one to increase its exports share. Nevertheless, new sectors, as electrical industry, have increased their openness. The export pattern that emerges form our sample is coherent with the Moroccan situation, as described in the Economist Intelligent Units (2002). On the base of the EIU report, clothing and other textiles account for around one-third of total exports by value, and food for around one-fifth (fish exports alone make up some 11% of exports). Compared with many developing countries, Morocco has a broad export base, with no single export commodity forming more than 13% of the total. Growth of exports of manufactured goods has been somewhat uneven. Clothing sales accounted for 9% of total exports in 1995, no advance on the 9% of 1989. Hosiery exports have risen more substantially, to 7% of total exports from 5% in 1989. Shellfish have made more significant gains: from 5.5% to 8.2%. Exports of fresh and preserved fish and fruit and vegetables are subject to fluctuations because of the weather, but have generally been on an upwards trend. In addition there are small but growing exports of electrical and mechanical goods, such as transistors and electrical cables. The second aspect that deserves attention is the employment composition. In our sample, a sizable share of the workforce is male (Table 3). For 71% of the firms in the sample, the majority of employees are male. This pattern perfectly mirrors the general situation of the Moroccan economy. According to Agenor and El Aynaoui (2003, page 8), woman account for only 22% of the total urban workforce. This is a direct consequence of the cultural and religious environment that characterises Morocco. Nevertheless, these general patter hinders strong sector disparities. In the Food&Beverage and in the Textile&Cloths industries, female workers account for 27% and 40% of total employment and their share has increased over the period. Female labour force participation is large also in the electric industry and electronics.

Table 2: Sector share on the sample

Sector Code	1990				1996				2002			
	N° Firms	Empl Share	Sales Share	Exp Share	N° Firms	Empl Share	Sales Share	Exp Share	N° Firms	Empl Share	Sales Share	Exp Share
15	806	27.3	33.7	22.4	517	0.274	0.395	0.192	398	0.261	0.407	0.202
17	485	17	10	11.1	325	0.154	0.088	0.121	173	0.072	0.050	0.052
18	538	21	5.5	15.6	270	0.214	0.052	0.151	299	0.317	0.078	0.203
19	185	3.6	1.8	3.3	109	0.027	0.014	0.025	92	0.031	0.013	0.021
20	115	2.7	2.5	1.9	77	0.022	0.019	0.027	54	0.020	0.017	0.022
21	57	1.4	2	1	44	0.019	0.023	0.007	34	0.015	0.014	0.002
22	189	1.5	2.1	0	177	0.015	0.009	0.000	140	0.015	0.011	0.000
24	118	5	16.4	33	82	0.074	0.188	0.375	45	0.052	0.176	0.345
25	121	1.7	2.2	0.5	107	0.026	0.024	0.009	70	0.028	0.030	0.008
26	194	6	5.9	0.2	139	0.055	0.053	0.005	93	0.044	0.063	0.007
27	9	0.3	1.1	2.3	10	0.005	0.011	0.021	27	0.009	0.021	0.033
28	248	4.6	6.8	0.8	181	0.043	0.051	0.017	143	0.035	0.030	0.020
29	161	18	1.8	0	124	0.017	0.017	0.000	60	0.017	0.020	0.002
30	12	0.3	0.2	0	6	0.004	0.002	0.003	0	0.000	0.000	0.000
31	52	1	1.6	0.1	31	0.007	0.010	0.002	30	0.027	0.022	0.030
32	34	2	2.6	6.2	14	0.016	0.009	0.026	6	0.033	0.014	0.041
33	7	0.1	0.1	0	10	0.002	0.001	0.002	8	0.001	0.001	0.000
34	34	1.6	2.9	1.3	23	0.021	0.029	0.019	24	0.014	0.025	0.012
35	26	0.5	0.4	0.1	14	0.002	0.002	0.000	12	0.003	0.002	0.001
36	50	0.8	0.6	0.1	27	0.155	0.001	0.000	36	0.006	0.003	0.001

This pattern is confirmed by the 1999 industrial sector survey (EIU, 2000), which shows that 69 percent of female employment in industrial sector is concentrated in textiles and leather activities, 16 percent in food industry and only 3 percent in electric industry and electronics. In addition, women tend to be relegated to jobs that require little training and that can tolerate high levels of job turnover. The same finding has been suggested by Ragui (2002, quoted in Lahcen (2002)) in the case of the Egyptian labour market. There is also evidence that women accept low wages, harder working conditions and are less inclined to belong to unions in comparison with men. Another aspect that deserve attention is the share of temporary and permanent workers. On average, firms rely mostly on permanent workers, which represents 90 percent of total employment. Moreover, there are not big difference across sectors, but the Food&Beverage industry. In this industry temporary workers are 50% of total workforce. This result is not surprising, since the seasonable nature of the sector.

Table 3 analyse the employment composition on the base of firm's exporting orientation. First of all, the exporter firms employ more workers than non exporters. The larger size of exporting firms is not surprising. But, as suggested by Bernard and Jensen (1999) the question is whether good firms become exporters or whether exporting improves firm performance. Hence, the larger size of exporter firms could be explained in two ways. First, selling in international markets is a special and difficult status for a plant to achieve. To compete in the international market, firms need to be reliable, competitive, to have easy access to credit, and an efficient organisation. This is particularly true of large firms especially in developing countries. Second, it has been argued that trade liberalization, by increasing competition, forces firms to lower price-marginal cost mark-ups and hence move down their average cost curves, thereby raising firm size and scale efficiency. If these two theories are correct, the larger firm size of exporters could be the result of the trade reforms of 1980s or be an individual intrinsic characteristic. However, the analysis of the causality connection is not the aim of this work. Secondly, while the number of firms is declining in each group, the average employment has increased for exporters and remained quite stable for irregular-exporters and non-exporters. This could be the result of the "pro-competitive effect" of trade liberalisation: as a result of the increased competitiveness, the weaker firms exit from the market and the more competitive plants consolidate their position. The last and perhaps more important message is from Table 4 and concerns not the first but second moment of job data. With standard deviations usually about three time the size of the means, plant-level heterogeneity is quite large. This suggests that only examining the means of overall employment may be misleading. Finally, as suggested by Table 5 and 6, exporters employ a larger share of female and temporary workers and it is stable across the years. The link between export status and female share could be explained by sectoral features. As shown above, exporters concentrate mainly in the Food&Beverage and in the Textile&Cloths sector, which employ the larger share of female work force.

Table 3: Employment Composition by Sectors

Sector Code	1990			1996			2002		
	Tot Empl	Perm Share	Fem Share	Tot Empl	Perm Share	Fem Share	Tot Empl	Perm Share	Fem Share
15	68374	0.53	0.27	57978	0.58	0.32	44094	0.62	0.35
17	42657	0.84	0.42	32608	0.89	0.51	12178	0.95	0.38
18	52566	0.96	0.76	45326	0.97	0.76	53598	0.98	0.81
19	8921	0.93	0.32	5764	0.94	0.30	5293	0.94	0.35
20	6708	0.75	0.10	4676	0.81	0.05	3401	0.70	0.07
21	3510	0.77	0.15	4039	0.70	0.17	2528	0.70	0.23
22	3634	0.83	0.16	3256	0.92	0.15	2511	0.95	0.22
24	12519	0.94	0.11	15737	0.80	0.21	8796	0.97	0.08
25	4367	0.97	0.22	5586	0.90	0.24	4748	0.95	0.27
26	14929	0.75	0.05	11637	0.79	0.06	7357	0.88	0.09
27	841	0.94	0.04	1142	0.80	0.03	1540	0.79	0.08
28	11486	0.88	0.09	9082	0.77	0.08	5891	0.87	0.12
29	4389	0.94	0.08	3568	0.94	0.08	2794	0.91	0.17
30	7272	0.97	0.30	787	0.43	0.24	0	0.00	0.00
31	2603	0.99	0.22	1400	0.94	0.30	4580	0.85	0.50
32	5004	0.94	0.65	3336	1.00	0.72	5497	1.00	0.75
33	186	1.00	0.38	351	1.00	0.36	251	0.90	0.32
34	3922	0.90	0.17	4527	0.95	0.23	2440	0.97	0.07
35	1331	0.99	0.04	365	0.99	0.04	481	0.97	0.14
36	1911	0.97	0.15	576	0.00	0.00	984	0.20	0.08

With regard to temporary workers, the same explanation doesn't held since temporary worker share is uniform across sectors. Hence, relying on temporary workers could be seen as a peculiar strategy of exporters. If this is true, an increasing openness to international trade could be worrisome from a labour marker point of view. Trade liberalisation would increase the number of exporters and, consequently, the number of temporary with a negative impact on labour force conditions.

Nevertheless, also in this case, standard deviations are about twice the size of the means. Therefore, at this stage generality are weak and one again plant-level heterogeneity matters.

Table 4: Total Employment by Export Status

Year	Trade Status	Number of Plants	Mean Employment	Standard deviation	Minimum	Maximum
1990	NonExporter	1822	32	90	1	1988
	Exporter	626	194	373	3	5644
	Change Status	993	72	171	1	2996
1991	NonExporter	1823	31	87	1	1988
	Exporter	626	189	348	3	5953
	Change Status	535	101	215	2	2891
1992	NonExporter	1902	30	81	1	1988
	Exporter	676	181	339	1	6140
	Change Status	601	95	209	1	2786
1993	NonExporter	1839	32	109	1	3134
	Exporter	620	197	374	1	6029
	Change Status	622	96	225	1	3404
1994	NonExporter	1344	34	115	1	3005
	Exporter	497	224	418	4	5999
	Change Status	588	97	234	0	3402
1995	NonExporter	1331	33	121	1	3032
	Exporter	492	231	405	1	5940
	Change Status	574	100	231	2	2953
1996	NonExporter	1277	34	131	1	3180
	Exporter	469	236	451	1	7431
	Change Status	541	106	250	1	3257
1997	NonExporter	1220	33	129	1	3089
	Exporter	440	238	458	2	7276
	Change Status	509	108	247	2	3037
1998	NonExporter	1143	31	122	1	2997
	Exporter	417	250	470	3	7097
	Change Status	464	113	244	2	2817
1999	NonExporter	1095	31	96	1	1797
	Exporter	399	246	494	3	7431
	Change Status	444	113	261	1	2946
2000	NonExporter	1040	32	116	1	2390
	Exporter	387	252	539	4	7226
	Change Status	435	107	243	2	2858
2001	NonExporter	1002	32	116	1	2991
	Exporter	425	237	499	4	7026
	Change Status	425	113	261	2	2381
2002	NonExporter	915	33	120	1	2991
	Exporter	383	241	486	2	6709
	Change Status	449	104	241	2	2540

4. Employment Growth and Plant Heterogeneity

The plant heterogeneity suggested by Table 4 raises a number of policy relevant and theoretically interesting issues. Instead of just examining whether the aggregate sectoral employment levels increased or decreased, one can address issues concerning the distribution of plant-level employment. In examining the flows more carefully, we follow the general model of Davis and Haltiwanger (1992) presented in section 2, which denotes the employment at plant i in year t as $x_{i,t}$ and defines the average employment at plant level as:

$$x_{e,t} = \frac{x_{i,t} + x_{i,t-1}}{2}$$

The growth rate of employment at a plant, g_{et}, is given by:

$$g_{et} = \frac{x_{i,t} - x_{i,t-1}}{x_{et}}$$

This formulation has the nice property that it easily accommodates births (g=2) and deaths (g= - 2) of plants.

Table 4 begins to address the issue of change in employment using plant-level data. It suggests that there is much more inter-temporal variation in employment growth rate than by trade orientation. Comparing the means of plant employment growth rates among exporters and non-exporters for a given year shows remarkable difference only before 1994. In particular, employment among exporter firms shrank more during contraction and rebounded more vigorously during expansion. Instead, after 1995, employment growth rates become negative and more uniform among exporter and non-exporters. Hence, increased trade liberalisation with the EU and neighbour countries seems to effect non-exporter and exporter firm in the same way, by decreasing monotonically their growth rates from 1995 (with the exception of 2001 for exporters). A comparison of Tables 4 and 7 reveals that while mean plant employment increased for both exporters and non exporters, average growth rates were negative, and this highlights the importance of exit in both groups. The growth rates of irregular exporters are more volatile across the years and quite often they differ (in term of sign and magnitude) from the other groups. Finally, Table 7 again highlights the importance of plant-heterogeneity as the standard deviation of the growth rates is large. Table 8 report the employment growth rates for continuing firms, i.e. the change in employment due to workforce reorganisation (hiring and firing) without considering the impact of firm entry and exit (new job creation and destruction). Since 1994, exporter growth rates are close to the non-exporter one, in term of size and sign. Between 1995 and 2000, while non exporters report negative employment growth rate, exporters firms expand their labour force. After 2000, growth rates return to positive value in both groups. However, across the period growth rates are small in magnitude (close to zero) and standard deviations are higher than before. By

comparing Table 7 and Table 8, we get useful information about the importance of entry and exit. In 1992 the growth rate turn to negative value if we consider only the continuing plants, this could indicate the positive impact of firm entry on total employment in this year. In contrast, in 1993, the growth rates become positive by excluding the effect of firm exit. The impact of firm exit on labour market is still more evident after 1995. Indeed, if we consider only hires and fires, the majority of growth rates turns to positive value.

Table 7: Total Employment Growth Rate by Export Status

Year	Trade Status	Number of Plants	Mean Growth Rate	Standard Deviation	Minimum	Maximum
1991	NonExp	1823	0.01	0.28	-2	2
	Exp	626	0.05	0.31	-2	1.56
	Change	987	-0.89	1.05	-2	1.54
1992	NonExp	1970	0.05	0.71	-2	2
	Exp	690	0.14	0.72	-2	2
	Change	602	0.20	0.71	-2	2
1993	NonExp	1996	-0.02	0.79	-2	2
	Exp	710	-0.15	0.91	-2	2
	Change	639	0.10	0.71	-2	2
1994	NonExp	1881	-0.55	1.02	-2	2
	Exp	646	-0.40	1.05	-2	2
	Change	631	-0.12	0.74	-2	2
1995	NonExp	1436	-0.04	0.81	-2	2
	Exp	542	0.04	0.93	-2	2
	Change	602	0.01	0.67	-2	2
1996	NonExp	1422	-0.07	0.88	-2	2
	Exp	520	-0.07	0.86	-2	2
	Change	580	-0.09	0.68	-2	2
1997	NonExp	1343	-0.11	0.82	-2	2
	Exp	497	-0.10	0.89	-2	2
	Change	550	-0.14	0.73	-2	2
1998	NonExp	1281	-0.13	0.84	-2	2
	Exp	457	-0.08	0.80	-2	2
	Change	519	-0.14	0.79	-2	2
1999	NonExp	1193	-0.10	0.78	-2	2
	Exp	439	-0.09	0.85	-2	2
	Change	473	-0.10	0.68	-2	2
2000	NonExp	1129	-0.09	0.73	-2	2
	Exp	424	-0.04	0.83	-2	2
	Change	452	-0.10	0.59	-2	2
2001	NonExp	1083	-0.04	0.76	-2	2
	Exp	443	0.21	0.84	-2	2
	Change	439	-0.09	0.56	-2	2
2002	NonExp	1002	-0.17	0.65	-2	1.42
	Exp	425	-0.18	0.73	-2	1.71
	Change	486	0.10	0.96	-2	2

Table 8: Total Employment Growth Rate (only for continuing firms)

Year	Trade Status	Number of Plants	Mean Growth Rate	Standard Deviation	Minimum	Maximum
1991	NonExp	1822	0.01	0.27	-1.75	1.61
	Exp	626	0.05	0.31	-1.51	1.56
	Change	535	0.05	0.33	-1.56	1.54
1992	NonExp	1755	-0.03	0.28	-1.95	1.59
	Exp	612	-0.01	0.31	-1.81	1.14
	Change	534	-0.02	0.32	-1.44	1.33
1993	NonExp	1745	0.05	0.36	-1.79	1.75
	Exp	586	0.01	0.43	-1.71	1.95
	Change	584	0.04	0.43	-1.81	1.83
1994	NonExp	1302	-0.03	0.41	-1.60	1.82
	Exp	471	-0.02	0.49	-1.88	1.71
	Change	569	-0.01	0.44	-2.00	1.86
1995	NonExp	1239	-0.02	0.36	-1.83	1.67
	Exp	447	0.07	0.43	-1.69	1.65
	Change	550	0.02	0.34	-1.22	1.89
1996	NonExp	1186	0.01	0.36	-1.46	1.60
	Exp	441	0.02	0.40	-1.89	1.96
	Change	531	0.01	0.37	-1.50	1.70
1997	NonExp	1154	-0.03	0.37	-1.50	1.56
	Exp	412	0.02	0.37	-1.68	1.46
	Change	490	-0.01	0.37	-1.70	1.61
1998	NonExp	1082	-0.01	0.35	-1.82	1.64
	Exp	400	0.02	0.41	-1.78	1.92
	Change	452	0.04	0.37	-1.68	1.62
1999	NonExp	1045	-0.02	0.36	-1.57	1.57
	Exp	377	-0.01	0.43	-1.59	1.87
	Change	432	-0.01	0.36	-1.78	1.78
2000	NonExp	1006	0.01	0.34	-1.50	1.45
	Exp	362	0.02	0.35	-1.28	1.88
	Change	423	-0.04	0.33	-1.40	1.26
2001	NonExp	959	0.03	0.37	-1.60	1.50
	Exp	369	0.04	0.31	-1.64	1.67
	Change	416	-0.02	0.35	-1.53	1.64
2002	NonExp	915	0.01	0.34	-1.45	1.42
	Exp	383	0.02	0.44	-1.64	1.71
	Change	388	0.01	0.40	-1.60	1.38

Once again, these results support the "pro-competitive" effect of trade liberalisation: non competitive firms exit from the market and the more efficient one consolidates their positions.

Finally, we address the question whether employment in small and large plants responds similarly to the combination of international liberalisation and business cycles. Table 9 deals with this issue in a simple way by reporting job growth rates by trade orientation and plant size. First of all, the plants in the sample are classified in three groups on the basis of their employment: small (less than 30 employees);

medium (employees between 30 and 250), and large (more than 250 employees). As shown in Table 9, the majority of the plants in the sample are classified as small (57.06% on average) or medium (35.49% on average) firms and only a small fraction has more than 240 employees (7.46% on average). Across the year the number of firms is decreased but the distribution across size groups is fairly constant. Moreover, as already highlighted in Table 4, large firms are more outward oriented than small firms. In fact, 77 percent of small firms has never competed on the international market and the share fall to 10% among large firms. With regard to employment change, Table 9 evidences that within a given trade orientation, employment growth rates don't vary systematically with plant size. Non exporters present the higher growth rates in each export status group, exporters have the lower growth rates and irregular exporters show very volatile growth rates. The negative growth rates indicate the importance of exit in each size group. Indeed, if we exclude entry and exit firm, the growth rate turn to positive number in each group, with exception of small-non exporter firms. However, they are really close to zero and standard deviations increase.

Table 9: Growth Rate by Size and Export Status (average value for the 1990-2002 period)

| Size	Export Status	Firms	Growth Rate Mean	Standard Deviation	Minimum	Maximum
Small	NonExporter	13700	-0.11	0.82	-2	2
	Exporter	1037	-0.05	1.06	-2	2
	Change Status	3055	-0.24	0.96	-2	2
Medium	NonExporter	3611	-0.10	0.69	-2	2
	Exporter	3843	-0.07	0.85	-2	2
	Change Status	3436	-0.08	0.73	-2	2
Large	NonExporter	248	-0.13	0.74	-2	2
	Exporter	1539	-0.03	0.63	-2	2
	Change Status	469	-0.11	0.66	-2	2

Table 10: Growth Rate by Size and Export Status (average value for the 1990-2002 period; only for continuing firms)

Size	Export Status	Firms	Growth Rate Mean	Standard Deviation	Minimum	Maximum
Small	NonExporter	11752	-0.01	0.36	-1.83	1.82
	Exporter	788	0.01	0.48	-1.68	1.92
	Change Status	2409	0.00	0.40	-1.78	1.86
Medium	NonExporter	3240	0.01	0.30	-1.95	1.75
	Exporter	3274	0.02	0.40	-1.89	1.96
	Change Status	3067	0.01	0.35	-2.00	1.83
Large	NonExporter	218	0.00	0.30	-1.30	1.29
	Exporter	1424	0.02	0.32	-1.78	1.66
	Change Status	428	0.03	0.32	-1.40	1.89

4.1   Nonparametric evidence

The previous analysis is now running in a more rigorous way using standard non-parametric methods. The empirical density of growth rates for all firms is given in Figure 1. The figure shows that the majority of firms have null or negligible growth rates during the sample period. Moreover, as highlighted above, exit firms account for a large share of the sample and they overcrowd the entry one. However, as Tables 4 and 7 suggest, this distribution hides significant differences across firm size and between exporters and non exporters.

Figure 1: The empirical distribution of employment growth rates
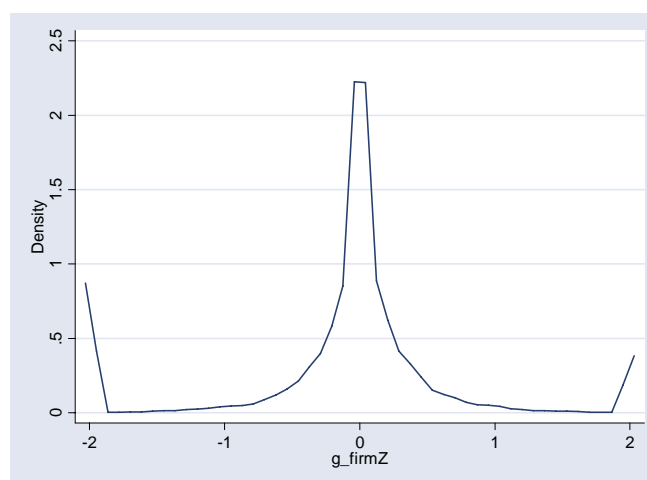
A statistical test that is reasonably robust to the underlying distribution of growth rates is the Wilcoxon rank-sum test. This method tests the hypothesis that two samples are drawn from populations with the same underlying median. To compute the Wilcoxon rank-sum test, the firms have to be divided into two groups. This division was made in three ways: for export status and size. In the latter case, the population was divided into groups depending on whether the average firm size was above or below the median firm size (in that year and for that sector). Results are summarised in Table 11.

Table 11: Results of Wilcoxon rank-sum test

	Employment Growth Rate		
Group 1	Group 2	Z	Prob> |z|
NonExporter	Exporter	-6.812	0.000
Small	Large	-9.744	0.000

* These results are confirmed also by the t-test.

On the basis of the results in Table 11, we can reject the hypothesis that the median employment growth rates of exporter and non-exporter firms are the same. The same holds when the sample is divided according to firm size for size classification. The results are confirmed by the Bartlett's test. The advantage of this test is that it performs multiple comparison tests. It means that with regard to size, we can compare small, medium and large firms and not just divide the sample in two sub-groups. Moreover, we can compare exporters, non exporters and irregular exporter. Bartlett's test assumes that we have m independent, normal random samples and tests the hypothesis:

$$\sigma_1^2 = \sigma_2^2 = ... = \sigma_m^2$$

The test statistic, M , is defined:

$$M = \frac{(T-m)\ln \hat{\sigma}^2 - \sum (T_i - 1)\ln \hat{\sigma}_i^2}{1 + \frac{1}{3(m-1)} \sum \frac{1}{T_i - 1} - \frac{1}{T-m}}$$

Where there are T overall observations, T_i observations in the ith group, and

$$(T_i - 1)\hat{\sigma}_i^2 = \sum_{j=1}^{T_i} (y_{ij} - \bar{y}_i)^2$$

$$(T-m)\hat{\sigma}^2 = \sum_{i=1}^{m} (T_i - 1)\hat{\sigma}_i^2$$

An approximate test of homogeneity of variance is based on the statistic M with critical values obtained from the chi2 distribution of m-1 degrees of freedom. For more details see Bartlett (1937).

The same test tests the hypothesis that the median employment growth rates are the same across years. Results are reported in Table 12. There is strong evidence of different medians across years, as the chi2-statistic in this case is 718.8485. Moreover, if we exclude entry and exit firms from the sample, test-significance doesn't change.

Table 12: Results of Bartlett's Test

Employment Growth Rate		
Group	Chi2	Prob> Chi2
Export Status	52.3628	0.000
Size	147.6334	0.000
Year	718.8485	0.000

In additional to having significantly different medians, the shape of the empirical distribution of growth rates varies substantially by export status and firm size. This is illustrated in Figure 2 and 3, respectively.

Figure 2 gives kernel density estimates of the distribution of growth rates for firms by trade orientation. The density estimates suggest that non exporters adjust employment less frequently than exporters and irregular exporters, since they present greater accumulation around zero. Instead, exporters and irregular exporters present a similar pattern. Moreover, the density estimates imply that irregular exporters are less likely to exit the sample, while new entrants are more likely to be non-exporters or irregular exporters. Figure 3 gives kernel density estimates of the distribution of growth rates for firms by size groups. The density estimates suggest that medium firms adjust employment less frequently than large and small firms and they entry and exit from the market less frequently than the other groups. Putting together these results and the evidence of Table 9 and 10, we could infer that small firm adjust more quickly but the adjustment process is driven by negative growth rates. This issue is explored in more detail in the next section.

Figure 2: Kernel Density estimates of employment growth by trade orientation.
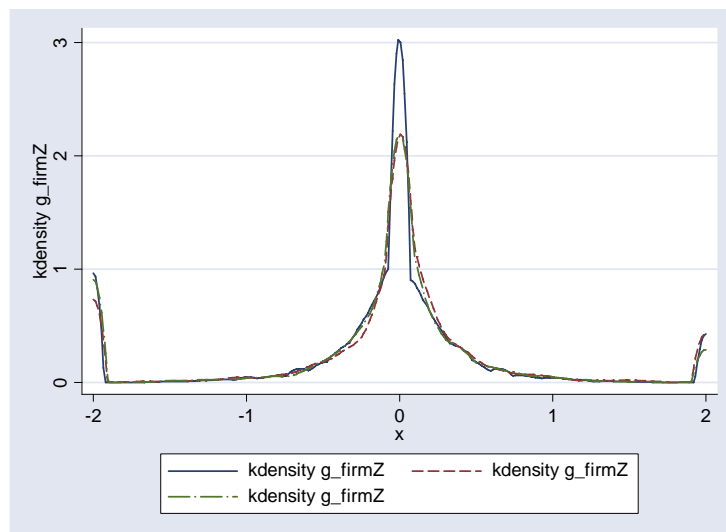
Solid Line = NonExp   Dash Line = Exp   Dot Line = Change Status

Figure 3: Kernel Density estimates of employment growth by size.
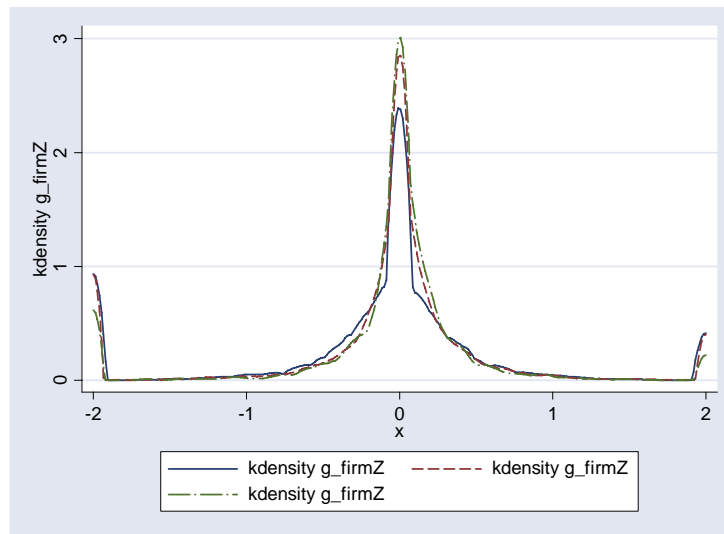
Solid Line = Small   Dash Line = Medium   Dot Line = Large

4.2 Parametric evidence

Another way to investigate the relationship between trade, jobs, and firm size is to use OLS regression-based methods. This approach has several drawbacks and one advantage. Among its drawbacks, there is no theoretical supporting for the regression nor careful consideration of the properties of the disturbance term, size dummies are almost surely correlated with the disturbance term, the dependent variable only varies between -2 and 2, and the normality assumption is almost surely wrong. It's advantage is that one is able to estimate conditional correlations. This is no small advantage since it allow to test whether firm size and export status are still systematically related to job growth, even after controlling for macro shocks. In particular, we would control how exchange rate policy and the liberalisation process influence the relationship between export orientation and employment growth.

As a first step, growth rates are regressed on firm size dummies, trade orientation dummies and years using simple OLS estimation. Analysing the coefficient in the first column of Table 13, we get the same picture of the kernel density estimation: large and medium firms present lower growth rates as well as non exporters. Moreover, years are significant and negative after 1997: this could suggest that the trade agreements signed after 1995 impact negatively on employment growth rates. If we exclude entry and exit firms, we get a different picture (Column 3, Table 13). First of all, in this case employment reorganisation doesn't vary across export orientations, since the export status coefficient is no more significant. This result echoes the growth rates reported in Table 8, which are very similar across trade orientation groups in each year. Secondly, medium and large firms adjust more often their labour force, since the size dummy coefficient is positive and significant. Thirdly, the coefficient size is smaller supporting the previous result that entry and exit firms have a big impact on job creation and

destruction. Furthermore, in this case, the year dummies decrease their significances. This could suggest that trade liberalisation impact more on firm entry and exit than on employment reorganisation.

Table 13: Results of OLS regression, growth rate as dependent variable

	1		2		3		4	
	Coeff	t-value	Coeff	t-value	Coeff	t-value	Coeff	t-value
Size	-0.02***	-4.03	-0.02***	-3.99	0.01***	3.84	0.01***	3.86
ExpStatus	0.01***	2.82			0.00	0.9		
Y1990	(dropped)		(dropped)		(dropped)		(dropped)	
Y1991	-0.11***	-6.47	-0.14***	-6.92	0.02	1.69	0.00	0.28
Y1992	0.02**	1.37	-0.03*	-1.27	-0.03**	-2.7	-0.03**	-2.41
Y1993	0.01	0.75	-0.01	-0.6	0.03**	2.86	0.04**	2.58
Y1994	-0.09***	-5.13	-0.12***	-5.22	-0.03**	-2.61	-0.04**	-2.56
Y1995	0.01	0.49	-0.02	-0.87	0.00	-0.17	-0.02	-1.42
Y1996	-0.01	-0.57	0.00	-0.03	0.00	0.18	0.00	0.05
Y1997	-0.05**	-2.92	-0.07**	-2.93	-0.02*	-2.05	-0.03**	-2.26
Y1998	-0.04**	-2.16	-0.06**	-2.61	0.00	-0.12	-0.02	-1.25
Y1999	-0.07***	-3.68	-0.08***	-3.52	-0.03*	-2.13	-0.03	-2
Y2000	-0.06***	-3.44	-0.07**	-2.89	-0.01	-0.8	0.00	0.3
Y2001	(dropped)		(dropped)		0.01	1.15	0.03*	1.97
Y2002	-0.06***	-3.04	-0.17***	-7.04	(dropped)		(dropped)	
ExpStatus_90			(dropped)				(dropped)	
ExpStatus_91			0.03**	2.4			0.02**	2.39
ExpStatus_92			0.05***	3.78			0.00	0.26
ExpStatus_93			0.01	0.58			-0.01	-1.55
ExpStatus_94			0.01	0.94			0.01	0.91
ExpStatus_95			0.01	0.9			0.02**	2.67
ExpStatus_96			-0.04***	-3.02			0.00	-0.2
ExpStatus_97			-0.01	-0.45			0.01	1.19
ExpStatus_98			0.00	0.21			0.02**	2.27
ExpStatus_99			-0.01	-0.41			0.00	0.44
ExpStatus_00			-0.02*	-1.34			-0.03**	-2.48
ExpStatus_01			-0.03*	-1.79			-0.03**	-2.79
ExpStatus_02			0.13***	8.3			0.00	-0.36
Constant	0.16***	10.55	0.19***	10.21	-0.02	-1.5	-0.01	-0.88
Dependent Variable	g_firmE		g_firmE		g_firm		g_firm	
N°obs	27922		26,600		26,600		27922	
R_Squared	0.0067		0.004		0.004		0.0067	

As a second and last step, we interact the export status dummy with the year dummy, in order to capture the impact of Moroccan Dirham appreciation and depreciation on exporters behaviour. While size and year dummies are still significant and negative, the interacted variable is significant and positive in 1991 and 1992, before the introduction of the currency peg. However, more interesting is the sign of this regression in 2000 and 2001. The negative and significant coefficient could indicate a lagged response to dirham appreciation. Indeed, during 1999 and 2000 the euro was weak against the US dollar, and the dirham rose against the euro and the euro-zone currencies, reducing the competitiveness

of some Moroccan exports, notably textiles, and causing a fall in export sales and job losses. On the other side, the positive and significant coefficient in 2002 echo the positive effect of the devaluation, implemented in 2001 by the Moroccan Central Bank. Comparing Column 2 and column 4 of Table 13, we get that the dirham appreciation impact negatively on employment reorganisation in 2000 and 2001, but the following devaluation doesn't exert a positive influence on employment growth. Finally, these results are robust to other estimation methods. In particular, to take into account the unbalanced nature of our data set, we estimate the regressions with plant-level fixed and random effect. Also under these specifications, the parametric evidence is consistent with the previous nonparametric evidence. The parametric and non-parametric analysis suggests a link between employment growth, trade orientation and firm size. In particular, exporters and irregular exporters present much more volatility, mostly in term of entry and exit. Hence an increasing trade liberalisation could be worrisome from a labour market point of view. With regard to firm size, medium and large firms have lower growth rate; i.e. there is much more instability among small firms, mostly in term of entry and exit. Finally, both trade liberalisation process and exchange rate policy seem impact on employment growth rates.

5. Job Creation and Job Destruction

As the previous section shows, the majority of firms have null growth rates and the growth rate variance is large among firms of different sizes, different trade orientation and across years. The aim of this section is to analyse what is hidden behind these negligible growth rates. We run this analysis by measuring job creation and job destruction at sectoral level. We adopt the interesting methodology provided by Davis and Haltiwanger (1990). They measure gross job creation (POS) as the sum of the new places available through the expansion of existing firms and the creation of new establishments within the sector. Similarly, they quantify gross job destruction (NEG) by adding up employment losses over shrinking and dying establishments within a sector. They express these measures as rates by dividing for the sector size:

$$POS_{st} = \sum_{\substack{e \in E_{st} \\ g_{et} > 0}} \left(\frac{x_{et}}{X_{st}} \right) \left| g_{et} \right|$$

$$NEG_{st} = \sum_{\substack{e \in E_{st} \\ g_{et} < 0}} \left(\frac{x_{et}}{X_{st}} \right) \left| g_{et} \right|$$

Where E_{st} is the set of establishments in sector s at time t and X_{et} is the size of sector s. x_{et} and g_{et} are the firm size e at time t and the establishment (e) growth rate at time t, as described above. To construct these indexes at sectoral level, we first compute firm size and establishment growth rate at the firm

level (as we have done in Section 4). Then by aggregating the firm size by sector *s*, we get the size of sector *s*. At this stage, we compute the job creation and destruction indexes for each firm. The last step is to aggregate these indexes at sectoral level to get POS_{st} and NEG_{st} . In this case s Є [15;36]. If we classify firms with regard to their size and their trade orientation, we re-do the same procedure but in these case s=1;2;3 and s=0;1;2, respectively.

The difference between POS_{st} and NEG_{st} gives the net employment change (NET). Instead, by adding up POS_{st} and NEG_{st} they get SUM_{st}, a measure of the gross job reallocation rate in sector *s* between t-1 and t. MAX_{st} is defined as $Max\{POS_{st}, NEG_{st}\}$ and it represents a lower bound on the number of workers who change jobs in direct response to job reallocation in sector *s*. That said, worker reallocation associated with job reallocation is itself a lower bound on total worker reallocation. Indeed, worker reallocation also reflects lifecycle turnover, job satisfaction, and match quality effects. Table 14 summarises the churning effect results[2].

Figure 4: Churning Effect across Years
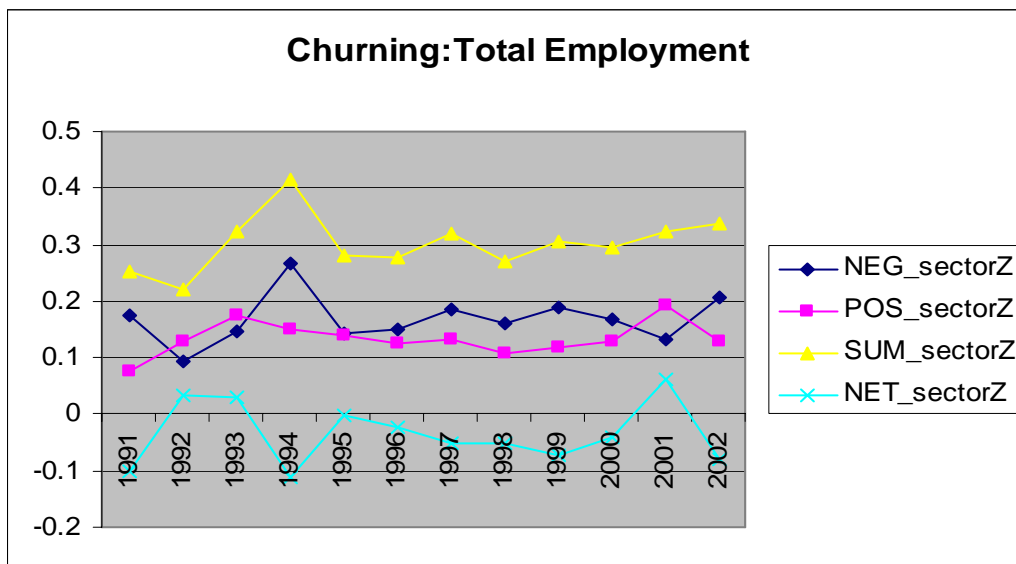
Several messages appear from table 14 and they are more explicit in figures 4. Looking at the churning effect across years for continuing firms (top panel in Table 14) one immediately notices that the net rate hides much of the dynamics. In 1998, for example, the employment rate was close to zero (0.01) but job creation and job destruction were about 10% and 9%, respectively. In 1999 the employment rate fall by about 3%, while there was job creation of about 10% and almost 22% of jobs were reallocated. Even in the following year, when employment was increasing the most (net employment rate equal to 15%), there was concurrent job destruction of about 8%. If we include in the sample entry and exit firms (bottom panel in Table 14), two features are immediately evident. First of all, as

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[2] It's worth noting that the value reported in Table 14 and Figure 4 are based on weighted average. We used the incidence of each sector on total employment in each year as weight for the mean.

expected, the churning indexes magnitudes are definitely higher in the bottom panel. Secondly, the simultaneous variation of job creation and job destruction is still greater. In 1994, for example, while the employment rate was zero, job creation and job destruction were equal to 14%. Also in 2002, behind a negative employment net value, there was an high job creation (10%). With regard to the dynamic path, one notices that after the Barcelona Agreement and the FTA, job creation and job destruction stayed stable for a short period. Then they widely fluctuated. Their dynamic had a destabilising effect on the net employment growth. As Table 14 shows, net employment growth passed from -0.06% in 2002 to 0.08% in 2002 (definitely higher than in the top panel). This could be seen as a deleted effect of trade policy reform: during the adjustment period the less productive firms left the market and new firms entered (Matusz and Tarr, 1999). Moreover, since 1997, job reallocation has increased and, on average, it set at a higher level than in the pre-EU agreement period. Hence, trade liberalisation by increasing job instability could impact positively on firm-level productivity (see for example Baily, Hulten and Campbell (1992), Baily, Bartelsman and Haltiwanger (1996), Griliches and Regev (1995), Olley and Pakes (1996) and Foster, Haltiwanger and Kizan (1998)), but at the same time, it could worsen labour force conditions (see for example Goldberg and Pavcnik, 2004). Finally, the magnitude of churning in Morocco is relevant and closes to the evidence provided by Levinsohn (1999) for Chile and Davis and Haltiwanger (1996) for USA.

Table 15 reports the churning effect by trade orientation. The results are interesting. While exporter and non exporters are quite similar in term of job reallocation, they react to trade liberalisation in different ways. First of all, job destruction is higher among non exporters and job creation is larger among exporters. As a result, among non exporters job reallocation is mainly driven by high job destruction rate. Instead, for exporting firms net job growth rate is more volatile, indicating that high levels of job reallocation are simultaneously due to job creation and destruction. To understand this result, it's important to take into account the consequences of trade liberalisation. The fall of tariff barriers versus the EU and the North African countries have boosted Moroccan firms to deal on foreign markets and indeed do face more competition. At the same time, foreign firms started to trade on the Moroccan market, increasing the competition pressure also for local plants. The job creation and destruction dynamics suggest that exporting firms gain from the increasing trade with the EU and MENA countries. Moreover, they react to the higher competition by increasing firing and keeping quite stable hiring. This could be the consequence of the pro-competitive effect of increasing trade: non competitive firms exit from the market or decrease their work force and the best performing plants consolidate their position. On the other hand, non-exporters face the increasing competition by rising job destruction and keeping constant job creation. This is not an indicator of healthiness. Finally, according with Levinsohn (1999), the general increase in job reallocation after the trade agreements signed in 1995 seems to indicate that trade liberalisation promotes high turnover industries, and thus

creates more churning in the job market. The elevated level of job creation and job destruction that characterised both groups is an indicator of labour market instability and could explain the negative workers' attitudes toward liberalisation. Finally, until 1997, job reallocation among occasional exporters increased but it kept on at a lower level than churning in exporter and non exporter groups. After 1997, it decreased but it set on a higher path than the pre-reform period. Moreover, while job creation and job destruction contributed in the same way to the job reallocation before 1995, after trade FTA and EU agreement, the higher level of churning were mainly driven by job destruction.

Table 16 looks at the churning effect by the firm size. First of all, as widely demonstrated the literature on job reallocation, in Morocco churning is higher in small than in medium and large firms. Secondly, analysing the dynamic trend, one notice that increasing trade liberalisation with EU and MENA countries hit all the firms without regards to their labour force dimension, since it set net employment growth behind zero in all size groups. At the same time, trade openness increases job reallocation among large firms and decreased it among small and medium firms. In particular, small firms report the steepest decrease, which is driven by a decrease in both job destruction and job creation. Job creation and job destruction increased again after 2001. Among medium firms, the declining, but irregular, trend of job reallocation is mainly driven by changes in job destruction, since job creation remain quite stable. On the other hand, churning among large firms has increased since 1998. Rising job creation and destruction contributed concurrently at the job reallocation upward trend. However, the sharp decrease in hiring is the main cause of churning slow down in 2002. The evidence provided above suggests that the increasing trade with the EU and MENA countries hits all the firms without regard to their size, but with 3three years lag. However, firms react to an higher competition in a quite different way. Indeed, while small firms decrease both job destruction and job creation, medium firms rely heavily on job destruction, keeping job creation quite stable. Large firms show a more strong reaction, since they increase substantially both job destruction and job creation. Finally, 2001 is a crucial year for medium and large firms, which suddenly reverse job destruction and job creation rate, respectively.

6. Job reallocation

The results in the previous section show a significant amount of simultaneous job creation and destruction. The aim if this section is to look across sectors of the Moroccan economy and explain what fraction of the existing job reallocation is due to within sectors employment shifts and what fraction is due to between sectors shifts. First of all, consider job reallocation among sectors. Table 17 reports average industry rates of excess job reallocation, i.e. the mean of the difference between total job reallocation (SUM_sector) and the absolute value of net job reallocation (NET_sector). Davis and Haltiwanger (1992) express excess job reallocation as follow:

$$EXCESS = \sum_s sum_s - \left| \sum_s net_s \right|$$

Table 17 (in Appendix) shows that simultaneous job creation and job destruction, reflected in high and positive excess value, is an important phenomenon in all sectors. While the average value of excess job reallocation is 13.6%, it varies from 22% to 6% across sector. In particular, the television and radio equipment industry is characterised by the lowest level of churning, as the excess job reallocation is only 6%. Nevertheless, as was shown in Table 1 this industry is very small in term of employment and sales in the Moroccan economy. On the other hand, the food and beverage industry (Sector 15 in Table 17), one of the most important industries in the Moroccan economy, is characterised by the highest level of churning. More surprisingly, the chemical industry (Sector 24 in Table 17), one of the main industries in term of employment and production, has a low level of churning.

Following Davis and Haltiwanger (1992), we can decompose excess job reallocation in 2 components. One component represents the contribution of reshuffling employment among sectors, and the other component represents the contribution of excess job reallocation within sectors. The component of excess job reallocation due to between-sector employment shifts is given by:

$$BETWEEN = \sum_s |net_s| - \left| \sum_s net_s \right|$$

The component due to excess job reallocation within sectors is given by:

$$WITHIN = \sum_s sum_s - \sum_s |net_s|$$

Where SUM is a measure of the gross job reallocation rate in sector s between t-1 and t and NET is a measure of net employment change in sector s at time t, as defined in the previous section.

Table 18 gives the fraction of excess job reallocation due to employment shifts between and within sectors over the 1990-2002 period. To compute these indicators, we take the value of SUM and NET for each sector in each year. Then, we aggregate them by sector following the formula above. Table 18 summarises the results. In all years simultaneous job creation and job destruction within industries accounts for the vast majority of total turnover (73,4% on average). In particular, in 1995 and 1996 the between-sector job reallocation reach a peak, but it still account for just one third of total excess reallocation. The increasing importance of the "between" component is consistent with the theories of international trade, which predict specialisation on the basis of comparative advantages in the aftermath of trade liberalisation (Heckscher-Ohlin Theorem). This implies a shift of the employees from the less productive sectors to the more productive. Hence job reallocation among sectors. However, we would expect a lagged response of labour market to trade policy and not a simultaneous one. Another explanation could be the delayed reaction to the exchange regime change, since in 1993 the Moroccan

Dirham was pegged to a foreign currency basket. This led to a Dirham appreciation and this could impact on industry composition.

Table 18: Employment shift between and within sectors

For Entry, Exit and Continuing Firms:

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Excess	2.83	3.87	4.60	5.49	4.89	6.11	3.59	3.41	3.43	4.52	3.61	3.85
Between	0.56	1.44	1.09	1.07	1.70	2.38	0.62	0.88	0.91	1.24	0.78	0.81
Within	2.28	2.42	3.51	4.42	3.19	3.72	2.98	2.52	2.52	3.28	2.83	3.04
Between/Excess	19.68	37.28	23.64	19.41	34.70	39.02	17.20	25.96	26.65	27.35	21.71	21.04

For Continuing Firms:

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Excess	2.72	2.32	2.89	3.34	3.66	3.50	2.92	1.92	3.09	3.10	2.50	2.71
Between	0.88	0.67	0.74	0.74	1.60	1.22	0.86	0.42	1.11	0.52	0.70	0.53
Within	1.84	1.65	2.16	2.60	2.06	2.28	2.06	1.51	1.97	2.58	1.80	2.18
Between/Excess	32.34	28.96	25.40	22.12	43.69	34.89	29.46	21.72	36.06	16.74	28.19	19.58

The same analysis could be done defining groups in different ways. When firms are defined by export status there are 3 groups (s = 1 ; 2 ; 3) as well as when they are defined by dimension. In this case, we work with the mean value of SUM and NET for each group in each year. Table 19 and 20 show the results. The prevalence of between-sector employment shifts is still more evident when plants are divided by export status and size. Only 0.7% (on average) of excess job reallocation is explained by employment shifts between plants of different size. The percentage is similar (0.9%) if firms are classified by their trade orientation. Indeed, the striking message of these tables is just that excess job reallocation plays a small role in explaining between-sector employment shifts in all years. As a result, the vast majority of excess job reallocation is within sectors and is linked to firm level heterogeneity. Another remarkable aspect of Table 11 is the inability of trade status to account for any of the between group job reallocation in nine of the twelve years. Moreover, increasing trade liberalisation with the EU and MENA countries does not impact on job reallocation among groups in these cases. This is surprising, since traditional models of international trade suggest that trade liberalisation impacts exporting and non-exporting firms quite differentially. Hence, one might have expected to observe significant, or at least non zero values of the between-sector component when sectors where defined by their trade orientation. The opposite results could indicate that there are simultaneous economy-wide

Table 19: Employment shift between and within Export Status Groups

For Entry, Exit and Continuing Firms:

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Excess	0.47	0.55	0.81	0.78	0.80	0.85	0.73	0.65	0.68	0.68	0.64	0.62
Between	0.00	0.00	0.01	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Within	0.47	0.55	0.80	0.78	0.74	0.85	0.73	0.65	0.68	0.68	0.61	0.62
Between/Excess	0.00	0.00	0.68	0.00	7.22	0.00	0.00	0.00	0.00	0.00	4.04	0.00

For Continuing Firms:

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Excess	0.47	0.46	0.49	0.70	0.50	0.49	0.52	0.49	0.59	0.58	0.46	0.62
Between	0.03	0.04	0.00	0.05	0.01	0.00	0.03	0.04	0.00	0.12	0.05	0.02
Within	0.44	0.42	0.49	0.65	0.49	0.49	0.49	0.46	0.59	0.45	0.41	0.60
Between/Excess	6.11	7.93	0.00	7.17	1.36	0.00	6.16	7.31	0.00	21.59	11.65	3.30

Table 20: Employment shift between and within Size Groups

For Entry, Exit and Continuing Firms:

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Excess	0.47	0.61	0.91	0.86	0.92	0.90	0.78	0.81	0.76	0.77	0.83	0.82
Between	0.00	0.00	0.02	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Within	0.47	0.61	0.88	0.86	0.86	0.90	0.78	0.81	0.76	0.77	0.83	0.82
Between/Excess	0.00	0.00	2.46	0.00	6.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00

For Continuing Firms:

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Excess	0.47	0.47	0.53	0.75	0.59	0.56	0.60	0.55	0.61	0.57	0.52	0.62
Between	0.03	0.02	0.00	0.10	0.06	0.00	0.08	0.00	0.00	0.02	0.03	0.03
Within	0.45	0.44	0.53	0.65	0.53	0.56	0.52	0.55	0.61	0.55	0.49	0.59
Between/Excess	5.49	4.90	0.00	13.50	10.94	0.00	12.84	0.00	0.00	3.32	5.15	5.24

macro shocks that dominate and offset the impact of trade liberalisation (Levinsohn, 1999). Indeed, between 1990 and 2002, Moroccan economy is shocked not only from the trade liberalisation process, but from a set of policy aimed at increase the country's competitiveness, such as privatisation and financial reforms. Finally, it's not surprising that the magnitude of excess, between and within job reallocation indexes is lower in the bottom panel of each table, i.e. it's smaller if we consider only the workforce reorganisation in continuing firms. The small contribution of between reallocation to churning confirms the analysis of Roberts (1995) for Morocco. A similar phenomenon has been observed also in the U.S plant-level data (Davis and Haltiwanger, 1992) and in the Chilean manufacturing sector (Levinsohn, 1999 and Roberts, 19995). The small fraction of excess job reallocation due to between-group employment shifts has been interpreted (see for example Davis and Haltiwanger (1992) and Levinsohn (1999)) as an indicator that aggregate macro shocks are much more important than sector-specific shocks.

7. Workers as an Heterogeneous Group: Employment Relation, Gender and Skill Level.

In the previous analysis we have treated labour as a homogeneous group and we have not distinguished labour by employment relation, gender or by job type. The Moroccan data set, though, contains quite detailed information about the type of labour used in each plant. All of the analyses conducted above with homogeneous labour have been repeated for sub-groups of labour. In particular, separate analyses were done for temporary and permanent workers, male and female workers and for white collar versus blue collar workers. In order to avoid "result-overload," the results of these studies are summarized in this section. In the existing literature, the link between trade and temporary workers is explored only in an indirect way. Trade liberalisation is often claimed of increasing labour market vulnerability and worsening workers conditions (Goldberg and Pavcnik, 2004). Since temporary work are often defined, mainly in developing countries, as poor-quality job, one would expect a positive link between trade policy and temporary workers; contrary, greater openness would decrease (or at least keep constant) the permanent workers share. With regard to the Moroccan economy, the first step to investigate the link between trade and temporary workers is to analyse whether temporary and permanent workers behave differently in term of growth rate. The Wilcoxon ranksum test rejects that the median of the distribution of temporary job growth rates is the same as that of the permanent workers suggesting instead that the distribution of job growth rates for temporary has a higher median. This result is confirmed by the parametric evidence too. When the share of temporary workers is included in the regression reported in Table 13, the variable is positive and statistically significant. Its magnitude is small and suggests that a 1% increase in the fraction of the workforce that is temporary is conditionally

correlated with a 0.08% increase in the job growth rate. The difference between permanent and temporary workers is still more evident when one compare job reallocation rates. Across the sample period, job reallocation among temporary workers is definitely higher (twice) than among permanent workers. Moreover, while churning among permanent workers is quite constant after 1998, job reallocation for temporary workers has increased after 1997 and after 2000 it has been mainly driven by job creation. As a result the gap in term of job reallocation between the two group widen. The lower level of permanent job reallocation in Morocco could be the result of its comprehensive and rather restrictive labour market regulations, which particularly regards firing procedures for the private sector workforce. Trade liberalisation in Morocco has increased churning more among temporary than permanent workers. Hence, the evidence provided seems support the mainstream approach. Dividing firms on the base of their export status, we get an interesting picture. After 1996, churning among temporary workers has increased in each trade orientation group, but it has followed different path. Among non exporting firms it set to an higher level across all the years and it raised at a faster rate than for exporters. Moreover, while both hiring and firing of temporary workers increased in this period, job destruction offset the positive effect of job creation. Among exporters, job reallocation increased in the aftermath of trade liberalisation (1995-98), then it remained stable but on an higher path than pre-reform period. However, the flat dynamics of churning hidden a lot of instability in term of job creation and destruction. Job reallocation among irregular exporter kept stable between 1995 and 2000, as a result of low variation in hiring and firing. However, it jumped after 2000 due to the great instability in job creation and destruction. On the other hand, permanent job reallocation is decreasing for non exporters and exporters; among irregular exporters it present a more stable path until 2000, when it jump driven by job creation. The evidence suggest that trade liberalisation impact on Moroccan labour market mainly by increasing temporary workers reallocation among non exporters firms. The result could be surprising, since one would expect a larger effect on exporters. This suggest, that non exporters firms face increasing competition by relying more on temporary workforce. In any case, they present also a higher level of permanent job churning. A reasonable explanation could be given by the labour market enforcement rule. Firms that deal on the domestic market are less likely exposed to trade unions and government controls and can easily evade the severe legislation on hiring and firing. Moreover, non exporters are mainly small firms and hence less constrained by law enforcement. This hypothesis is confirmed by the churning analysis among size groups. Indeed, temporary and permanent job reallocation is higher in small than medium and large firms across all the years. With regard to the dynamic trend, it follows the general pattern described above in each size group: while churning in permanent job is stable and downward oriented, for temporary jobs is more volatile and increasing across the years.

As put in evidence by Levinsohn (199), the broad discussion on trade and jobs has not addressed the issue of gender. This issue has typically been the domain of labour economics, not international trade. However, it's interesting to analyse whether there are differences among male and female job in term of churning. The Wilcoxon ranksum test rejects that the median of the distribution of female job growth rates is the same as that of the males suggesting instead that the distribution of job growth rates for females has a higher median. This pattern is confirmed by the parametric evidence. As we did with temporary and permanent workers, we included the female workforce share in the regression. The regressor coefficient is positive and statistically significant. It's magnitude, though, is very small and suggests that a 1% increase in the fraction of the workforce that is female is conditionally correlated with a 0.1% increase in the job growth rate. The evidence of a difference between male and female workforce remains when one compares gross job reallocation rates. This suggests that the churning of jobs impacts women more than men. Anyway, after the 1995 trade agreements, job reallocation declined more for female job than for male one.

Finally, from 1995 to 2001 the workers are classified on the base of their job. By aggregating the categories, we can classify workers in "blue collar" and "white collar". The former are predominately production workers while the latter are mostly managers and engineers. The Wilcoxon ranksum test rejects that the median of the distribution of "white collar" job growth rates is the same as that of the "blue collar" suggesting instead that the distribution of job growth rates for "white collar" has a higher median. This pattern is confirmed by the parametric evidence. As before, we included a new variable in our regression: the skilled workforce share. The regressor coefficient is positive and statistically significant. It's magnitude, though, is very small and suggests that a 1% increase in the fraction of the workforce that is female is conditionally correlated with a 0.7% increase in the job growth rate. The evidence of a difference between white and blue collars is still stronger when one compares gross job reallocation rates. In fact, the gross job reallocation rates are about 70% higher for white collar workers. This suggests that the churning of jobs impacts skilled workers more than unskilled one. Moreover, growth rate and net change in employment are positive (on average) for "white collar" and negative for "blue collar". Following the Hecksher-Ohlin and Stolper-Samuleson literature, we would expect a different result. Since Morocco is abundant in unskilled-workers, after trade liberalisation Morocco would specialise in unskilled intensive production. As a result, more unskilled workers should be hired and skilled workers dismissed. The contrary evidence that emerges from our analysis could suggest that firms continue to hire "white collar" in order to adapt their production to the imported skilled-intensive technology. Indeed, to increase their competition, the Moroccan firms must fill-in the technological gap with the foreign competitors.

8. Conclusion

In the last two decades, trade liberalisation has mainly been a characteristic of developing countries. The trade reform consequences have been substantial and widespread in all the branches of these societies. In particular, we investigate how trade policy affects household's welfare through the labour market channel. The existing literature suggests that in developing countries tariff reductions impacts more on wages than on the employment level. Recently, some authors have shown the importance of examining the determinants of low net employment change and they show the importance of the churning effect, i.e. the workers reallocation. Following the methodology suggested by Davis and Haltiwanger (1990), we analyse the churning effect in the Moroccan economy. First of all, the parametric and non parametric analysis on employment growth rates suggest that exporters and small firms present much more instability, mostly in terms of entry and exit. However, the growth rates are close to zero. To investigate what is hidden behind this static pattern, we compute the job creation, job destruction and job reallocation indexes. Results show that in the aftermath of increasing trade liberalisation with the EU and MENA countries, job creation decreased, job destruction increased with a final negative effect on net employment growth. This could be seen as the negative short-run effect of trade policy reform: during this adjustment period the less productive firms left the market and few new firms entered (Masutz and Tarr, 1999). At the same time, job reallocation increased and this is an important phenomenon in all sectors of the Moroccan economy. Classifying firms on the base of their trade orientation, we notice that exporters and non exporters don't differ too much in term of job reallocation but they react to trade liberalisation in different ways: while exporters firms increase both hiring (and entry) and firing (and exit), non-exporters rely more on job destruction (firing and exit). With regard to size, small firms present the higher churning level but the FTA and Barcelona agreement impact much more on large firms, by increasing both job creation and destruction. Furthermore, since the Moroccan data set contains quite detailed information about the type of labour used in each plant, we distinguish labour by employment relation, gender or by job type. Churning analysis suggest that churning is higher among temporary workers, female workers and skilled workers. Moreover, trade liberalisation impact mainly on temporary workers, by sharply increasing their job reallocation.

Finally, the decomposition of the churning effect shows that, in all years, simultaneous job creation and job destruction within industries accounts for the vast majority of total turnover (70% on average). This suggests that firm heterogeneity is the key issue to understand job reallocation in the Moroccan economy.

The provided evidence suggests that the effect of increasing trade liberalisation on Moroccan labour markets is quite worrying. First of all, grater openness will increase job instability, in particular among temporary workers. Secondly, without a sustained economic growth, the lack of job creation, matched with an increase in job destruction, population growth and rural migration, will rise the urban unemployment rate despite being high already (21.4%, Agenor and El Aynaoui, 2003). Hence, trade policies should be matched with labour market policies, which should not be only focused on the sector of activity but should take into account also firm heterogeneity. In particular, plant size, trade orientation and workers type are three key features for policymakers.

Appendix: Tables

Table 5: Female Workers Share on Total Employment by Export Status

Year	Trade Status	Number of Plants	Mean Share	Standard deviation	Minimum	Maximum
1992	NonExporter	1894	0.16	0.22	0	1
	Exporter	670	0.58	0.32	0	1
	Change Status	596	0.34	0.33	0	1
1993	NonExporter	1839	0.15	0.21	0	1
	Exporter	620	0.57	0.32	0	1
	Change Status	621	0.33	0.32	0	1
1994	NonExporter	1338	0.16	0.21	0	1
	Exporter	490	0.60	0.33	0	1
	Change Status	579	0.33	0.32	0	1
1995	NonExporter	1306	0.15	0.21	0	1
	Exporter	480	0.60	0.32	0	1
	Change Status	569	0.34	0.32	0	1
1996	NonExporter	1240	0.16	0.21	0	1
	Exporter	456	0.61	0.32	0	1
	Change Status	526	0.33	0.31	0	1
1997	NonExporter	1164	0.17	0.22	0	1
	Exporter	425	0.61	0.31	0	1
	Change Status	493	0.32	0.32	0	1
1998	NonExporter	1093	0.17	0.22	0	1
	Exporter	400	0.63	0.30	0	1
	Change Status	448	0.32	0.31	0	1
1999	NonExporter	1031	0.17	0.20	0	1
	Exporter	379	0.61	0.30	0	1
	Change Status	423	0.33	0.31	0	1
2000	NonExporter	967	0.18	0.20	0	1
	Exporter	369	0.62	0.30	0	1
	Change Status	410	0.32	0.30	0	1
2001	NonExporter	927	0.19	0.21	0	1
	Exporter	407	0.62	0.30	0	1
	Change Status	411	0.34	0.30	0	1
2002	NonExporter	852	0.18	0.20	0	1
	Exporter	364	0.63	0.30	0	1
	Change Status	428	0.35	0.31	0	1

Table 6: Temporary Workers Share on Total Employment by Export Status

Year	Trade Status	Number of Plants	Mean Share	Standard deviation	Minimum	Maximum
1990	NonExp	1822	0.07	0.18	0	0.99
	Exp	626	0.15	0.27	0	0.99
	Change	993	0.09	0.21	0	0.95
1991	NonExp	1823	0.08	0.18	0	0.99
	Exp	626	0.15	0.27	0	0.99
	Change	535	0.10	0.20	0	0.95
1992	NonExp	1902	0.07	0.17	0	0.99
	Exp	676	0.15	0.27	0	0.99
	Change	601	0.09	0.21	0	0.94
1993	NonExp	1839	0.05	0.15	0	0.99
	Exp	620	0.13	0.26	0	0.99
	Change	622	0.08	0.20	0	0.98
1994	NonExp	1344	0.08	0.17	0	1.62
	Exp	497	0.14	0.25	0	0.99
	Change	587	0.10	0.22	0	0.97
1995	NonExp	1331	0.09	0.18	0	0.98
	Exp	492	0.14	0.27	0	0.96
	Change	574	0.11	0.21	0	0.97
1996	NonExp	1277	0.08	0.18	0	0.91
	Exp	469	0.14	0.25	0	0.95
	Change	541	0.11	0.21	0	0.98
1997	NonExp	1220	0.07	0.17	0	0.92
	Exp	440	0.13	0.24	0	0.95
	Change	509	0.11	0.22	0	0.98
1998	NonExp	1143	0.07	0.16	0	0.94
	Exp	417	0.13	0.24	0	0.95
	Change	464	0.10	0.21	0	0.93
1999	NonExp	1095	0.07	0.16	0	0.95
	Exp	399	0.12	0.24	0	0.97
	Change	444	0.09	0.19	0	0.91
2000	NonExp	1040	0.05	0.14	0	0.96
	Exp	387	0.11	0.23	0	0.98
	Change	435	0.07	0.17	0	0.96
2001	NonExp	1002	0.06	0.16	0	0.96
	Exp	425	0.14	0.26	0	1.00
	Change	425	0.08	0.20	0	0.97
2002	NonExp	915	0.07	0.15	0	0.92
	Exp	383	0.14	0.26	0	0.98
	Change	449	0.09	0.19	0	0.95

Table 14: Churning by Sector (weighted average)

Continuing Firms

	Job Destruction	Job Creation	Job Reallocation	Net Change
1991	0.10	0.08	0.18	-0.03
1992	0.08	0.08	0.17	0.00
1993	0.09	0.15	0.24	0.07
1994	0.14	0.14	0.28	0.00
1995	0.08	0.12	0.19	0.04
1996	0.09	0.10	0.19	0.01
1997	0.08	0.11	0.19	0.03
1998	0.09	0.10	0.18	0.01
1999	0.12	0.10	0.22	-0.03
2000	0.10	0.11	0.21	0.01
2001	0.10	0.12	0.21	0.02
2002	0.12	0.11	0.24	-0.01

Entry, Exit and Continuing Firms

	Job Destruction	Job Creation	Job Reallocation	Net Change
1991	0.18	0.08	0.25	-0.10
1992	0.09	0.13	0.22	0.03
1993	0.15	0.18	0.32	0.03
1994	0.27	0.15	0.42	-0.11
1995	0.14	0.14	0.28	0.00
1996	0.15	0.13	0.28	-0.02
1997	0.19	0.13	0.32	-0.05
1998	0.16	0.11	0.27	-0.05
1999	0.19	0.12	0.31	-0.07
2000	0.17	0.13	0.30	-0.04
2001	0.13	0.19	0.32	0.06
2002	0.21	0.13	0.34	-0.08

Table 15: Churning by Export Status

Non Exporter

	Job Destruction	Job Creation	Job Reallocation	Net Change
1991	0.09	0.07	0.16	-0.01
1992	0.11	0.13	0.24	0.01
1993	0.14	0.15	0.29	0.01
1994	0.35	0.10	0.46	-0.25
1995	0.15	0.12	0.27	-0.03
1996	0.19	0.18	0.37	-0.01
1997	0.20	0.11	0.31	-0.09
1998	0.19	0.09	0.27	-0.10
1999	0.18	0.11	0.29	-0.07
2000	0.13	0.11	0.24	-0.02
2001	0.17	0.15	0.32	-0.02
2002	0.14	0.08	0.22	-0.06

Exporter

	Job Destruction	Job Creation	Job Reallocation	Net Change
1991	0.10	0.08	0.18	-0.03
1992	0.09	0.12	0.21	0.04
1993	0.15	0.15	0.30	0.00
1994	0.26	0.17	0.43	-0.09
1995	0.15	0.17	0.31	0.02
1996	0.15	0.13	0.28	-0.03
1997	0.18	0.12	0.30	-0.06
1998	0.12	0.12	0.24	-0.01
1999	0.18	0.12	0.29	-0.06
2000	0.15	0.14	0.29	-0.01
2001	0.14	0.17	0.31	0.03
2002	0.18	0.10	0.28	-0.09

Irregular Exporter

	Job Destruction	Job Creation	Job Reallocation	Net Change
1991	0.36	0.09	0.44	-0.27
1992	0.08	0.13	0.20	0.05
1993	0.11	0.15	0.26	0.04
1994	0.15	0.11	0.27	-0.04
1995	0.10	0.11	0.21	0.01
1996	0.13	0.12	0.25	0.00
1997	0.18	0.13	0.31	-0.05
1998	0.16	0.12	0.29	-0.04
1999	0.17	0.12	0.28	-0.05
2000	0.17	0.09	0.26	-0.08
2001	0.11	0.12	0.23	0.02
2002	0.22	0.19	0.41	-0.03

Table 16: Churning by Firm Size

Small Firms

	Job Destruction	Job Creation	Job Reallocation	Net Change
1991	0.24	0.08	0.32	-0.16
1992	0.13	0.17	0.30	0.03
1993	0.17	0.20	0.38	0.03
1994	0.44	0.15	0.59	-0.29
1995	0.22	0.16	0.38	-0.06
1996	0.23	0.18	0.41	-0.04
1997	0.24	0.14	0.38	-0.10
1998	0.23	0.18	0.41	-0.04
1999	0.21	0.15	0.36	-0.06
2000	0.17	0.15	0.32	-0.02
2001	0.16	0.12	0.29	-0.04
2002	0.18	0.14	0.32	-0.04

Medium Firms

	Job Destruction	Job Creation	Job Reallocation	Net Change
1991	0.17	0.09	0.26	-0.08
1992	0.09	0.15	0.25	0.06
1993	0.19	0.18	0.37	-0.01
1994	0.34	0.13	0.47	-0.21
1995	0.16	0.19	0.35	0.03
1996	0.16	0.14	0.30	-0.02
1997	0.22	0.14	0.37	-0.08
1998	0.16	0.13	0.29	-0.04
1999	0.20	0.13	0.34	-0.07
2000	0.17	0.11	0.29	-0.06
2001	0.10	0.15	0.25	0.05
2002	0.20	0.15	0.35	-0.05

Large Firms

	Job Destruction	Job Creation	Job Reallocation	Net Change
1991	0.15	0.06	0.21	-0.08
1992	0.08	0.09	0.17	0.02
1993	0.09	0.12	0.21	0.03
1994	0.16	0.14	0.30	-0.01
1995	0.10	0.11	0.21	0.00
1996	0.14	0.13	0.27	-0.01
1997	0.15	0.11	0.26	-0.04
1998	0.13	0.09	0.22	-0.03
1999	0.15	0.10	0.25	-0.05
2000	0.13	0.12	0.26	-0.01
2001	0.15	0.15	0.31	0.00
2002	0.18	0.09	0.27	-0.08

Table 17: Excess Job Reallocation by Sectors.

<table>
<tr><td colspan="4" align="center">**Excess = SUM -|NET|**</td></tr>
<tr><td>**Sector**</td><td>**Code**</td><td>**Mean**</td><td>**St.Dev.**</td></tr>
<tr><td>INDUSTRIES ALIMENTAIRES</td><td>15</td><td>**0.229**</td><td>0.093</td></tr>
<tr><td>INDUSTRIE TEXTILE</td><td>17</td><td>0.177</td><td>0.070</td></tr>
<tr><td>INDUSTRIE DE L'HABILLEMENT ET DES FOURRURES</td><td>18</td><td>**0.210**</td><td>0.093</td></tr>
<tr><td>INDUSTRIE DU CUIR ET DE LA CHAUSSURE</td><td>19</td><td>0.178</td><td>0.072</td></tr>
<tr><td>TRAVAIL DU BOIS ET FABRICATION D'ARTICLES EN BOIS</td><td>20</td><td>**0.184**</td><td>0.115</td></tr>
<tr><td>INDUSTRIE DU PAPIER ET DU CARTON</td><td>21</td><td>**0.193**</td><td>0.094</td></tr>
<tr><td>EDITION, IMPRIMERIE, REPRODUCTION</td><td>22</td><td>0.153</td><td>0.068</td></tr>
<tr><td>INDUSTRIE CHIMIQUE</td><td>24</td><td>0.080</td><td>0.071</td></tr>
<tr><td>INDUSTRIE DU CAOUTCHOUC ET DES PLASTIQUES</td><td>25</td><td>0.147</td><td>0.065</td></tr>
<tr><td>FABRICATION D'AUTRES PRODUITS MINERAUX NON METALLIQUES</td><td>26</td><td>0.176</td><td>0.089</td></tr>
<tr><td>METALLURGIE</td><td>27</td><td>0.081</td><td>0.076</td></tr>
<tr><td>TRAVAIL DES METAUX</td><td>28</td><td>0.163</td><td>0.062</td></tr>
<tr><td>FABRICATION DE MACHINES ET EQUIPEMENTS</td><td>29</td><td>0.136</td><td>0.065</td></tr>
<tr><td>FABRICATION DE MACHINES DE BUREAU ET DE MATERIEL INFORMATIQUE</td><td>30</td><td>0.085</td><td>0.148</td></tr>
<tr><td>FABRICATION DE MACHINES ET APPAREILS ELECTRIQUES</td><td>31</td><td>0.162</td><td>0.130</td></tr>
<tr><td>FABRICATION D'EQUIPEMENTS DE RADIO, TELEVISION ET COMMUNICATION</td><td>32</td><td>0.062</td><td>0.062</td></tr>
<tr><td>FABRICATION D'INSTRUMENTS MEDICAUX,DE PRECISION D'OPTIQUE ET D'HORLOGERIE</td><td>33</td><td>0.101</td><td>0.083</td></tr>
<tr><td>INDUSTRIE AUTOMOBILE</td><td>34</td><td>0.097</td><td>0.068</td></tr>
<tr><td>FABRICATION D'AUTRES MATERIELS DE TRANSPORT</td><td>35</td><td>0.089</td><td>0.058</td></tr>
<tr><td>FABRICATION DE MEUBLES, INDUSTRIES DIVERSES</td><td>36</td><td>0.148</td><td>0.075</td></tr>
</table>

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