FOREIGN SUBSIDIARIES PERFORMANCE AND DYNAMICS: A COMPARATIVE ANALYSIS WITH DOMESTIC FIRMS

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Abstract

In this study we conduct a dynamic and comparative analysis showing evolutional differences between foreign and domestic firms, a topic particularly important when foreign direct investment has become more important to economic growth. In this study, we discuss the Portuguese experience and the comparative evolution of foreign subsidiaries and domestic firms during the period 1985-2005. We look in particular at issues of performance, human capital and dynamics. The research is based on a large scale panel data at firm level from the database 'Quadros de Pessoal' for the period 1985-2005. Our study expands over previous analyses conducted about Portugal with qualitative empirical data at firm level. From our knowledge, this is the first study with such a long time pan dimension. More than allowing for a comparative and static analysis, with this time horizon it is possible to investigate how the differences evolved over time. We found dissimilar progress trends in performance, human capital and dynamics. We discuss the implications of the findings and open prospects for future research. To study the quality of the foreign investments and its potential impact on the competitiveness of the host economy is clearly an important issue, especially in an economy with strong a challenge for convergence, and about which we still know very little on these issues. These analyses and empirical evidences are important to evaluate the efforts put in action in the last decades to attract FDI, and to open new lines of discussion and new policy measures.

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1. INTRODUCTION

The 1980s and the 1990s saw an increase in the international openness of the Portuguese economy. This opening up was expected to bring increased growth through a number of routes. In this paper we focus on the potentials of inward direct investment. Along with trade transactions, Portugal registered an outstanding growth of inward foreign direct investment on the aftermath of the EEC membership in 1986. From the early literature on foreign direct investment (FDI) it has been suggested that multinational firms have a positive contribution to host country development by supplying capital, technology and management resources that would not otherwise be available. The potential impact of MNEs for host economies depends on a variety of factors and, in particular, on the differences between domestic and foreign firms (Bellak 2004a). The international business literature has well established that a reason why a firm invest abroad is that they possess firm-specific advantages, not available to domestic firms in the host country (Caves 1974; Dunning 1981; Hymer 1976; Vernon 1966). These advantages assist MNEs to achieve a differentiated behaviour and superior performance from domestic owned establishments.

The survey conducted by Bellak (2004b) reveals that the aspects more frequently covered in comparative analyses of domestic and foreign firms rely on structural differences regarding wages, work relations, workforce, human capital, productivity, growth, profitability and research and development. Bellak (2004b) also concludes that the findings of the empirical

studies are not so supportive of the superior performance hypothesis. In most cases, structural variables of the firm (in particular, size) or industry characteristics soften the effects of foreign ownership.

In this paper we analyse the potential contribute of MNEs to the Portuguese economy using a systematic analysis of the specificities and quality of the direct investment.

Existing comparative studies between domestic and foreign firms in Portugal support the differentiated and superior hypothesis argument. In our paper we investigate this issue and how it has evolved over the last 20 years (1985-2005). We look at data at subsidiary level. From our knowledge, this is the first study with such a long time pan dimension. More than allowing for a comparative and static analysis, with this time horizon it is possible to investigate how the differences evolved over time. We look in particular at issues of performance, human capital and dynamics.

To study the quality of the foreign investments and its potential impact on the competitiveness of the host economy is clearly an important issue. Worldwide several economies spend substantial resources to attract FDI. Peripheral and/or transition economies, as well as developing countries in particular, seek to overcome some internal limitations by attracting global players. The benefits may arise from the entry of more productive firms, i.e. a presence effect (Bellak 2004a; Sleuwaegen and De Backer 2003), or indirectly by a transmission effect (Bellak 2004a) through positive spillovers to domestic firms (Blomström and Kokko 1998, 2003; Crespo and Fontoura 2007). Moreover, our study focuses on the Portuguese case, an economy with strong a challenge for convergence and about which we still know very little on these issues.

2. FOREIGN AND DOMESTIC FIRMS AND HOW THEY DIFFER

For the Portuguese case, there is some evidence on differentiated behaviour between foreign and domestic firms. The differences found range from performance, human capital qualifications, wages, export-orientation, and capacity to overcome barriers to entry.

Cabral (1996) highlighted the export-intensive behaviour of foreign subsidiaries in Portugal, while Gonçalves and Guimarães (1997) found foreign enterprises to have a distinct specialization pattern. Farinha and Mata (1996) concluded that a 1% increase in foreign presence would contribute to an increase of the average productivity of the economy by 0,7%. The study by Mata and Portugal (2004) on entry patterns in the period 1983-1989 revealed that domestic entrants were smaller, paid lower wages and employed less skilled workforce. Foreign firms tended to enter more in sectors where there were already other foreign firms and sectors with higher barriers to entry. Foreign firms' capacity to overcome entry barriers (namely differentiation and concentration) is also clear in the study conducted by Barbosa, Guimarães and Woodward (2004) for the period 1982-1990. Yet, in the study of Barbosa and Louri (2005) on differences in performance, ownership ties do not make a significant difference for firms in Portugal after controlling for firm- and industry-specific characteristics. Barbosa (2007) highlights the importance of foreign firms on the improvement of human capital, showing that foreign acquisition in the period 1981-2000 had a positive effect on the composition of workforce. Based on a large scale questionnaire, Teixeira and Tavares-Lehmann (2007) found a strong relationship between FDI, human capital and R&D. Foreign subsidiaries have greater capabilities for innovation and value creation, so a higher propensity to conduct relatively more R&D activities (Tavares and Young 2006).

Our research complements these findings using a large time-dimension (1985-2005) and data at firm level. The research is based on a panel data at firm level from the database 'Quadros de Pessoal' for the period 1985-2005. The database is from the Portuguese Ministry of Employment and treated under an on-going research project with the GEE of the Ministry of

Economy in Portugal. It is a longitudinal data file matching firms and workers. The data is based on a questionnaire that every firm with wage-earners is legally obliged to fill out. Records are available at the firm and plant level, and have a detailed description of the labour force characteristics. Among other characteristics, the share of equity owned by non-residents is also reported. Therefore, a firm was considered a foreign firm if its share of equity owned is, at least, 50%.

Our study expands over previous analyses conducted about Portugal with qualitative empirical data at firm level. These analyses and empirical evidences are important to evaluate the efforts put in action in the last decades to attract FDI and to open new lines of discussion and new policy measures. Why do MNEs pay more to their employees? Why do they retain a more qualified workforce? Should policy give priority to foreign investments? Is foreign ownership in itself and advantage, or does it loses significance against structural aspects (size, country of origin, industry...).

In section 3 we present a brief analysis about the evolution of foreign investments received by Portugal, focusing on Portuguese Manufacturing Industry, where some variables of scale, efficiency and human capital are described. Then we evaluate the dynamics and asymmetries between and within foreign and domestic firms, based on transition probability matrices between percentiles, the birth and the mortality of both groups of firms, showing some differences on their survival trends. Section 4 concludes.

3. PERFORMANCE AND HUMAN CAPITAL IN COMPARISION

After the membership to EEC in 1986, FDI inflows increased substantially. Portugal was understood by foreign investors as a platform to easily reach other EEC countries. Between 1985 and 2005, the number of foreign and domestic firms (henceforth ‘FF’ and ‘DF’, respectively) located in Portugal grew in a considerable way, although the growth had been

greater in foreign case. During this period, the average annual growth rate was about 7,72% in FF and 6,24% in DF. However, 1992 was an adverse year, since both firms had declined in number. In the beginning of 2000s, a little stagnation was, again, evident, but in the recent years the growth of firms has recovered, as table 1 reveals.

Table 1. Evolution of the number of firms in Portugal

	1985		1990		1995		2000		2005	
	Total	Manuf.	Total	Manuf.	Total	Manuf.	Total	Manuf.	Total	Manuf.
No. FF	872	344	1274	434	1964	551	2314	582	3530	830
No. DF	101.329	24.459	139.032	32.337	190.306	37.718	266.387	45.132	337.252	46.059

FF: stands for foreign firms, DF stands for domestic firms.

At sector level, the economic sector with greater number of FF during the period studied was Wholesale and Retail, followed by Manufacturing Industry, probably to export activities (Cabral 1996). The data reveals that in spite the growth in number of firms, in relative terms manufacturing reduced its importance as destiny of foreign investments. By 1985 nearly 40% of foreign firms were concentrated in manufacturing, but the value declined to 23% in 2005.

Table 2. Concentration of investments in PMI

	1985	1990	1995	2000	2005
No. FF	39,4	34,1	28,1	25,2	23,5
No. DF	24,1	23,3	19,8	16,9	13,7

FF: stands for foreign firms; FD stands for domestic firms. Values in percentage

The relative importance of manufacturing declined far more for the group of domestic firms. Indeed, foreign investments reveal a higher concentration on manufacturing than domestic firms. Indeed, we show below, foreign firms gained outstanding relevance as players on Portuguese industry over the time period considered here.

At employment and turnover levels, the evolution of FF in total in general and for manufacturing in particular was positive and greater than that for domestic firms. The average rate of growth of turnover was similar for both groups. Overall, turnover growth rate for

domestic firms reached 19% and 17% for foreign ones. Turnover in manufacturing increased slightly less, 14% for DF and 15% for FF. When considering at the growth in number of firms, the growth of employment was very low. Nevertheless, foreign firms registered considerable better results. FF presented a greater growth rate of employment (4,87%) against the average of DF (2,33%).The average rate of growth of employment in manufacturing registered also lower values, for foreign firms it was about 2,33%, while in domestic firms the growth rate was negative or almost null.

For FF, the beginnings of 1992 and 2000 were recorded by a slowing in their growth or even by a negative growth. The reduction of multinational enterprises (MNEs) activities, mainly those ones focused to export, is considered by some authors as a threat for countries like Portugal, where FDI has been crucial, not only to economic growth, but also to industrial diversity and access to a new markets (Castro 2004; Pereira 2007; Ribeiro and Santos 2001). Consequently, the Portuguese position, not yet well-built, may be affected by these setbacks in FF growth.

Table 3 illustrates the growing expressivity of FF in the Portuguese economy over the two decades. Although their reduced weight in the whole set of firms (just over 1%), the proportion of employment guaranteed by FF was almost 9% in 2005. Additionally, they were responsible by almost 17% of the total turnover reached in Portugal in the same year, representing a clear evolution against 1985, where their influence was just 10%. On average, FF assured 7% of total employment and 13% of total turnover, between 1985 and 2005.

Table 3. Evolution of Turnover and Employment in PMI

	1985		**1995**		**2005**	
Turnover (1.000 €)	Total	Manuf	Total	Manuf	Total	Manuf
Foreign Firms	3.672.208	1.812.359	18.756.836	8.571.768	48.931.190	17.419.227
Domestic Firms	32.917.523	12.593.584	128.435.816	33.986.575	243.084.394	47.311.437
Employment (1.000 workers)						
Foreign Firms	116	78	170	103	269	109
Domestic Firms	1782	793	2066	744	2801	663

Values in thousands

Moreover, foreign firms' contribution to total turnover of Portuguese manufacturing more than doubled in two decades, accounting for 26% of turnover in 2005. Multinationals contribution to employment in manufacturing also increased substantially, from 10% in 1995 to 16,5% in 2005.

Table 4. Relative Importance of Foreign Firms

	1985		1995		2005	
	Total	Manuf	Total	Manuf	Total	Manuf
Share of FF in number of firms	0,85	0,3	1,02	0,3	1,04	0,2
Share of FF in total turnover	10,04	12,6	12,74	20,1	16,76	26,9
Share of FF in total employment	6,10	8,9	7,61	12,1	8,76	14,1

FF: stands for foreign firms, DF stands for domestic firms. Values in percentage

3.1 Performance

The following data represents the average dimension of FF and DF, not only at aggregate level, but also in PMI. From tables 5 and 6, we can conclude that FF are larger, in dimension, both in turnover and employment.

In addition, we can realise that both firms have been reducing their average dimension, since the level of employment has been decreasing. In foreign case, FF were, in the first years, large enterprises, becoming small-medium enterprises (SMEs) in the last years under study. This validates the empirical evidence about the increasing involvement of SMEs in internationalization activities, through foreign investments.

Table 5. Evolution of Average Turnover

	1985	1995	2005
Aggregate Level			
Foreign Firms	4.211	9.550	13.862
Domestic Firms	325	675	721
PMI			
Foreign Firms	5.268	15.557	20.987
Domestic Firms	123	177	139

Values in 1.000 €

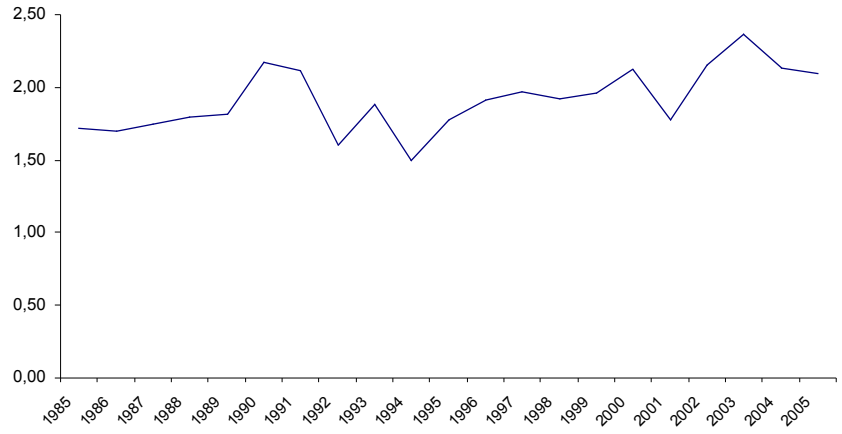
Table 6. Evolution of Average Employment

	1985	1995	2005
Aggregate Level			
Foreign Firms	133	87	76
Domestic Firms	18	11	8
PMI			
Foreign Firms	225	186	131
Domestic Firms	8	4	2

No. Workers

Some authors have already found a positive effect of foreign presence in domestic productivity. This can occur directly, if FF are themselves more productive, or indirectly, with FF encouraging competitiveness or transferring technology and knowledge to domestic firms (Crespo and Fontoura 2007). In this study, we evaluate the level of performance of firms with the ratio turnover per worker. Figure 1 presents the results, showing that foreign performance measured by the ratio turnover over employment was always greater than domestic one. As for the Portuguese case, the differences in performance levels are obvious, not only in PMI, but also at aggregate levels, with a statistical significance at 1% level.

Figure 1. Performance ratio (foreign / domestic)



Similar evidences were found for other developed countries like UK (Haskel, Pereira and Slaughter 2004) and Canada (Globerman, Ries and Vertinsky 1994). The supremacy from FF was also evidenced in some emerging economies from Eastern Europe (Sabirianova, Svejnar and Terrel 2005). Some studies applied on other economies show that productivity differences are not explained by foreign ownership itself. In most cases, when dimension, capital intensity and human capital are controlled, productivity differences are mitigated or even vanished (Globerman, Ries and Vertinsky 1994). So, performance differences must be carefully evaluated, taking into account that FF are typically more specialized, since they have access to a more productive technologies and to a more qualified workers. Besides this, FF can eventually use public infra-structures in a more efficient way, or even can enter the domestic markets by acquiring more productive firms. As a result, the reasons for performance differences are not exhausted and, in Portuguese case, they are not clear, so that a future research could explain this fact.

3.2 Human Capital

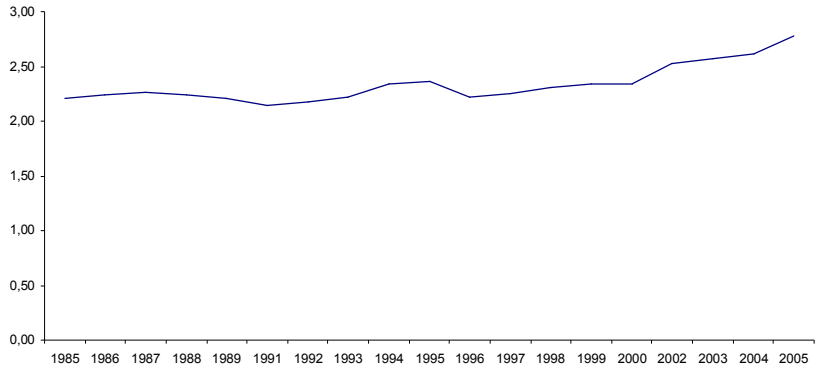
Today human capital is probably one of the most important competitive factor at firm level, with reflects in the evolution and growth of firms. Some evoke a clear superiority of foreign firms regarding human capital indicators (Almeida 2003; Barbosa 2007; Bellak 2004a, 2004b; Teixeira 2002; Teixeira and Tavares Lehmann 2007). The difference may well reflect in the competitiveness for firms. In this sense, for Teixeira (2002), education and skills may have particular effects at *top levels* of the firms, as human capital is viewed as a determinant of productivity and education constitutes a source of information which tends to be highly relevant to "decode" new technical information and to incorporate it into manufacturing process. Many foreign subsidiaries, having pools of skilled labour, have higher survival chances and lower likelihood to exit the market (Andersson and Vejsiu 2001; Mamede, Mota and Mira Godinho 2007; Mata and Portugal 2001; Mata and Portugal 2004). Bates (1990)

also argues that college education improves access to debt capital, so the probability of business discontinuance falls sharply with higher endowment of human capital. Similarly, Hamermesh (1998) proved that additional years of schooling by workers, ceteris paribus, reduce the probability of plant closure. Next we explore our data in an attempt to disclosure potential differences between foreign and domestic firms regarding human capital.

2.2.1. Wage

The literature reviewed suggests that export oriented FDI received by Portugal is essentially attracted by Portugal's cheaper labour, a fact even more visible in PMI (Barbosa, Guimarães and Woodward 2004; Ribeiro and Santos 2001). However, this evidence does not prevent FF from paying higher wages. Moreover, over all the period under study, average earnings paid by FF largely overcame the corresponding earnings in DF. In 2005 FF paid o average 1.322€, and DF 476. This asymmetry remained all over the time (1985-2005) and the ratio as even increased.

Figure 2. Average Wages ratio (foreign / domestic)



As for performance, the differences in wages are not absolutely explained in the literature. Other studies justify those differences with performance gaps (better performed firms may pay higher wages) or with management policies adopted by firms. Other ones explain those divergences evoking the differences in qualifications of the workforce (more productive and qualified workers usually earn higher wages) or even the high technology used by firms

(Bellak 2004b; Globerman, Ries and Vertinsky 1994). Higher wages can also be a strategy to motivate the workers, to make them more productive. Furthermore, some authors show that inward FDI result in higher wages to more qualified workers (Ernst 2005). In Portuguese case, this persistent asymmetry must be carefully observed in future research.

2.2.2. Qualifications of the workforce

In recent decades, the studies applied to the effects of human capital on economic growth have proliferated, mainly in conjunction with FDI effects. So, it is also important to study the relationship between foreign ownership and the workers' qualifications. The literature suggests that FF generally employ a higher fraction of qualified workers (Barbosa 2007; Narula and Marin 2003; Teixeira and Tavares-Lehmann 2007), but many empirical studies conclude that this relationship is complex and nonlinear (e.g.: Blomström and Kokko 2003). To understand the relation between foreign ownership and human capital, we need to consider, in addition, the relationship between FDI and technology. Since FF are commonly concentrated in sectors with higher technological complexity, it is expected that respective workers are more qualified, so better compensated. On the other hand, the workers of FF can be motivated to invest in their trainings and capabilities, in order to receive higher wages.

Table 7 shows a positive evolution in qualifications level of PMI's workers. However, the differences between FF and DF persist. In 1985, the disparity in average schooling was slightly larger than a year of schooling. Two decades later, this disparity overcame two years of schooling and the FF's workers presented, on average, 9 years of schooling concluded.

Table 7. Average qualifications of workers

	1985	**1995**	**2005**
Average years of schooling			
Foreign Firms	6,1	7,3	9,6
Domestic Firms	5,0	6,2	7,5
Proportion of workers with, at least, 12 years of schooling			
Foreign Firms	9,0	15,2	31,7
Domestic Firms	4,5	7,7	16,6

Proportion of workers with higher education			
Foreign Firms	3,8	2,1	11,5
Domestic Firms	1,8	1,0	5,2

In 1985, only 4,5% of DF's workers had concluded, at least, secondary education, while 9% of FF's workers had that qualifications level. Two decades later, the proportion of workers with secondary education was 16,6% and 31,7% in DF and FF, respectively. From these results, we see a positive trend in Portuguese human capital, but a large distance between DF and FF. The proportion of workers with higher education has also evolved in a positive way, but foreign superiority has been always evident, as well as on other variables. Over the time, the differences have been augmenting and the disparity found at human capital level was also statistical significant at 1% level. These conclusions corroborate those ones of Almeida (2003), whose study, applied to PMI for the period of 1991-1998, found that FF had a proportion of low educated workers 7 percentage points lower than DF and pay 15 percent higher wages. Those differences, revealed by Almeida (2003), remained even after controlling for region and sector composition, as well as size and age of firms.

3.3 Dynamics and the asymmetries in the evolution of foreign and domestic firms

In order to evaluate the asymmetries between FF and DF, as well as within each one of these groups, we made a succinct observation by percentiles, using the data on turnover, employment, performance and human capital, the main variables used to observe the comparative evolution of both groups of firms. Next figures illustrate the comparative distribution by percentiles of each variable. From the distribution of turnover, visible on figure 3, we conclude that the distribution of median firm's turnover is relatively steady all over the years. Nonetheless, it is observable the increasing trend of turnover, particularly for firms located above the median one. However, these ones also present a higher dispersion between them. Figure 3 shows, not only the huge differences in the values over which the

turnover of DF and FF are distributed (highest values of domestic turnover are close to 1.000.000, while the highest values for FF are close to 35.000.000), but also a greater evolution of FF. On the other hand, the dispersal trend between upper percentiles is more apparent in DF.

Figure 3. Evolution of turnover distribution – analysis by percentiles

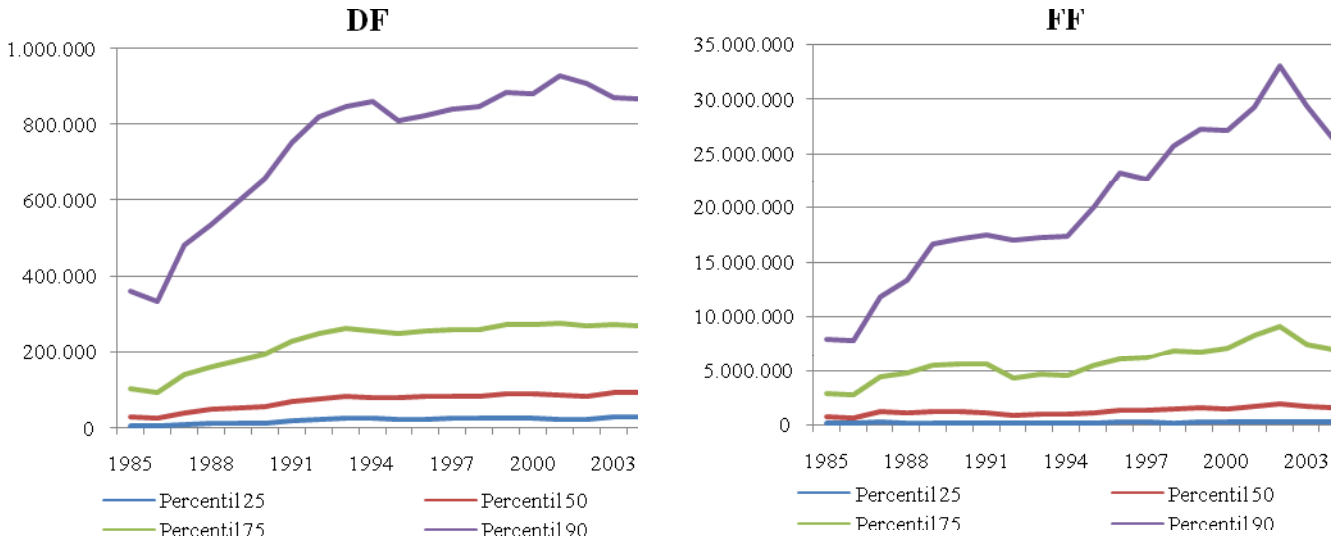
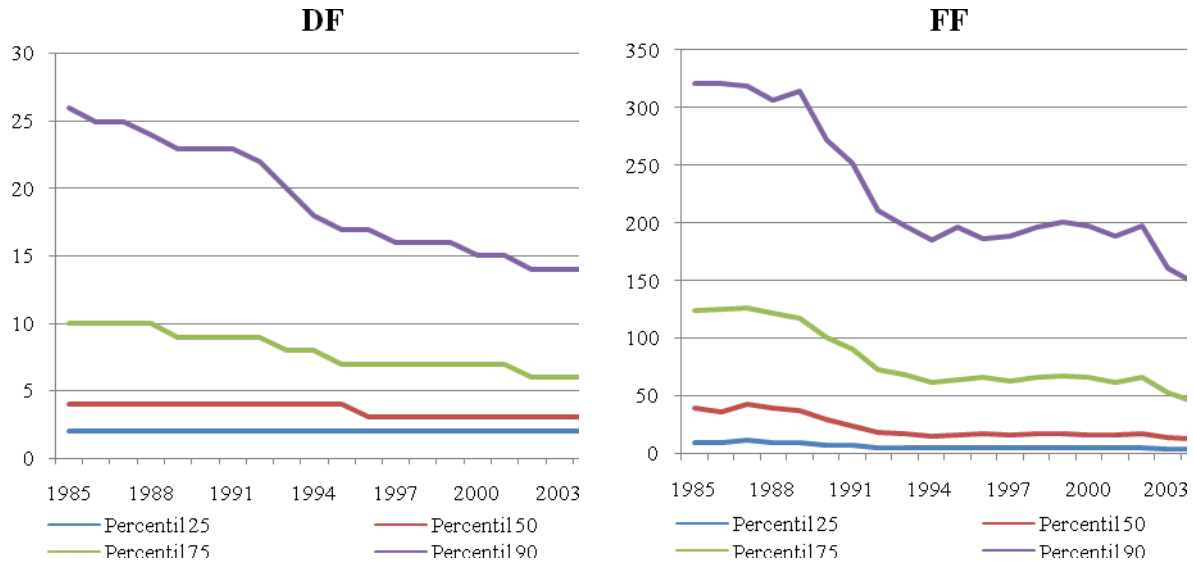


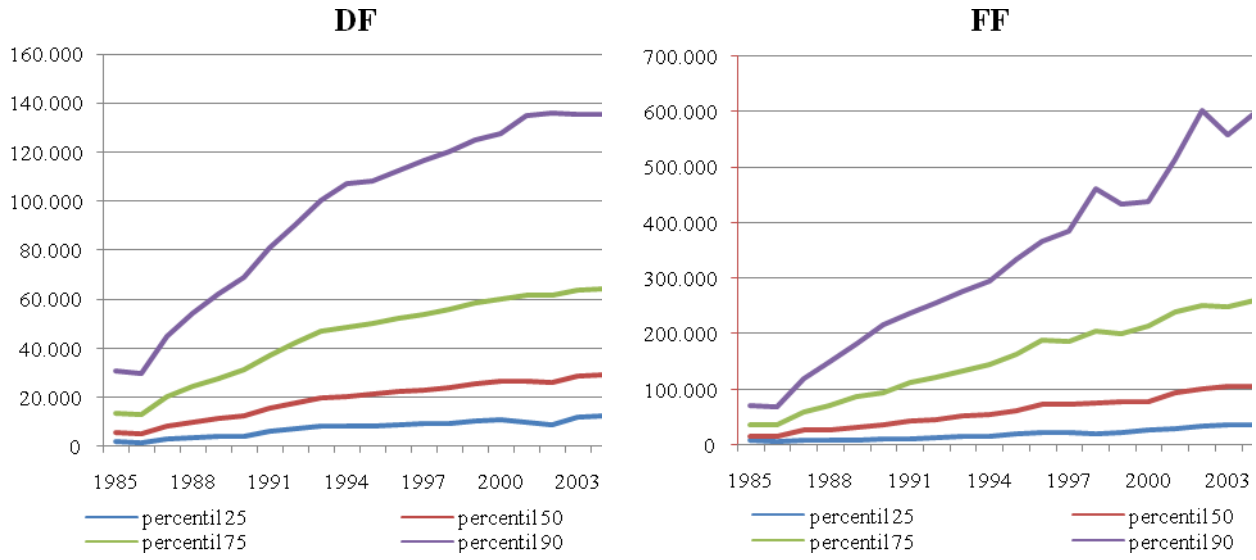
Figure 4. Evolution of employment distribution – analysis by percentiles



From Figure 4 we can confirm the negative trend of employment all over the years under observation, already noted in previous section. The median domestic and foreign firms seem relatively steady, while firms located above those ones present a downward trend over the time, not only in employment, but also in the magnitude of dispersion between upper percentiles. With those two preceding figures, we can forecast a growth in performance of both groups of firms, due to the upward trend of turnover and the downward one in employment.

Figure 5 confirms it, illustrating an accelerated expansion of performance in DF and FF, even in their median firms. The dispersion is persistently larger between upper percentiles and the values of foreign performance are more than four times higher than domestic ones.

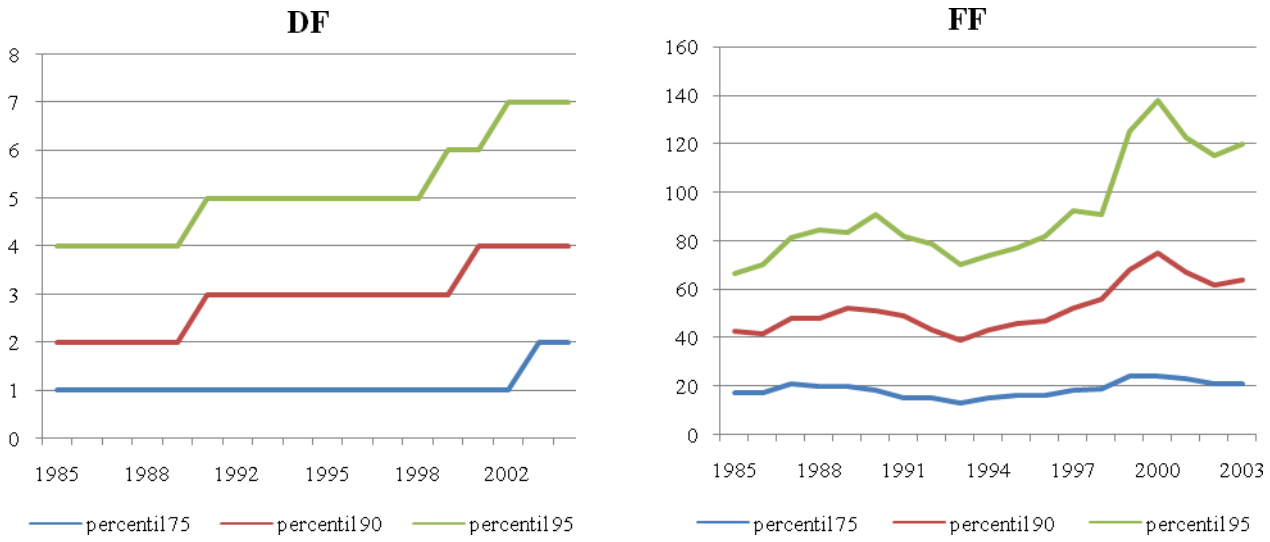
Figure 5. Evolution of performance distribution – analysis by percentiles



Lastly, figure 6 represents the distribution of human capital (proportion of workers with, at least, secondary education) with a very particular evolution. As a result of very low values present by DF, only three percentiles could be created – the percentiles of orders 75, 90 and 95. So, even the median domestic firm had no worker with, at least, 12 scholar years, all over the two decades. Inversely, subsidiaries of almost all percentiles always had a reasonable

level of human capital, with positive trends (although figure 4 present only three percentiles for FF, more than three percentiles were analyzed). It is also visible that DF located in upper percentiles have still little human capital levels and the periods where no change have occurred were very large (about 10 years). All the preceding analyses confirm the clear superiority of FF against DF, as well as the empirical evidence present in the literature, showing that performance gaps are higher among the best FF and DF (located in upper percentiles) than among the worst FF and DF (Sabirianova, Svejnar and Terrel 2005).

Figure 6. Evolution of human capital distribution – analysis of percentiles



Next tables present some transition probability matrices, constructed by empirical observation of foreign and domestic evolutions, on turnover, employment, performance and human capital. We specially used quartiles – percentiles of 25%, except to human capital matrices, where we just analyzed three percentiles due to very low values in DF's human capital. The period of time considered for transition was 5 years, so data in matrices gives us the probability of each group of firms to transit to an upper or lower percentile, or even stay in the same one, all over the period of 5 years.

Table 8. Transition Probability Matrices – Turnover and Employment

TURNOVER

FF (1985-1990)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	22%	11%	0%	67%
2nd Perc	0%	0%	0%	100%
3rd Perc	12,5%	0%	0%	87,5%
4th Perc	4%	0%	0%	96%

DF (1985-1990)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	51,3%	23,2%	13,3%	12,2%
2nd Perc	11%	49%	33%	7%
3rd Perc	7,8%	7,5%	56%	28,7%
4th Perc	8,2%	1%	6,3%	84,5%

FF (1990-1995)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	33%	0%	11%	56%
2nd Perc	100%	0%	0%	0%
3rd Perc	0%	0%	0%	0%
4th Perc	0,5%	0,5%	0%	99%

DF (1990-1995)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	43%	14%	16%	27%
2nd Perc	10,5%	59%	26,5%	4%
3rd Perc	4%	10%	65%	21%
4th Perc	3,5%	1%	7,5%	88%

FF (1995-2000)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	40%	20%	0%	40%
2nd Perc	0%	0%	0%	100%
3rd Perc	0%	0%	100%	0%
4th Perc	3,2%	1,3%	0,6%	94,9%

DF (1995-2000)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	53,6%	16,7%	10,5%	19,2%
2nd Perc	9,5%	63%	24%	3,5%
3rd Perc	2,6%	9,8%	68,6%	19%
4th Perc	2,8%	0,6%	5,9%	90,7%

FF (2000-2005)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	29%	0%	0%	71%
2nd Perc	33,3%	33,3%	0%	33,3%
3rd Perc	50%	0%	50%	0%
4th Perc	3%	0%	1%	96%

DF (2000-2005)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	56%	16%	9%	19%
2nd Perc	13%	65%	19%	3%
3rd Perc	4%	14%	67%	15%
4th Perc	3,4%	1,1%	8,4%	87,1%

EMPLOYMENT

FF (1985-1990)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	25%	0%	50%	25%
2nd Perc	12,50%	0%	50%	37,50%
3rd Perc	0%	0%	33%	67%
4th Perc	0%	0%	0%	100%

DF (1985-1990)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	48%	34%	15%	3%
2nd Perc	11%	42%	39%	8%
3rd Perc	1,3%	7%	57%	34,7%
4th Perc	0,3%	0,7%	6%	93%

FF (1990-1995)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	100%	0%	0%	0%
2nd Perc	0%	0%	0%	100%
3rd Perc	25%	0%	50%	25%
4th Perc	0,7%	0%	0%	99,3%

DF (1990-1995)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	61%	30%	7%	2%
2nd Perc	18,5%	54,5%	22%	5%
3rd Perc	3,2%	17,3%	46%	33,5%
4th Perc	0,5%	1,4%	4,2%	93,9%

FF (1995-2000)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	75%	25%	0%	0%
2nd Perc	0%	0%	0%	0%
3rd Perc	0%	0%	50%	50%
4th Perc	0%	0%	4%	96%

DF (1995-2000)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	70,5%	16,5%	11%	2%
2nd Perc	22%	32%	42%	4%
3rd Perc	4%	8,5%	69,5%	18%
4th Perc	0,7%	0,8%	10%	88%

FF (2000-2005)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	100%	0%	0%	0%
2nd Perc	0%	0%	100%	0%
3rd Perc	0%	25%	37,5%	37,5%
4th Perc	0%	0,7%	0%	99,3%

DF (2000-2005)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	42,8%	48,7%	7%	1,5%
2nd Perc	13,1%	67,2%	17,5%	2,2%
3rd Perc	3,8%	26,5%	52,1%	17,6%
4th Perc	0,7%	2%	7,6%	89,7%

Table 9. Transition Probability Matrices – Performance and Human Capital

PERFORMANCE

FF (1985-1990)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	23%	15,5%	15,5%	46%
2nd Perc	0%	62,5%	37,5%	0%
3rd Perc	10%	14%	55%	21%
4th Perc	4,5%	0%	4,5%	91%

DF (1985-1990)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	50%	27%	13%	10%
2nd Perc	13%	55%	27%	5%
3rd Perc	8%	21%	54%	17%
4th Perc	9%	3%	16%	72%

FF (1990-1995)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	36%	9%	9%	46%
2nd Perc	36%	64%	0%	0%
3rd Perc	0%	15%	66%	19%
4th Perc	0,9%	1,7%	3,4%	94%

DF (1990-1995)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	45%	22%	17%	16%
2nd Perc	15%	61%	20%	4%
3rd Perc	4,7%	24, 1%	57,7%	13,5%
4th Perc	4%	3%	19%	74%

FF (1995-2000)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	67%	0%	11%	22%
2nd Perc	7%	64%	7%	22%
3rd Perc	0%	5%	77%	18%
4th Perc	5,0%	0%	2,5%	92,5%

DF (1995-2000)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	53%	25%	11%	11%
2nd Perc	9,5%	63%	23,8%	3,7%
3rd Perc	3%	17%	60%	20%
4th Perc	3,5%	2,4%	13,4%	80,7%

FF (2000-2005)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	31%	23%	15%	31%
2nd Perc	10%	70%	10%	10%
3rd Perc	18%	0%	45,5%	36,5%
4th Perc	1,7%	0,8%	2,5%	95,0%

DF (2000-2005)

	1st Perc	2nd Perc	3rd Perc	4th Perc
1st Perc	55%	25%	10%	10%
2nd Perc	10,7%	62,3%	23,5%	3,5%
3rd Perc	4%	18%	60%	18%
4th Perc	4%	3%	15%	78%

HUMAN CAPITAL

FF (1990-1995)

	1st Perc	2nd Perc	3rd Perc
1st Perc	36,5%	36,5%	27%
2nd Perc	8%	15%	77%
3rd Perc	0%	2%	98%

DF (1990-1995)

	1st Perc	2nd Perc	3rd Perc
1st Perc	68%	16%	16%
2nd Perc	32%	26%	42%
3rd Perc	12%	12%	76%

FF (1995-2000)

	1st Perc	2nd Perc	3rd Perc
1st Perc	60%	20%	20%
2nd Perc	33%	11%	56%
3rd Perc	2%	0,7%	97,3%

DF (1995-2000)

	1st Perc	2nd Perc	3rd Perc
1st Perc	72%	15%	13%
2nd Perc	22%	37%	41%
3rd Perc	5%	8%	87%

FF (2000-2005)

	1st Perc	2nd Perc	3rd Perc
1st Perc	56%	22%	22%
2nd Perc	0%	67%	33%
3rd Perc	0,7%	1,3%	98%

DF (2000-2005)

	1st Perc	2nd Perc	3rd Perc
1st Perc	77%	15%	8%
2nd Perc	27%	42%	31%
3rd Perc	5%	10%	85%

From matrices presented above, we note a dynamic evolution of FF, against a more stable one in DF. FF show higher probabilities to transit to upper percentiles while DF present greater ones to stay in the same percentiles. However, it is also visible a cyclic movement of FF at turnover level: periods like 1985-90 and 1995-2000 were favourable and all FF located in the second percentile transited to two percentiles above in 5 years. However, the intermediate period (1990-95) was less positive, mainly to median foreign firms. All FF located in the second percentile in 1990 fell to first one in 5 years and no firm was present on third percentile. On the other hand, FF in higher positions remained steady during the period.

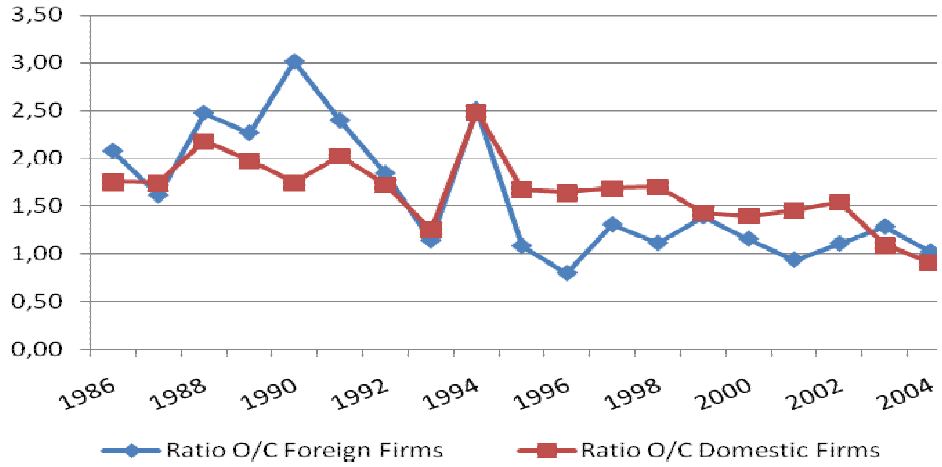
At employment level, the conclusions are similar, as well as on performance. FF reveal greater propensity to climb to upper stages and, in opposition, DF had always evidenced higher likelihood to keep on the same stages. On performance evolution, we can see that in certain cases, the progress of FF was more modest than domestic one, with great propensity to remain in same stage. DF, however, had some setbacks over the time. Comparing the probabilities in matrices, DF are more likely to fall to lower percentiles than FF.

Human capital matrices could only be constructed with three percentiles and since 1990, due to low values presented by DF. Besides these limitations, from matrices above we verify that it is easier for FF to overcome the current stage, while the probability of DF remain in the same percentile has been increasing over the time.

Hence, our analysis confirmed the positive evolution of FF located in Portugal and also the asymmetries between FF and DF and even within them. Other studies applied in other European countries corroborate these conclusions, showing that FF are more able to climb to higher levels of efficiency and less likely to fall (Sabirianova, Svejnar and Terrel 2005). In addition, the literature suggests that it is not surprising that FF are more efficient than DF, if they come from developed countries to countries in transition (Bellak 2004b). However, from

Quadros de Pessoal database we cannot determine the origin of FF, a fact that limits our conclusions with respect to the relationship between the nationality of FF and their efficiency. Another point that differentiates FF from DF relates to demographical dynamics. From the whole sample of firms analyzed during the period 1985-2005, only 165 foreign firms (19%), from the group of 872 FF working in Portugal in 1985, had survived until 2005. In the case of DF, only 25.083 (25%) from the group of 101.329 registered in Quadros de Pessoal in 1985 remained active until 2005. The probability of survival between 1985 and 2005 was 18.92% for FF and 24.75% for domestic firms. Moreover, domestic firms survived, in average, 5,4 years, while FF stayed alive, in average, 14 years, during the period of two decades under study. So, foreign supremacy is not limited to scale, efficiency and human capital, because FF reveal an average lifetime also greater than domestic one. Based on records in database, we also verified the number of investments and disinvestments, year after year. We calculated the open to closure ratio and the results are presented in Figure 7. We can immediately realise that the ratio has declined since the 1980's. By 2004 the number of openings is equal or less than the number of closures.

Figure 7. Open to Closure Ratio (O/C)



4. CONCLUDING REMARKS AND DISCUSSION

The literature suggests that MNEs may be an important element in the strategies of countries' development. For the Portuguese case, we found foreign subsidiaries to be relatively more productive and richer regarding human capital, which is likely to alter the patterns of jobs and thus expand specialized and highly skilled employment.

The longevity of foreign presence depends on the strategic choices of the firm (Li 1995). Understanding the forces and the reasons that determine it is important to improving our knowledge of the process of international expansion. This is not merely academic and should attract considerable attention from practitioners as well (Mata and Portugal 1999). Managers considering going into international markets are interested in evaluating the chances of success. We have found significant differences between DF and FF in Portugal. Foreign firms are larger (in turnover and in the number of employees), employ a larger proportion of more educated workers, present higher probabilities to transit to upper percentiles and seem to have higher longevity. However, a deeper investigation, controlling firms by industry, size and capital intensity is needed, to give more robustness to these results. For Mata and Portugal (2001), being foreign does not decrease the chances of failure, does not imply different effects of the variables affecting survival and does not necessarily translate into different time patterns of survival. So, conclusions about dynamics of firms' evolution should not be based on foreignness alone. For an economy well integrated in the world market such as Portugal, those differences found between foreign and domestic firms may have strong implications for managers and policy-makers. For managers, they should not assume that new firms will stay in the market longer just because they are foreign. Foreignness may be a summary measure for a number of characteristics, but not a guarantee of success. For policy-makers, mainly those concerned with FDI, is important to evaluate the advantages of foreign presence in host countries to decide to encourage or not (preferentially) foreign investments.

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