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Footloose Multinationals?

By H.Görg and E.Strobl

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Abstract

This paper examines whether multinational companies are more footloose than their domestic counterparts in the host country, using data for the Irish manufacturing sector. First, we investigate whether survival rates differ between multinationals and indigenous plants. Second, we analyse whether employment is more unstable in multinationals compared to indigenous firms. As regards the first aspect we find that multinationals are more likely to exit the market than indigenous plants when controlling for other plant and industry specific characteristics. In terms of employment persistence we find that new jobs generated in MNCs appear to be more persistent than jobs generated in indigenous firms. Also, MNCs are quicker to recover lost jobs than are indigenous firms.

Outline

Non-Technical Summary

It is frequently argued that multinational companies (MNCs) are inherently footloose, i.e., they can react almost instantaneously to adverse changes in the host country and shift their production facilities or parts thereof to another country if the present environment changes to their disadvantage. This assumption of multinationals being footloose is based on the nature of multinationals, as only production processes that are easily transferable between countries can profitably be located abroad. This makes it easier for MNCs to shift production from one host country to another than it is for the average indigenous firm in the host country to relocate production.

In this paper we analyse empirical evidence to investigate whether multinational companies located in the Republic of Ireland also show signs of being highly "footloose". Ireland is a particularly interesting case study given that its manufacturing industry is heavily dependent on foreign MNCs. The importance of MNCs for the Irish economy is now reflected in the fact that, in the manufacturing sector, foreign firms accounted for 47 per cent of employment, 77 per cent of net output produced and 83 per cent of total exports in Ireland in 1995. Also, the official statistics show that about half of employment in foreign-owned firms is in US multinationals.

Our paper investigates this issue by taking two different angles. Firstly we analyse whether survival rates for foreign and Irish-owned plants are different, i.e., whether foreign plants are more likely to exit than are domestic firms. Secondly, we examine whether new jobs generated or destroyed in MNCs are more persistent than jobs generated or destroyed in Irish-owned firms. As regards the former we find that, when controlling for other factors that possibly influence plant survival, multinationals located in Ireland have lower survival rates than indigenous plants. This indicates that MNCs are more footloose, ceteris paribus. It is a different question, however, as to whether this higher probability of exiting the host country also means that employment in multinationals is more unstable than employment in indigenous firms. An econometric investigation of employment adjustment persistence at the plant level, controlling for other plant and sector specific factors shows that jobs created do actually last longer in multinationals, however, only if considered over the long run, i.e., at least three years after creation. Our results also show that, after controlling for other factors, (continuing) multinationals are more likely than indigenous plants to recover lost jobs. These latter results do then not lend support to the claim that employment in multinational companies is more unstable than in indigenous firms due to the footloose nature of multinationals.

1 Introduction

It is frequently argued that multinational companies (MNCs) are inherently footloose, i.e., they can react almost instantaneously to adverse changes in the host country and shift their production facilities or parts thereof to another country if the present environment changes to their disadvantage (see Caves, 1996). For example, Hood and Young (1997) argue that multinational companies based in the UK may be more footloose than UK-owned firms due to having only shallow roots with the host country economy. Cowling and Sugden (1999) also point to potential problems for host country development due to the footloose nature of multinationals' investment. Such multinationals may introduce an unstable element in the host economy by transferring production and/or production facilities out of the host country easily.

This assumption of multinationals being footloose is based on the nature of multinationals, as only production processes that are easily transferable between countries can profitably be located abroad. This makes it easier for MNCs to shift production from one host country to another than it is for the average indigenous firm in the host country to relocate production. Flamm (1984) provides evidence for the footloose nature of US foreign direct investment in the semiconductor industry. His theoretical and empirical analysis shows that adjustments by US multinationals to changes in the host country environment, in terms of, for example, production costs or risks are "extremely rapid" (p. 232).

In this paper we analyse empirical evidence to investigate whether multinational companies located in the Republic of Ireland also show signs of being highly "footloose". Ireland is a particularly interesting case study given that its manufacturing industry is heavily dependent on foreign MNCs. The importance of MNCs for the Irish economy is now reflected in the fact that, in the manufacturing sector, foreign firms accounted for 47 per cent of employment, 77 per cent of net output produced and 83 per cent of total exports in Ireland in 1995 (Central Statistics Office, 1997). Also, the official statistics show that about half of employment in foreign-owned firms is in US multinationals.

Our paper is somewhat related to an early study by McAleese and Counahan (1979). They analysed whether foreign multinationals in Ireland reduced employment during the recession in the early 1970s to a larger extent than indigenous firms, i.e., whether multinationals were faster to adjust employment levels following an adverse shock than

were Irish-owned firms. Their evidence showed that employment adjustment in MNCs during the recession did not appear to have been different from that of indigenous firms, while employment recovery after the recession was actually greater in MNCs than in Irish-owned firms.

Our paper investigates this issue further by taking two different angles. Firstly we analyse whether survival rates for foreign and Irish-owned firms are different, i.e., whether foreign firms are more likely to exit than are domestic firms. Secondly, we examine whether new jobs generated or destroyed in MNCs are more persistent than jobs generated or destroyed in Irish-owned firms.

The paper is structured as follows. Section 2 describes the data used for the empirical analysis. Section 3 presents empirical results of the analysis of plant survival, estimating survival functions as well as a Cox proportional hazard model. Section 4 presents the empirical results of our analysis of employment stability, i.e., job persistence. We discuss aggregate job persistence in foreign and indigenous plant and also investigate job persistence at the plant level using logit analysis. Our main results are summarised, and conclusions presented, in Section 5.

2 Description of the Data

In our empirical analysis we use data from the Employment Survey which is carried out annually by Forfás, the policy and advisory board for industrial development in Ireland. The survey has been undertaken since 1973 and data are available to us for the period 1973 to 1996. The main advantages of the survey are that it covers virtually all known active manufacturing companies, and that the response rate is generally over 99 per cent, thus providing a sample of over 15,000 firms. The unit of observation is the individual plant, for which the number of permanent full-time employment, nationality of ownership,[1] sector of location,[2] and start-up year, amongst other things is reported.

Each plant is identified by a unique plant number which is only changed if there is an actual change of ownership. This implies that we are not able to distinguish births and deaths from take-overs. While this may create some problems in terms of misrepresenting the

[1] A plant is classified as being foreign-owned if 50 percent or more of its shares are held by foreign owners.
[2] For the purpose of this paper we classify plants into the standard 68 sub-sectors of Irish manufacturing used by the Central Statistics Office over the period.

importance of 'births' and 'deaths', we suspect that, as a whole, take-overs would result in only negligible measurement errors in our calculations. This is because most foreign direct investment in Ireland has been in the form of greenfield investment, i.e., the setting up of entirely new plants, rather than take-overs of existing domestic plants (see Barry and Bradley, 1997).[3]

Table 1 provides summary measures of the foreign and indigenous sub-sectors of Irish manufacturing for the years 1973, 1984 and 1996. Note that the foreign multinational sector has steadily increased its share of manufacturing employment from roughly 33 to 45 per cent. The number of foreign multinationals is substantially smaller than that of indigenous plants resulting in a considerably larger average size for foreign plants. Additionally, while there was a notable average age difference at the start of our sample period between indigenous and foreign plants, this has now largely disappeared.

[Table 1]

3 Plant Survival

If multinationals are footloose they can be expected to be more likely to exit the host country following a negative shock than are domestic firms. We therefore examine the probabilities of plant survival, distinguishing foreign and Irish-owned plants in this section. As a first step in examining and comparing plant survival across the two nationality groups we calculate Kaplan-Meier (K-M) survival functions, given by:

$$\hat{S}(t) = \prod_{j|t_j \le t} \left([n_j - d_j] / n_j \right) \qquad (1)$$

where n_t is the population alive and d_t is the number of failures respectively at time t. These are graphed in Figure 1, comparing foreign and indigenous plants. A glance at the functions may suggest that these do not appear to be substantially different, with that of foreign plants lying marginally above that of their indigenous counterparts. However, a log rank test for the equality of survival functions can decisively reject the hypothesis that the two survival functions are equal (the chi-squared test statistic is 8.89, significant at the 1 percent level). Based on this graph we may, therefore conclude that foreign plants have higher survival

[3] We are also not able to identify takeovers by other domestic firms. However, consultation with the Irish Development Authority (IDA) leads us to believe that this was not a frequent occurrence in Irish manufacturing, especially since the IDA provided generous grants for indigenous start-ups.

rates than domestic plants, which is just the opposite of what we would have expected to find if multinationals were more footloose than their domestic counterparts. We thus find that, in a comparison of all domestic and foreign firms, multinationals do not appear to be more footloose than domestic firms.

[Figure 1 here]

Such an aggregated graph does not, of course, allow us to take into consideration other factors affecting plant survival that may be unequally distributed across foreign and indigenous plants. Therefore, in order to properly disentangle the role of other plant and industry specific factors from nationality on the survivability of plants we turn to a non-parametric modelling of plants hazard rates. We utilise a Cox proportional hazard model (Cox, 1972), stratified by sector, as our equation to be estimated.

The Cox proportional hazard model specifies the hazard function $h(t)$, which is the rate at which plants exit at time t given that they have survived in t-1, to be the following:

$$h(t) = h_0(t)e^{(b_1 OWN + b_2 SIZE + b_3 MES + b_4 HERF + b_5 GROW)} \qquad (2)$$

where h_0 is the baseline hazard function (the parametric form of which is not specified) when all of the covariates are set to zero. *OWN* is a nationality of ownership dummy taking on the value of one if the plant is foreign-owned and zero otherwise. It is the variable of our main interest as the estimated coefficient indicates whether hazard rates differ between foreign and Irish-owned plants.

The other covariates capture the effect of plant and industry characteristics on survival. *SIZE* is the plant's size in terms of employment at time t and is included because it can now be considered to be a stylised fact that small firms generally have lower probabilities of survival than large firms (see, for example, Audretsch and Mahmood, 1995). Also, Mata et al. (1995) find that current plant size is a better predictor of failure than initial size and we, therefore, include size at time t in our regression.

The minimum efficient scale of the industry, *MES*, is measured as the log of median employment size in sector j as in Sutton (1991).[4] Our a priori expectation as to the sign of

[4] In an alternative specification we defined MES as (the log of) average plant size in the industry. These results, which are not reported here but can be obtained from the authors upon request, yield similar results to

the coefficient is ambiguous. On the one hand, one may expect plants entering industries with large minimum efficient scale to have lower probabilities of survival than plants entering other industries, as small entrants may find it difficult to attain the efficient level of production unless they experience sufficient growth in their infancy (Audretsch, 1991). On the other hand, as Audretsch (1991) points out, industries with high MES are usually also industries showing high price cost margins, which should increase survival.

HERF denotes the Herfindahl index of sector *j*, which is found to be a significant explanatory variable in the study of firm survival in Portugal undertaken by Mata and Portugal (1994). Again, the expectation of the effect of market concentration on survival is not clear-cut. Higher market concentration may lead to higher price-cost-margins in the industry which, ceteris paribus, should increase a plants' probability of survival. However, plants in highly concentrated markets may be subject to fierce aggressive behaviour by rivals which may reduce chances of survival.

GROWTH is the net sectoral growth rate. Audretsch (1991) argues that industry growth may elevate the price above the long-run average cost, i.e., increase firms' price-cost-margin which would, all other things equal, affect survival rates positively. The sectoral growth rate also allows us to control for other sector specific cyclical effects which may impact on firm survival. Finally, we also include time dummies to control for year specific macroeconomic effects.

Our results for (2) for our data set are given in Table 2. All estimations are stratified by sector, which allows for equal coefficients across strata (sectors) but baseline hazards unique to each stratum (sector). As can be seen, the log likelihood and Wald tests provide satisfactory support for our specification. All coefficients have been converted to hazard ratios and hence when these take on a value greater than one should be interpreted as decreasing firm survival, ceteris paribus, or if they take on a value less than one should be interpreted as increasing firm survival, all other things being equal.

[Table 2 here]

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the results obtained using average plant size. We are not able to calculate any additional alternative measures of MES due to lack of appropriate data.

Our results suggest that, after controlling for other factors, foreign plants have a lower rate of survival than indigenous plants, i.e., foreign plants are more likely to exit the industry. Thus, while the Kaplan-Meier survival functions above suggested that foreign plants have higher survival rates our regression results indicate that, once we control for other factors, foreign plants have a higher chance of exiting than their indigenous counterparts. This may be due to foreign plants being more footloose than indigenous firms, i.e., all other things being equal, a foreign multinational company may find it easier to transfer production facilities from one country to another than a comparable indigenous plant.

Plant size turns out to affect survival positively, i.e., small plants face a higher hazard of exit than do large firms. As pointed out above, this is a fairly standard finding in studies of firm survival. Our results also suggest that, the higher the level of concentration in the industry, the less likely a plant is to survive. This may indicate that plants in highly concentrated markets may be subject to fierce aggressive behaviour by rivals which reduce chances of survival. The coefficient of the MES, another variable picking up industry characteristics, is statistically insignificant in the estimation, although, perhaps, the concentration variable may be capturing the effect of concentration as well. As outlined above, one would expect that concentrated industries sustain higher price-cost margins. However, highly concentrated industries are also likely to be those with a high minimum efficient scale.

Not surprisingly, we find that benevolent economic sectoral conditions, as measured by the sectoral growth rate, decrease the hazard of plant exits. In other words, fast growing markets appear to increase plant survival. This finding in line with Mata and Portugal (1994) who also find that, for Portuguese firms, fast growing markets make survival easier for new entrants.

4 Job Flow Persistence

Having established that multinationals are more likely to exit than domestic firms, ceteris paribus, we examine whether there are differences in the persistence of employment generated between foreign and indigenous plants as a second step in assessing whether MNCs are more footloose than their domestic counterparts. If MNCs are more likely to exit than domestic firms one may also expect that jobs in multinationals are less persistent. However, domestic plants, while being less likely to leave the country, may still introduce

more fluctuations in employment as they may be quicker to reduce employment following temporary fluctuations in demand (McAleese and Counahan, 1979). Multinationals may be less likely to adjust employment temporarily, according to arguments based on Human Capital Theory.

The theory (as outlined by, for example, Parsons, 1986) stresses that firms and workers may find it advantageous to invest in the development of firm specific human capital. This is because higher skilled labour provides returns to both the worker (in terms of higher wages) and the firm (in terms of higher productivity). Consequently the rate of separation between employer and employee should be lower for high skilled workers than for low skilled workers, i.e., jobs are more persistent in the case of the former. This, in turn, has implications for employment persistence in multinational companies since MNCs, due to their firm-specific assets (Caves, 1996) can be expected to use a higher level of technology than indigenous firms. Since the use of a higher technology necessitates the presence of skilled labour, multinationals will find it profitable to make an organisational capital investment in order to provide training for workers to develop their human capital and use it efficiently in the firm. This human capital investment will increase workers‘ productivity. Hence, there will be lower separation rates, and higher costs of labour adjustment, for multinationals than for indigenous firms (which use lower levels of technology). This implies higher persistence of jobs in multinationals.

To investigate this issue empirically we employ the methods of Davis and Haltiwanger (1992) whose fundamental contribution to the study of employment was to propose the calculation of job creation and job destruction growth and persistence rates rather than examining just aggregate or sectoral net stock changes. This involves tracking employment adjustment at the plant level and aggregating these into aggregate indices, capturing much of the adjustment dynamics that would be lost in calculating net aggregate or sectoral employment changes.[5]

We calculate the aggregate job creation and destruction persistence rates in order to uncover whether the permanency of employment adjustment differs across nationality of ownership. To do so we follow the level of employment of the individual plants over time, observing changes and calculating what proportion of these changes in aggregate are reversed over

[5] See Strobl et al. (1996, 1998) for an application of these measures using Irish data.

subsequent time intervals. The average of these over our sample period are graphed for job creation and destruction for up to five years after the event in Figures 2 and 3, respectively.

[Figures 2 and 3]

Given that jobs created by entry or jobs destroyed by exit might be subject to a different decision making process than employment adjustments made by existing plants we also include persistence measures excluding these events.[6] As can be seen, jobs created by multinationals are more likely to persist than those in indigenous plants in the long run. After five years, on average over half of the jobs created still exist in foreign plants, while there is nearly ten per cent less persistence for jobs created by indigenous plants. The extent of this difference is marginally higher if we exclude jobs created due to plant births. In contrast, there is little difference in terms of the persistence of job destruction between indigenous and foreign plants, even if we exclude jobs destroyed due to plant exit. Jobs destroyed are very likely to remain so for both the indigenous and foreign sector; even after five years on average less than one quarter of all employment lost will be recovered.

Of course, the finding of higher persistence for jobs created in foreign plants could be due to plant characteristics that are unevenly distributed across indigenous and foreign plants, such as firm size or age.[7] In order to disentangle the role of other factors from that of nationality of ownership in the degree of persistence of jobs created we propose the following random effects logit model of the probability of all jobs created in a plant lasting at least *x* years:

$$\text{Prob}(Y_{it}) = b_1 + b_2 OWN_{it} + b_3 BIRTH_{it} + b_4 AGE_{it-1} + b_5 RATE_{it} + b_6 SIZE_{it} + b_s NETS_{ss} + l_t + h_i + e_{it} \quad (3)$$

where *Y* is a simple binomial variable taking on the value of 1 if all jobs created in plant *i* last at least a certain number of years, and zero otherwise, *OWN* is a zero-one type dummy variable taking on the value of one if the plant is foreign and zero otherwise, *BIRTH* is a zero-one type dummy variable indicating whether the jobs where created due to plant birth,

[6] Strobl et al. (1996) show that the indigenous firms experienced a substantially greater amount of entry and exit than foreign firms.

[7] For example, studies on firm post-entry performance in the industrial organisation literature frequently find that firm employment growth and survival are influenced by firms' age and size. See, for instance, Audretsch and Mahmood (1995) and Dunne and Hughes (1994).

AGE is calculated from the start-up date of the plant, *RATE* is the degree of adjustment relative to plant size measured as the number of jobs created relative to plant size at the time of creation,[8] *SIZE* is the plant size in terms of employment, the *s NETS* variables are sectoral cyclical variables, measured in terms of net employment growth rate from the date of job creation onwards, l are time dummies, h is an individual specific random term, and e_{it} is an error term.

Before turning to our results, it is important to point out that the specification in (3) is not based on any particular theoretical framework. It thus is of purely descriptive nature and meant to give some indication as to whether attributes other than ownership type of plants creating the jobs are driving the aggregate persistence measure rather than to test a particular model of labour demand.[9] Moreover, the definition of the dependent variable is fairly restrictive in that it only takes on a value of one if *all* jobs created persist. Part of the reason for this is that we are not able to distinguish actual individual jobs but can only examine the overall level of jobs at a plant level. Through the definition of our dependent variable we hope to somewhat circumvent the error in measurement of the true persistence of actual jobs rather than the overall level of jobs.

The results of estimating (3) for jobs created lasting at least one, two, three, four and five years using random effects panel data techniques (see, for example, Baltagi, 1995) are given in Table 8. As the likelihood ratio test indicates, the proportion of total variance contributed by the panel-level variance component is non-negligible and hence (3) is rightly estimated using a panel estimator for all five regressions.

[Table 3]

We find statistically significant coefficients on the ownership dummy only for longer-term persistence measures, i.e., from three years onwards. Thus, the strong nationality of ownership differences that one witnesses in the aggregate level in the short run (one to two years) are driven by differences in the distribution of other factors among job creators, such as those captured by our additional explanatory variables. The significantly positive variable from three years onwards indicates that foreign plants are more likely to sustain

[8] For plant births we set its value equal to one.

positive employment changes, however, only over the long run as many of the job opportunities created by indigenous plants are reversed. This finding of higher job creation persistence in the long term is easily reconciled with the argument that foreign firms use higher skilled labour which, all other things equal, is likely to lead to more stable employment.

Examination of the coefficients on the *BIRTH* variable show that jobs created due to firm births are significantly more likely to last in the short and long term. Thus, despite the fact that many plants do not survive the first few years, on average jobs created due to market entry last longer than those created by incumbent plants, ceteris paribus. We also find that jobs created are less likely to last in the short and long term for larger and older plants, indicating that such plants are more likely to have reached their optimum size and thus only create jobs to accommodate temporary positive shocks.[10]

The negative and significant coefficient on our variable controlling for the size of the employment adjustment relative to plant size suggests that if the nature of adjustment is large the likelihood of newly created jobs lasting at least one or two years is smaller. As one moves through time (relative to the point of adjustment), this relationship is reversed; if the rate of adjustment is large jobs in the long run (3 to 5 years after creation) will tend to last longer.

Sectoral cyclical conditions, as measured by the net employment growth rate, at the time of job creation impacts (significantly) negatively on the survivability of the jobs for the first two years, but is insignificant thereafter. This suggests that many of the jobs that only last for one or two years are jobs that have been created to accommodate temporary positive shocks. Those jobs that last longer than two years appear, as indicated by the insignificance of the coefficient, to have been created to accommodate more permanent shocks to product demand. We have also included the relevant cyclical indicators for the years subsequent to creation. As one can see from our results, benevolent sectoral cyclical conditions after creation appear to enhance the survivability of jobs.

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[9] As regards the choice of explanatory variables, Davis et al. (1996) show that job persistence differs between sectors (Chapter 3) and between firms with different sizes and ages (Chapter 4). We therefore choose to include the relevant variables (*NETS*, *RATE*, *SIZE*, *AGE*) in the estimation.

[10] It is important to note that the absolute size of the coefficient tends to increase as one moves from the lower to the higher persistence equations. While some of this may indicate that our explanatory variables are more

We similarly estimated (3) for job destruction persistence for one, two, three, four and five years after the event. We use again a zero-one type dummy dependent variable which now indicates whether all jobs lost were recovered. We excluded the *BIRTH* variable and also only included jobs destroyed by continuing firms, i.e., excluded jobs destroyed due to exits. While the first exclusion is self explanatory, the latter was done mainly because jobs destroyed by plant exits can, by definition not be recovered and thus are not of relevance.[11]

[Table 4]

The results of re-estimating (3) for job destruction recoverability are given in Table 9. Again, a likelihood ratio test indicates that individual plant effects are important. In contrast to the aggregate data presented in Figure 3, where we did not find any apparent differences across nationality of ownership group, we find in the logit estimation that the coefficient on the nationality dummy is statistically significant and negative in all five equations. Our estimation thus provides evidence that foreign plants are more likely to recover lost jobs in the short and long run than domestic firms, ceteris paribus. This indicates that, in a comparison of jobs destroyed by MNCs and indigenous firms, multinationals are more likely to recover lost jobs than are indigenous plants. Our result may be taken to suggest that MNCs are more likely to use employment as a temporary buffer to negative shocks in product demand but tend to recover those lost jobs once the negative shock is overcome.[12]

In examining the coefficients of the other covariates we find that jobs destroyed by older plants tend not to be recovered. Similarly, except for the first year after destruction, job losses in larger plants are more likely to persist. In terms of the relative (to total plant employment) size of the job loss, our results suggest that on average large job losses will last at least a year, but are more likely to be recovered in the long run, i.e., after three years. The nature of cyclical conditions at the time of job loss, as measured by *NETS*, does not

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important for long term persistence, it may in part also be due to the fact that our sample systematically decreases with our persistence measures due to right censoring.

[11] Employment instability due to firm exits is at least indirectly captured by our hazard rate analysis in Section 3.

[12] One should point out that this does not necessarily contradict behaviour as predicted by human capital theory since such theories make, strictly speaking, predictions about worker turnover rather than job turnover, and job turnover can generally only account for a small part of total worker turnover. For instance, Albæk and Sørensen (1998) find that only about 40 per cent of worker turnover in Danish manufacturing can be attributed to job turnover, although these are positively correlated.

appear to determine whether jobs are recovered in subsequent years. However, the significant negative coefficient for all subsequent net sectoral growth rates suggests that sectoral booms can induce plants to recover lost jobs up to five years after the event.

5 Discussion and Conclusions

We find that multinational companies located in Ireland have lower survival rates than indigenous plants, all other things being equal. This indicates that MNCs are more footloose, ceteris paribus. It is a different question, however, as to whether this higher probability of exiting the host country also means that employment in multinationals is more unstable than employment in indigenous firms. As pointed out by Davis and Haltiwanger (1992) for the US, and confirmed by Strobl (1996) for Ireland, firm exit only comprises a small proportion of total employment loss in any period. Rather, most of the employment adjustment observed at the micro-level is due to continuing firms continuously readjusting their employment level to aggregate, sectoral and idiosyncratic temporary and permanent shocks.

An econometric investigation of employment adjustment persistence at the plant level, controlling for other plant and sector specific factors shows that jobs created do actually last longer in multinationals, however, only if considered over the long run, i.e., at least three years after creation. Our results also show that, after controlling for other factors, (continuing) multinationals are more likely than indigenous plants to recover lost jobs. These results do not lend support to the claim that employment in multinational companies is more unstable than in indigenous firms due to the footloose nature of multinationals.

Our results suggest a number of tentative conclusions. Firstly they may indicate that employment decisions in multinationals are made with a longer time horizon in mind than in domestic firms. Multinationals seem to be more likely to create new jobs only if they expect those jobs to last in the long run while domestic firms base job creation decisions more on a short term basis. The opposite seems to be the case for job destruction. Multinationals appear to destroy jobs as adjustments to temporary negative fluctuations but are quick to recover those lost jobs in order to restore previous employment levels. Domestic firms by contrast seem to destroy jobs only if they are deemed to be of a relatively more permanent nature.

This process possibly reflects the fact that multinationals in general are at a disadvantage compared to domestic firms when setting up abroad (Hymer, 1976). They, therefore, have stronger incentives to carefully plan their investment decisions, and expansion strategies, over a long term horizon. Also, it may suggest that multinationals have superior management expertise, allowing them to predict market fluctuations and plan responses well in advance.

Tables

Table 1: Descriptive Statistics

ownership		**1973**	**1984**	**1996**
Indigenous	*Employment*	151741	126687	120728
	Firms	4039	6448	5830
	Age	21	17	19
	Size	38	20	21
Foreign	*Employment*	73827	80550	97559
	firms	619	861	837
	age	16	15	20
	size	119	94	117

Table 2: Determinants of Firm Survival

Variable	**Hazard Ratio**	**Robust St. Error**
OWN	1.332***	0.058
SIZE	0.993***	0.001
MES	1.007	0.009
HERF	1.001***	0.000
GROWTH	0.317***	0.051
# of obs.	149555	
# of subj.	14388	
Log Likelihood	-36699.49	
Wald Test	4719538.37***	

Table 3: Random Effects Logit Estimation of Probability of All Jobs Created Lasting At Least *x* Number of Years

Variable	One Year	Two Years	Three Years	Four Years	Five Years
BIRTH	0.619***	0.648***	1.013***	1.049***	1.089***
	(0.033)	(0.033)	(0.035)	(0.038)	0.042)
OWN	-0.043	0.009	0.324***	0.415***	0.480***
	(0.036)	(0.042)	(0.048)	(0.057)	(0.066)
AGE	-0.006***	-0.007***	-0.008***	-0.009***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
SIZE	-0.002***	-0.003***	-0.003***	-0.004***	-0.005***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
RATE	-0.021***	-0.029***	0.017**	0.016*	0.040***
	(0.008)	(0.009)	(0.008)	(0.008)	(0.012)
NETS	-0.358**	-0.376**	-0.051	0.005	0.025
	(0.164)	(0.167)	(0.168)	(0.181)	(0.199)
NETS(+1)	2.184***	1.770***	1.537***	1.619***	1.466***
	(0.166)	(0.176)	(0.175)	(0.193)	(0.209)
NETS(+2)	---	1.328***	0.097***	0.822***	1.011***
		(0.173)	(0.180)	(0.196)	(0.216)
NETS(+3)	---	---	1.209***	1.112***	1.315***
			(0.177)	(0.203)	(0.226)
NETS(+4)	---	---	---	1.085***	1.005***
				(0.198)	(0.226)
NETS(+5)	---	---	---	---	1.062***
					(0.222)
CONS	1.206***	0.697***	-0.250***	-0.450***	-0.791***
	(0.070)	(0.070)	(0.069)	(0.074)	(0.082)
$\chi^2_1(\rho=0)$	2000.61***	885.82***	2231.5***	3112.7***	3789.2***
$\chi^2_{26}(\beta i=0)$	-249001***	-25795***	-28079***	-25347***	-22508***
# of obs	44585	44422	44081	41943	39574
# of groups	13578	13314	13215	12829	12405

Notes: Standard error in parentheses
Asterisks denote statistical significance at *10, **5, ***1 percent level

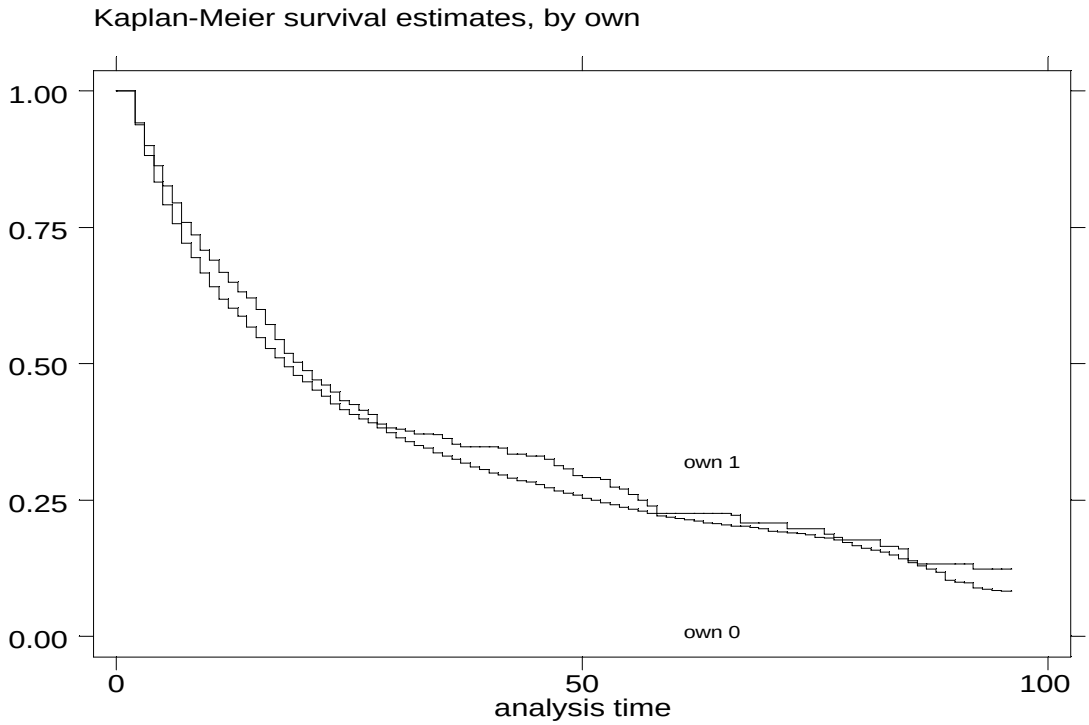
Table 4: Random Effects Logit Estimation of Probability of All Jobs Destroyed Remaining Destroyed At Least *x* Number of Years

Variable	One Year	Two Years	Three Years	Four Years	Five Years
OWN	-0.074*	-0.135***	-0.180***	-0.207***	-0.317***
	(0.040)	(0.047)	(0.054)	(0.061)	(0.070)
AGE	0.004***	0.006***	0.007***	0.008***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
SIZE	-0.000	0.003**	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
RATE	0.559***	0.070	-0.201*	-0.359***	-0.655***
	(0.008)	(0.080)	(0.090)	(0.101)	(0.116)
NETS	0.183	0.262	0.051	-0.082	0.050
	(0.185)	(0.195)	(0.168)	(0.232)	(0.255)
NETS(+1)	-2.377***	-1.860***	-1.617***	-1.495***	-1.509***
	(0.189)	(0.202)	(0.215)	(0.237)	(0.257)
NETS(+2)	---	-1.087***	-0.998***	-1.014***	-1.100***
		(0.192)	(0.216)	(0.233)	(0.258)
NETS(+3)	---	---	-1.066***	-1.113***	-1.242***
			(0.212)	(0.239)	(0.260)
NETS(+4)	---	---	---	-0.706***	-0.772***
				(0.236)	(0.269)
NETS(+5)	---	---	---	---	-0.665***
					(0.262)
CONS	0.379***	-0.186***	-0.549***	-0.942***	-1.033***
	(0.072)	(0.079)	(0.085)	(0.090)	(0.101)
$\chi^2_1(\rho=0)$	155.6***	502.8***	670.1***	759.8***	864.3***
$\chi^2_{26}(\beta i=0)$	-20325***	-19554***	-17191***	-14751***	-12557***
# of obs	32929	29716	25771	22628	19867
# of groups	9733	8672	7787	7007	6237

Notes: Standard error in parentheses
Asterisks denote statistical significance at *10, **5, ***1 percent level

Figures

Figure 1: Kaplan-Meier survival functions by nationality of ownership



Note: own = 1 indicates foreign ownership, 0 indicates Irish ownership

Figure 2: Average Job Creation Persistence

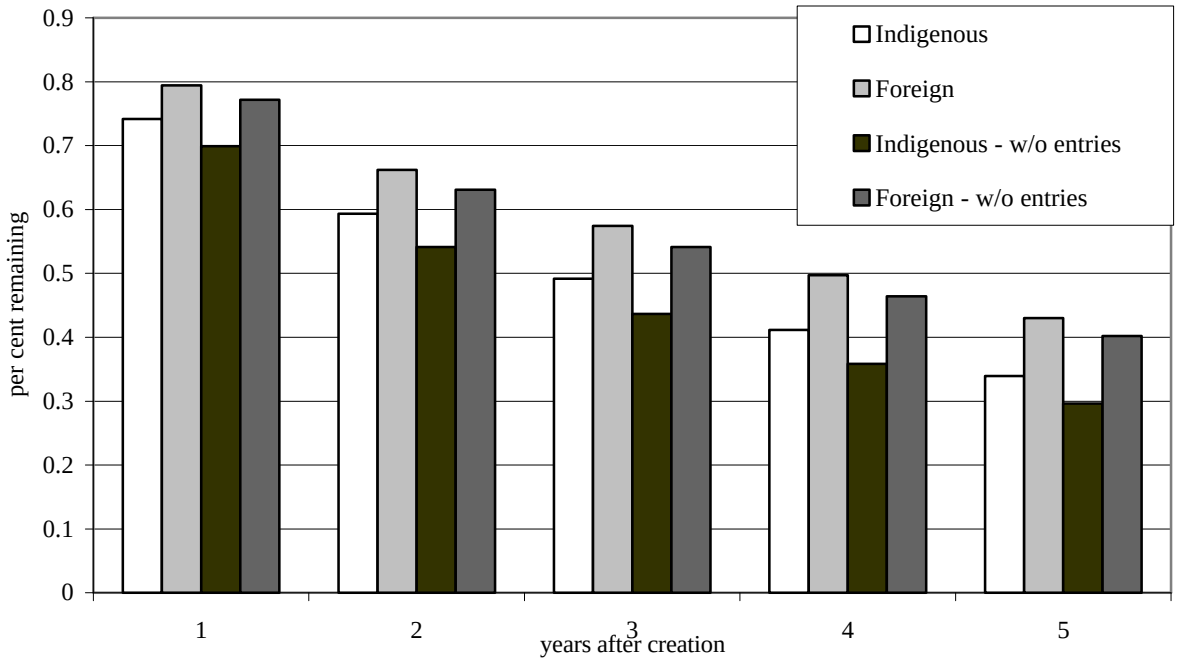
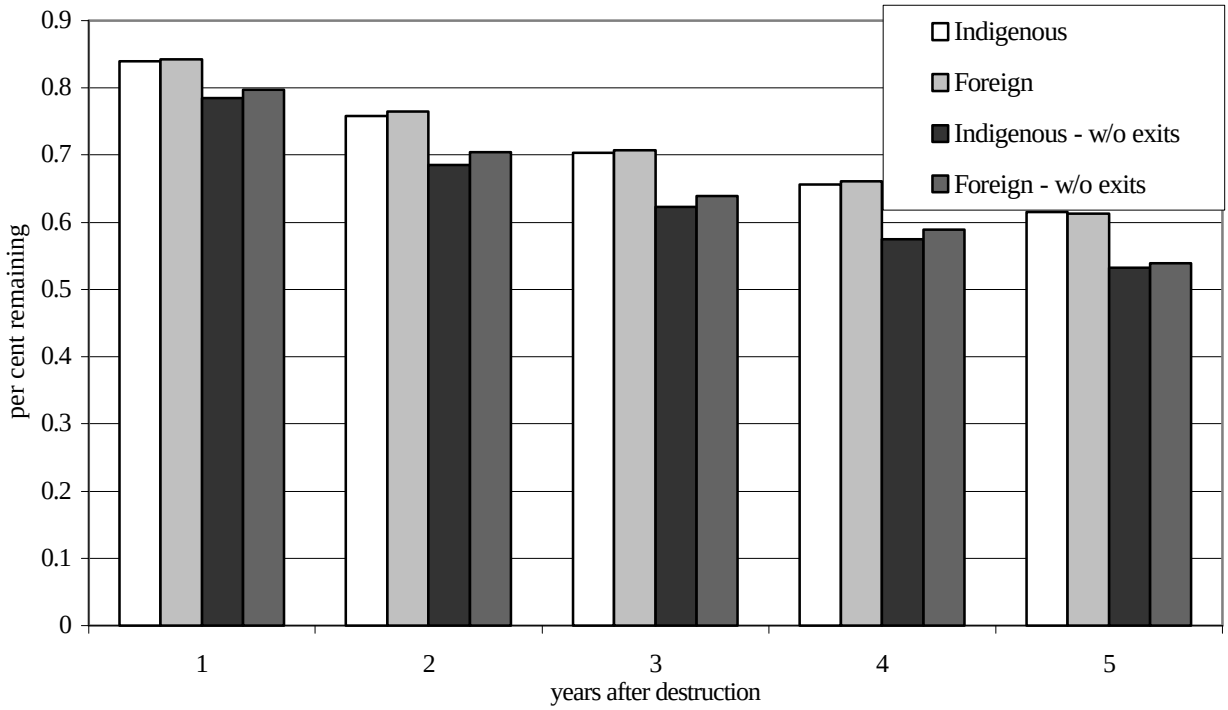


Figure 3: Average Job Destruction Persistence



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