Regional Determinants of Firm Entry in a Developing Country

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Abstract

Regional policies aiming to attract new firms are largely based on evidence that originates from Europe, the USA and Japan. This may raise doubts about the usefulness of such policies when applied to developing economies. This paper addresses this issue by providing estimates of the determinants of firm entry in the Argentinean provinces. We find that most of the determinants used in previous studies analysing developed countries are still relevant. However, there is a need for additional explanatory variables that reflect the specificities of developing economies.

Key words: firm entry, regional economics, Argentina

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1. Introduction

Firms' entry contributes to the growth and welfare of nations (POWELL, 2008), with significant and distinct effects both at the industry and regional levels (FRITSCH and MUELLER, 2004; AUDRETSCH and KEILBACH, 2005). Moreover, entrepreneurship is an important mechanism for economic development that may help to reduce inequalities between poor and rich countries (ACS and AMORÓS 2008; ACS *et al.*, 2011; NAUDÉ, 2011). However, there is very limited evidence on what determines firm entry in developing countries and on whether these determinants differ from the ones typically found in developed countries (BRUTON *et al.*, 2008). This paper aims to fill this gap in the literature by analysing the determinants of firm entry in the Argentinean provinces using annual data on manufacturing firms having employees registered at the Social Security files between 2003 and 2008.[i]

The Argentinean case has a number of features that are worth noting. First, Argentina is a country with important regional differences in terms of wages, labour skills, growth rates and natural resources. Second, firms and people are highly concentrated around the main cities and, specially, the capital. Third, Argentina covers a vast territory that is accordingly organised in large administrative units. Interestingly, many other developing countries (e.g. South Africa, Brazil, Russia, Mexico and Vietnam) share these features to some extent. This means that although our results may not be generalised to all developing countries, they are likely to hold for a number of them.[ii]

With this caveat in mind, we find that most of the variables that are typically found to determine the entry of new firms in developed countries (such as unemployment, education, the activity rate and the density of the population) are similarly important here. However, we also find that some explanatory factors that are never considered when studying development countries (such as the rate of private/public employment and the extent of poverty) turn out to be statistically significant in most of the specifications. This suggests that entry-promoting policies in developing countries cannot be automatically transposed to developed countries. Rather, the design of such policies should be based on studies that take into account the specificities of the data (e.g. certain variables may not be available and others may be defined in a

non-standard way) and the institutional setting (e.g. macroeconomic instability and financial crises, as argued by CABALLERO and HAMMOUR, 2000).

Our approach is similar to that of FRITSCH *et al.* (2006) in their study of the determinants of firm survival in the East and West Germany. They find that only a few of the factors that have a statistically significant effect on survival in West Germany are also statistically significant in East Germany.[iii] They then interpret this result as evidence that the survival of new businesses in East Germany is subject to more erratic influences than in the West side and associate this to distortions in the market structure and institutional setting. However, an alternative explanation might simply be that survival depends on factors that are not included in their model specification. This criticism may also apply to our study, since the omission of relevant variables might alter our conclusions. Still, it is worth noting that our set of explanatory variables is fairly comprehensive and that our estimates are largely robust across different variable definitions (e.g. urbanisation economies and poverty) and model specifications (Poisson and Negative Binomial, Fixed and Random Effects models, with and without including lagged exit among the covariates).

The rest of the paper is organised as follows. Section 2 briefly reviews the empirical literature on firm entry in developed and developing countries. Section 3 describes the data set. Section 4 discusses the econometric model and the main results. Section 5 summarises the main conclusions.

2. Regional determinants of entry: an overview

2.1 Evidence from developed countries

A number of studies have shown the existence of substantial differences in regional entry rates.[iv] Also, studies included in a special issue of the *Regional Studies* journal in 1994 concluded that about 70% of the regional variation in business start-up rates can be attributed to differences in the economic and socio-demographic characteristics of the regions (DAVIDSSON and WIKLUND, 1997). Thus, most of the observed regional differences in entry rates arise from differences in regional characteristics (FRITSCH and SCHMUDE, 2006). In particular, following BOSMA *et al.* (2008) we may group region-specific determinants of firm entry into three main

categories: *i)* demand of goods and supply of factors; *ii)* agglomeration effects; and *iii)* cultural attitudes and policies towards entrepreneurship.

First, proxies for demand include variables that affect firm's profits, such as the size of local markets (typically using population measures), income, unemployment and output (typically using GDP). All these variables may appear in the models in levels and/or in growth rates. The supply of factors essentially includes variables related to labour and capital. Labour refers to the amount of people endowed with the ability to start new firms, usually proxied by the composition of the labour force (age, gender, ethnic and geographical origin, etc.) and human capital characteristic (education, skills, etc.). Also, wages is the usual proxy for the price of this factor. Capital refers to infrastructures (e.g. accessibility) and financial resources both in terms of the extent of financing (e.g. bank loans) and the constraints that may exist to access credit (particularly on SMEs).

Notice that the definition of the demand and supply categories is not self-excluding, for some variables may affect both demand and supply. Higher real wages, for example, mean higher purchase power but also higher costs of labour and higher opportunity costs for self-employment. Similarly, unemployment can push individuals to start their own business. However, it may also reflect the poor economic situation of the region.[v] In addition, it is common to consider industrial structure variables such as the weight of SMEs, the number of incumbents and lagged exit (to avoid endogeneity concerns). Lastly, the availability of skilled labour may increase the supply of potentially successful entrepreneurs as well as facilitate entry in medium and high tech sectors.

Second, having other firms close by may increase market opportunities and firms efficiency. However, there is no general agreement on what is the ultimate driver of agglomeration. While some claim that it is the location of firms operating in similar industries (i.e., localisation economies), others argue that it is the location of firms operating in different industries (i.e., urbanisation economies). In any case, it is important to bear in mind that there are also potential diseconomies in the agglomeration process. Congestion and the rise of input prices (e.g. land and wages, but also housing) can make a region much less attractive for the new ventures.

Third, although the importance of including policy measures and cultural attitudes towards entrepreneurship in the analysis of regional entry has been widely acknowledged (see, however, DAVIDSSON and WIKLUND, 1997), its empirical implementation has not been fully successful. The problem, of course, is that it is very difficult to find good proxies for such elusive concepts. Since data on specific entry-promoting policies is generally not available, for example, SUTARIA and HICKS (2004) and REYNOLDS *et al.* (1994) advocate for using the amount of public spending. Cultural attitudes are even more difficult to measure, so that the proposed solutions are much more debatable. GAROFOLI (1994, p. 388), for example, argues that "areas exhibiting social mobility and having a high proportion of individuals in self employment will have higher rates of new firm formation". He also tries to capture the "political climate" by using the percentage of votes obtained by communist and socialist parties.

As for the empirical evidence (see footnote 4), the main findings can be summarised in the following way:

- Demand: population and GDP growth have a positive effect on entries, while the effect of income levels is ambiguous (both positive and negative estimates have been reported); the proportion of small firms and industry specialisation levels have positive effects on entries, while the effect of establishments' size is unclear (both positive and negative estimates have been reported); exit rates affect entries in a positive way.
- Supply: the unemployment rate has a positive effect on entries, while the change in the unemployment rate affects entries negatively; capital and bank deposits have a positive effect on entries.
- Agglomeration: population density, localisation economies and population living in urban areas affects entries positively; dwelling prizes and the share of owners have also a positive effect on entries.
- Cultural attitudes and public policy: immigration tends to affect entries positively, while public policies and political ethos have non-significant or ambiguous effects.

2.2 Evidence from developing countries

Firms' dynamic process exhibits certain regularities (see GEROSKI, 1995). However, the intensity of entry differs with the level of development of the country, being higher (lower) in less (more) developed economies —see WENNEKERS *et al*. (2005) for a thorough discussion on this topic and empirical evidence. In fact, there seems to exist a U-shaped relationship between entrepreneurship and development (ACS *et al*., 1994; ACS *et al*., 2008b).[vi]

Several factors may explain the differences in the patterns of entry (and exit) between developed and developing countries.[vii] First, developing economies are generally characterised by macroeconomic instability and intense cyclical variations. The recurrent crises inevitably result in obstacles to the "creative destruction" process: human capital attrition (STIGLITZ, 1998), tighter conditions in the financial market (CABALLERO and HAMMOUR, 2000) and the shortening of planning horizons, which increases the expected rate of return of firms' projects (KATZ and BERNAT, 2011). Second, innovation systems in these countries suffer from important deficiencies. This makes innovative entry less frequent (BURACHIK, 2000). Third, underdeveloped factor markets may restrict access to the resources needed to start a business (financing, skilled labour, professional services, raw materials, inputs, technology, infrastructure, etc.). In addition, they may negatively affect the supply of entrepreneurs by reducing the share of people with access to information, education, business networks and/or financial resources. Fourth, the political economy of developing countries may cause distortions in the allocation of resources. BARTELSMAN *et al.* (2004), for example, argue that governments may give incumbents a preferential treatment, artificially increase barriers to entry and/or make exits for some type of businesses more frequent (e.g. SMEs). In addition, government programs are usually inefficient in promoting entrepreneurship and supportive institutions are mostly underdeveloped (CARBONELL, 2005).

Moreover, these differences not only arise in the intensity of entry but in the profile of the entering firms. For example, the underdevelopment of factor markets may not only reduce firm entry but also firms' initial size (KANTIS *et al*., 2005), thus decreasing the likelihood of survival (AUDRETSCH, 1995a). Also, the number of nascent ventures under the model of "entrepreneurial economy" tends to be smaller

in developing economies (AMORÓS and CRISTI, 2008). Similarly, because of the difficult economic conditions the weight of the necessity-based entrepreneurs is usually higher (ACS *et al.*, 2008a). Lastly, ACS *et al.* (2011, 2008a) argue that the number and type of public institutions influences the allocation of entrepreneurs towards formal and informal activities.

The question here, however, is whether there are also differences in the regional determinants of entry between developed and developing economies. The answer is not obvious. Although there is an extensive empirical literature on regional firm entry (see footnote 4), the evidence from developing countries is scarce (DEICHMANN *et al.*, 2008; GHANI *et al.*, 2011; SANTARELLI and TRAN, 2011). Moreover, the heterogeneity of cases (databases, institutional settings, etc.) makes very difficult to compare results across countries. Lastly, there is no well-established theory that may provide some guidelines on what are the expected differential effects of a particular determinant of entry.

The empirical approach we propose is both motivated and limited by these issues.[viii] We take as the starting point a set of determinants that are generally found to be statistically significant in regional entry studies using data from developed countries (e.g., unemployment, education, activity and density). This provides our first (admittedly, indirect) test on the differences between developed and developing countries (see e.g. FRITSCH *et. al.*, 2006 and GHANI *et al.*, 2011). However, we also acknowledge that there are factors that, while potentially important in developing countries, are never considered in developed countries studies (BRUTON *et al.*, 2008). For example, the size of the informal economy, the private/public rate and the extent of poverty are important policy concerns in developing countries. In contrast, these are generally thought to be irrelevant for the creation of new firms in developed economies. This provides our second test on the differences between developed and developing countries.

In light of the previously mentioned differences in the patterns of entry, we expect that our first test shows that some of the variables that explain firm entry in advanced countries have weak statistical significance. We also expect that the second test

shows that variables that are meant to incorporate some of the specificities of developing countries have substantial explanatory power.

3. The data

3.1 Entry

The Employment and Business Dynamics Observatory (EBDO) of the Ministry of Labour and Social Security of Argentina elaborates an annual database on firm demography since 1996. The database includes information about the number of entries, exits and incumbents based on all manufacturing (formal and private) firms with at least one employee.[ix] Moreover, the EBDO handles changes in firm codes that do not reflect true market entries and exits. In particular, spurious entries and exits caused by the displacement of the whole firm's workforce from firms that "exit" to become "new" firms are identified and excluded from the database.

Data is available for the 23 Argentinean provinces and the Capital Federal city. However, the Buenos Aires Province is further divided into Gran Buenos Aires (GBA) and the rest of the province (Bs. As. Rest). This is why there are 25 jurisdictions in the database, which we take as our units of observation. However, we restrict the analysis to firms that declare that the major part of their workforce is located in the assigned jurisdiction. This means that we concentrate on "local firms" (about 90% of the total firms in 2008), while branch offices or subsidiaries located in other jurisdictions are excluded from our data set.[x] We report the resulting number of entries, exits and incumbents in Argentina in the years 2003 to 2008 in Table 1.

[INSERT TABLE 1 HERE]

According to the MTEYSS (2007), in 2003-2005 entry rates reached the highest values in a decade. This was of course closely related to the recovery of the Argentinean economy after the severe crisis of 2001-2002. Table 1 shows that the high entry rates (around 11%) persisted the following years (2006-2008), although at a decreasing path because entry rates dropped in the last two years of our sample (at values of about 7%). As for the exits, after the first two years of stability (2003-2004), they followed the opposite trend, with an average yearly-variation rate of 21%.[xi] All these figures indicate that our period of analysis roughly covers a cycle of

the Argentinean economy: from recovery (with net entry rates above 5% in the period 2003 to 2006) to progressive decline (with net entry rates of 3% and 0.5% in 2007 and 2008, respectively).

In particular, our dependent variable is the number of annual entries in each of these jurisdictions during the years 2003 to 2008. We start our analysis in 2003 to avoid the structural break caused by the economic and political crisis of the end of 2001 that lead to the devaluation of the Argentinean peso in January 2002. Including these years of turmoil would completely distort results. We end up our analysis in 2008 because this is the last available year in the EBDO dataset.

[INSERT FIGURE 1 HERE]

Figure 1 shows the evolution of our dependent variable over the period of analysis in Argentina and each of the jurisdictions considered. In developed countries, this evolution closely follows the upswings and downswings of the business cycle. That is, entries tend to be pro-cyclical and exits tend to be anti-cyclical. In developing countries, however, macroeconomic instability, financial crisis and/or the changes in the raw materials prices make economic cycles more pronounced. Figure 1 also shows how heterogeneous are the provinces considered. Although entries at each province follow the same evolution, some provinces seem to start the cycle later. Furthermore, there are substantial differences in the number of entries across provinces. In particular, the Capital Federal city, the provinces of Gran Buenos Aires, the Rest of Buenos Aires Province, Santa Fe and Córdoba stand as the most attractive provinces to create new firms.

[INSERT FIGURE 2 HERE]

These features are also apparent in Figure 2, which displays the spatial distribution of entries. What strikes in this figure is the high spatial concentration of the economic activity in Argentina. Notice that most of the activity clusters in the capital of the country and the surrounding provinces. In fact, according to the EBDO database about 80% of the workers and firms are located in the Capital Federal city and the provinces of Gran Buenos Aires, the Rest of Buenos Aires Province, Santa Fe and

Córdoba (see the detail on Figure 3). However, these five jurisdictions just cover 22% of the surface of the country. This uneven spatial distribution of the economic activity is quite typical of a developing economy.[xii]

[INSERT FIGURE 3 HERE]

3.2 Explanatory variables

Although some covariates are constructed from own calculations using the EBDO database, most of the information about the Argentinean regions we use comes from the National Household Survey (NHS). This survey is performed by the National Institute of Statistics and Census (INDEC) to samples of families located in 31 urban areas, called "aglomerados" in the jargon of the NHS. In particular, data from the more populated provinces (Capital Federal city, Rest of Buenos Aires, Gran Buenos Aires, Córdoba, Chubut, Entre Ríos and Santa Fe) comes from a set of "aglomerados". For the rest of provinces, however, data refers essentially to the capital of the province (small close by towns are added in some cases, like “Gran Mendoza”, “Gran Salta”, etc.).

It is therefore important to stress that NHS statistics are actually estimates. In fact, because of the inherent error that exists in this procedure, the NHS staff recommends to use only variables with a variation coefficient of less than 10% (INDEC, 2003). All the variables used in this paper have variation coefficients below the 10% value.

Despite its apparent limitations, we are bound to use these data because there is no statistical source providing yearly information on demographic and/or socioeconomic characteristics of the Argentinean provinces (population census are performed every 10 years). The NHS data allows us to do this by imputing its estimates from the "aglomerados" to the whole province. [xiii] This means that we are assuming that (most of the) entries in a province are essentially driven by the characteristics of the "aglomerados". At first sight this may seem a strong assumption. However, it is less so if one considers that the concentration of government agencies, specialised services and suppliers in the "aglomerados" is likely to influence not only the location of firms within "aglomerados" but also outside the "aglomerados".

In particular, we were able to construct a number of proxies on the labour market, the level of education, the existence of urbanisation economies (the size of the provinces in km^2 comes from the Military Geographical Institute), input prices and the industrial structure (with data from the EBDO on formal and private firms). As discussed in the previous section, these are factors widely used in developed countries studies. Moreover, our statistical sources allowed us to construct variables related to the rate of private-to-public employees, the level of poverty, the importance of the informal economy, the industrial tradition and the amount of (internal) migration. As pointed out in Section 2, these variables are usually not included in developed country studies but are widely seen as relevant for the developing economies.

Table 2 reports the definition, statistical sources and descriptive statistics of the explanatory variables used in this study. In addition, we have included a column with the expected sign of the associated coefficient. Next we briefly review the arguments and evidence supporting these expected signs.

[INSERT TABLE 2 HERE]

Labour market characteristics. To asses the labour market impact on firm entry we have included among the covariates the rate of activity (active people between 25 and 40 years old), the unemployment rate and the rate of variation of the unemployment. The activity rate is a proxy for the existence of a pool of potential entrepreneurs, so we expect a positive relation with entry (i.e. GUESNIER, 1994; KEEBLE and WALKER, 1994). The impact of the unemployment rates, on the other HAND, is ambiguous (DELMAR and DAVIDSSON 2000; HAMILTON 1999; RITSILÄ and TERVO 2002; SPILLING 1996; STOREY 1991; TERVO and NIITTYKANGAS 1994). According to the so-called “push hypothesis” the impact should be positive: the unemployed are more likely to become self-employed and unemployment should push down the cost of labour in the jurisdiction. However, the “pull hypothesis” suggests otherwise: the impact should be negative because the unemployed lack entrepreneurial abilities and capital, and consumption is low in areas with high unemployment.

Education. Our proxies for education include the number of active population with primary, secondary and university-level education. We expect a positive relation of these variables with entry. In particular, the impact should be higher for higher levels of education (NYSTRÖM, 2007; ARMINGTON and ACS, 2002).

Urbanisation economies. Density and its square have been widely used as proxies for agglomeration and disagglomeration economies, respectively (see e.g. TAMÁSY and LE HERON, 2008; NYSTRÖM, 2007; DAVIDSSON *et al*., 1994). Thus, a positive sign for the density coefficient and a negative sign for its squared are the expected outcomes in our models.[xiv] In addition, the number of incumbent firms is included as a measure of the agglomeration of economic activity.

Input prices. Wages correspond to the average monthly wage of private registered workers. We expect a negative sign for this variable, since higher wages are likely to lead to higher production costs (SANTARELLI *et al*., 2009; AUDRETSCH and FRITSCH, 1999; FOTOPOULOS and SPENCE, 1999).

Industrial structure. The industrial structure of the province is approximated using the Hirschman-Herfindahl Index, the share of micro firms, the share of small and medium firms and the number of exiting firms in the previous year.[xv] All these variables should impact positively on entry, except for the Hirschman-Herfindahl Index, that measures lack of diversity. First, one is more likely to start a business in a more diversified environment (GUESNIER, 1994; REYNOLDS *et al*., 1994). Second, entry costs may be lower in areas with a dense network of small and medium size firms, for these firms pay lower wages (thus reducing the opportunity cost of self-employment) and facilitate that their workers develop the skills required to create new business (AUDRETSCH, 1995b; ASHCROFT *et al*., 1991). Third, exits in previous periods may leave room for the new comers (GÜNALP and CILASUN, 2006; ARAUZO-CAROD and SEGARRA-BLASCO, 2005; SUTARIA and HICKS, 2004).

Industrial tradition. We control for the previous industrial activities carried out in a province using the average number of incumbents 7, 6 and 5 years before (i.e. a 6-year centered moving average). Following ROCHA and STERNBERG (2005), we expect past incumbents to booster current entrepreneurial activities.

Cultural attitudes. Cultural attitudes towards entrepreneurship may be captured by the ratio of private-to-public employees. In particular, we expect that entries are higher in jurisdictions with a higher private/public rate. In addition, we have included the number of individuals coming from other provinces. As TAMÁSY and LE HERON (2008) and LEE *et al.* (2004) show, there are more entries in communities with higher inflows of migrant people.[xvi]

Poverty. We proxy the extent of poverty with the percentage of households below the indigence line. This threshold is given by the capacity to afford a basic food basket, which is estimated to be about 38 USD per adult in 2003.[xvii] We expect this variable to show a negative[xviii] coefficient in our models for two reasons. First, low income markets do not attract the entry of new firms. Second, the proportion of entrepreneurs who have access to resources for backing up their business decisions should be lower in low income areas (CASSON, 1982; HAMILTON and HARPER, 1994).

Informal economy. The instability, insecurity and dissatisfaction with the present informal job are factors that may push individuals to start their own business (STOREY, 1994). We use the ratio of non-registered workers to total workers to incorporate this positive effect on entry. However, this variable may also proxy for the productive structure (e.g. seasonality and/or low productivity of certain activities) and/or the lack of government controls on the informal economy (in a particular province) and thus have a negative effect on formal entry.

4. Econometric modelling and estimation results

Given the definition of our dependent variable (yearly number entries in the 24 Argentinean provinces considered), we rely on panel count data models to estimate the impact of entry determinants.[xix] Panel data models were preferred to cross-section estimates on the grounds of two empirical tests. First, likelihood ratio tests on the variance of the individual effects always yield statistically significant results (see the bottom rows of Tables 3 and 4), thus rejecting the validity of pooled estimates (CAMERON and TRIVEDI, 2009). In fact, we estimated the models for each year of the sample and found that the value, sign and/or the statistical significance of the coefficients changed (often substantially) between years. Second, we tested the

assumption that observations are indeed independent across the considered years by computing the covariance matrix of the year vector of Pearson-residuals from the pooled Poisson regression model (see HAUSMAN *et al.,* 1984 for details). We found large values in the off diagonal elements of the matrix in all the specifications, which supports the independence assumption that sustain panel data models.

It is important to note that there are no zeros in our dependent variable. That is, in each jurisdiction-year pair of our sample we have a strictly positive number of entries. This is why we concentrate on the estimation of Poisson and negative binomial models (CAMERON and TRIVEDI, 1998). This contrasts with the typical outcome form developed countries studies, which tends to be constructed from the inflated versions of these models to account for the "excess of zeros" (see e.g. BASILE, 2004; LIST, 2001 and MANJÓN-ANTOLÍN and ARAUZO-CAROD, 2011). The size of our administrative units, much larger than the municipalities, counties and metropolitan areas studied in developed countries, lies behind this important difference.

In particular, we report results from fixed and random effects specifications in Tables 3 and 4. For comparative purposes, we also provide estimates from pooled data. However, the existence of unobserved heterogeneity strongly advocates for not using pooled estimates for making inferences (see the bottom rows of Tables 3 and 4). In contrast, fixed and random effects estimators control for unobserved heterogeneity under alternative assumptions on the relation between the covariates and the individual effect (HAUSMAN *et al*., 1984).

[INSERT TABLE 3 HERE]

We find that the Durbin-Hu-Hausman test does not seem to reject the null hypothesis of no correlation between the covariates and the individual effect (see the bottom rows of Tables 3 and 4). This would make the random effects efficient (provided the model is correctly specified). On the other hand, fixed effects estimates provide a better fit according to the Akaike Information Criterion (AIC). This is why in the discussion of results that follows we will not refer to a particular set of estimates but will focus on those coefficients whose values and significance are largely consistent

across the specifications considered. In this respect, it is worth noting that most of our conclusions are robust to model specification. [xx]

Bearing in mind these issues, let us first consider results from the specification including variables widely used in developed countries studies (results reported in the left hand side of Table 3). The first thing to notice is that only a few of the determinants considered are statistically significant. In fact, our proxies for unemployment, density, industrial structure and input prices have practically no explanatory power in any of the specifications considered. The worst fit corresponds to the negative binomial model, where leaving aside the unemployment rate and the number of people with a degree, none of the variables shows a consistent impact on entry. In the Poisson model, however, education, the rate of activity and the lagged exit all contribute to the likelihood of entry. Moreover, our proxies for the industrial structure (share of SMEs, number of incumbents and industrial tradition) are generally not statistically significant.

We then added a set of variables that characterise developing countries (results reported in the right hand side of Table 3). In marked contrast to the initial specification that did not include these variables, we now find that some of the determinants considered are statistically significant and show the expected sign. In particular, the positive effect of the unemployment rates is consistent with the "unemployment push hypothesis" put forward by ARMINGTON and ACS (2002). Similarly, the creation of new firms is found to be positively influenced by population density and the existence of a pool of potential entrepreneurs aged between 25 and 40, common findings in developed economies studies.[xxi] Lastly, the negative sign of the education variables (primary and university levels) seems to be related to the technological level and life-cycle stages that characterise firms in developing countries (KARLSSON and NYSTRÖM, 2003; NYSTRÖM, 2007).[xxii]

The rest of variables provide mixed results. We find positive and significant coefficients for the share of micro firms and SMEs in the random effects specification. However, fixed effects estimates are not statistically significant. Similarly, we find negative and significant coefficients for the variables of industrial structure (incumbents, tradition and exit) in the fixed effects Poisson model. But the effect of

the number of incumbents and the industrial structure becomes positive and significant when using a random effects negative binomial model. Moreover, lagged exit is no longer statistically significant. This means that although we can confidently reject the hypothesis of a "displacement effect" (AUDRESTCH, 1995b), we cannot fully confirm that exits actually proxy for the expected benefits and/or the business cycle. Lastly, there is weak evidence that more specialised provinces are more prone to receive new firms (REYNOLDS *et al.* 1994; GLAESER and KERR, 2009). Also, migration and wages do no seem to have any influence on entries.[xxiii]

We turn now to analyse the variables that are meant to incorporate some of the specificities of Argentina as a developing country. We find that the private/public rate and the extent of poverty are statistically significant, while our measure of the informal economy is not. In particular, the negative sign of the private/public rate suggest that rather than a cultural attitude towards entrepreneurship we are actually picking up crowding out effects. These effects imply competence among firms by public services rather than competence among markets, which would be inconsistent with the negative sign of exits. That is, firms in central provinces, where the ratio is greater, benefit from a lower level of public services (assuming that the number of public employees is highly correlated with the amount and quality of public services). In other words, concentration of private activity has no counterpart in terms of concentration of public employees. Also, the negative sign of the indigence measures suggests a low-income effect (low income people buy less goods) as well as an entrepreneurship effect (it is more difficult to find resources in poor areas). Unfortunately, our data does not allow to discriminate between them.

All in all, our results are largely consistent with the arguments presented in Section 2. While most of the determinants typically used in previous studies analysing developed countries are still relevant here, there is a need for additional explanatory variables that reflect the specificities of developing economies. In fact, our results show that including these variables improves the fit of the model in terms of AIC (see the bottom rows of Tables 3 and 4). However, one may argue that our estimates might be largely driven by the presence of lagged exit among the covariates and/or they might be substantially altered had we used a different set of explanatory variables.

[INSERT TABLE 4 HERE]

In order to check the robustness of our results to these concerns, we proceed in the following way. First, we dropped the lagged exit variable to address endogeneity concerns. Since the variable is time persistent (correlations between periods are above 0.9), our assumption of exogeneity may not hold. Second, we used an alternative proxy for population density. We faced severe convergence problems when using the population-density ratio (only sorted when we changed the scale and transformed logarithmically the variable) that may be actually due to an undetected specification error. We thus replaced this variable by the ratio of urban population from the "aglomerados" to total population of the province.[xxiv] Results from these alternative specifications are reported in Tables 4A and 4B. Although some of the coefficients vary its value and/or statistical significance with respect to that reported in Table 3, most results hold. We are therefore confident that our main conclusions are robust to these concerns.

5. Conclusions

This paper analyses the regional determinants of firm entry in a developing economy. This constitutes a novelty in the context of an empirical literature largely concentred in data from Europe, North America or Japan. In particular, we provide estimates from panel count data models using annual data on new manufacturing firms having employees registered at the Argentinean Social Security files over the period 2003 to 2008. This is the most up-to-date, comprehensive, reasonably long-term and spatially disaggregated data source (provinces are the basic unit of observation) currently available for firm demography studies in Argentina.

We compare results obtained when using a well-established list of economic and demographic characteristics that explains entry decisions of new firms in the developed economies with those obtained when adding variables that have been proposed in the literature as differential for the developing economies. We find that most of the determinants used in previous studies analysing developed countries remain relevant when we add variables such as the size of the unregulated sector, the rate of private/public employments and the extent of poverty. However, the statistical significance of these variables is worth noting. In particular, the rate of

private to public employment and the extent of poverty seem to hamper entry, whereas the share of the informal economy does not have a significant effect. In addition, the negative effect of education seems to be related to the low-tech profile of the new firms and the huge concentration of entries in more developed provinces points towards a severe geographical “dualisation” of the economy.

In terms of policy implications, our results stress the risk of rubber-stamp policies that simply follow recipes that work well in developed countries. In other words, policy makers should take into account country specificities when designing entry-promoting policies in developing economies. In the Argentinean case, for example, the negative effect that poverty has on entries is unlikely to be reversed by policies simply aiming at promoting new business creation, for reducing the rate of poverty probably requires a long-term policy of investment in human capital.

As for the future extensions of this work, they are mainly driven by the limitations of our data set and empirical strategy. First, it seems necessary to use a more disaggregated unit of observation. Given the lack of data on smaller geographical units (municipalities, counties and/or metropolitan areas), exploring a sectorial breakdown will not only allow us to reduce the degree of heterogeneity but to incorporate industry-specific variables. Second, it seems necessary to deal with the uneven distribution of the economic activity across the country. The huge concentration around the capital and the surrounding regions, typical of a developing country, will hopefully be addressed by the inflated versions of the Poisson and Negative Binomial models used in this paper.

We conclude by noting that the data used to analyse firm entry in developed and developing countries differs considerably. In particular, differences arise in the reliability (e.g. data is based on estimates rather on measures), representativeness (e.g. data is provided only for small, core areas of each administrative unit) and spatial aggregation (e.g. data is only available for large and heterogeneous areas) of the data. Addressing these shortcomings is critical to provide solid and comparative evidence on the determinants of firm entry in developing countries.

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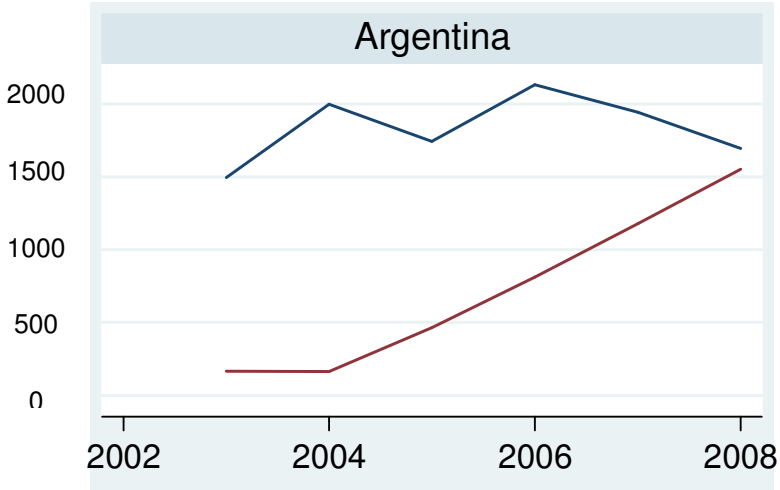
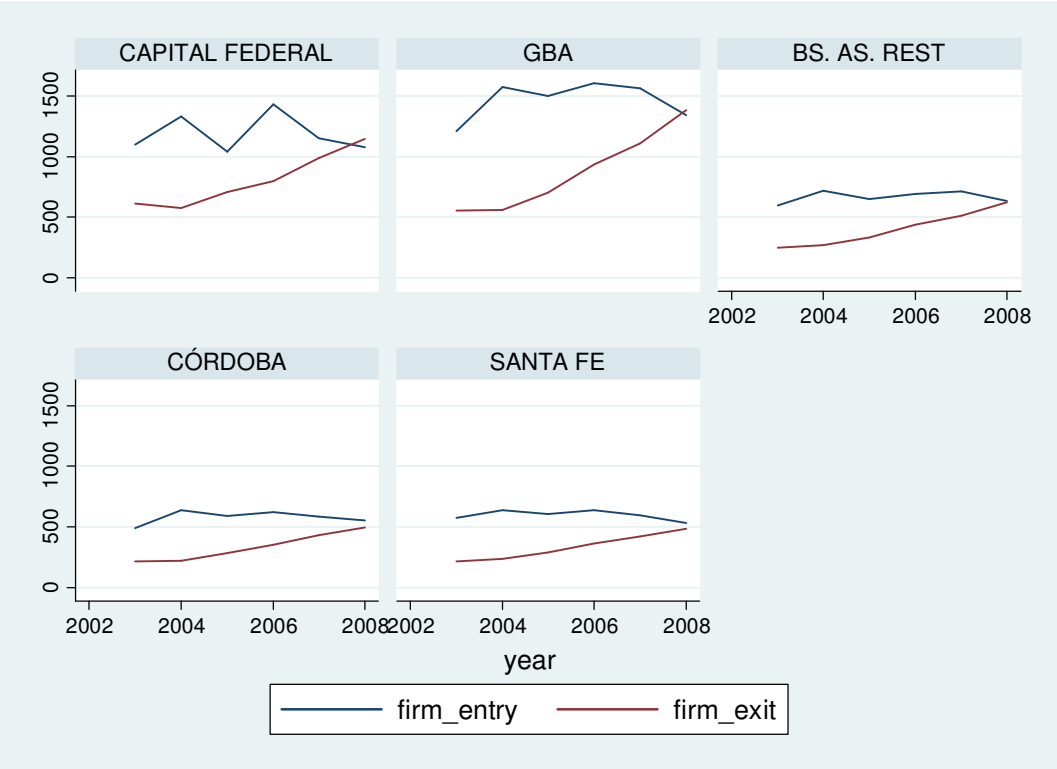
Figure 1.A. Entry and exit of firms. Total Argentina. 2003-2008



Source: own elaboration from EBDO data

Figure 1.B. Entry and exit of firms. Provinces with high entry levels. 2003-2008



Source: own elaboration from EBDO data

Figure 1.C. Entry and exit of firms. Provinces with medium entry levels. 2003-2008

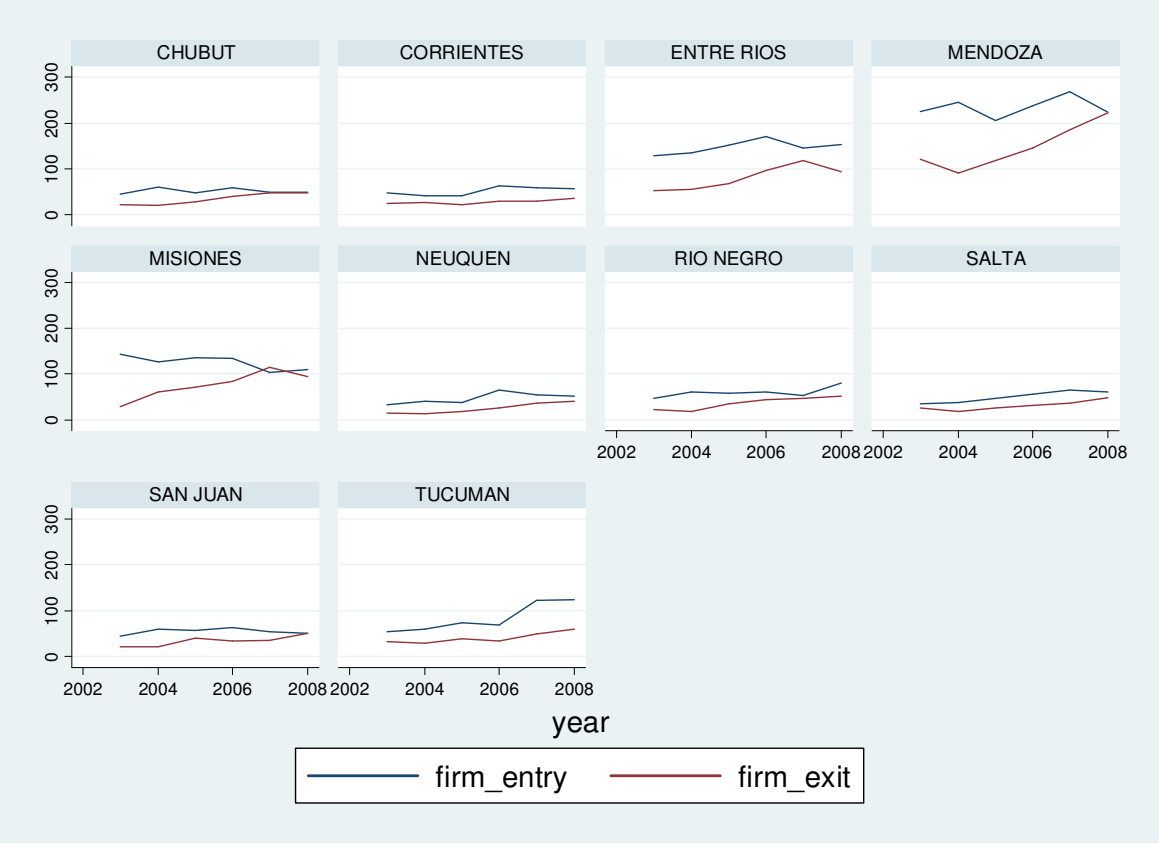


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Figure 1.D. Entry and exit of firms. Provinces with low entry levels. 2003-2008

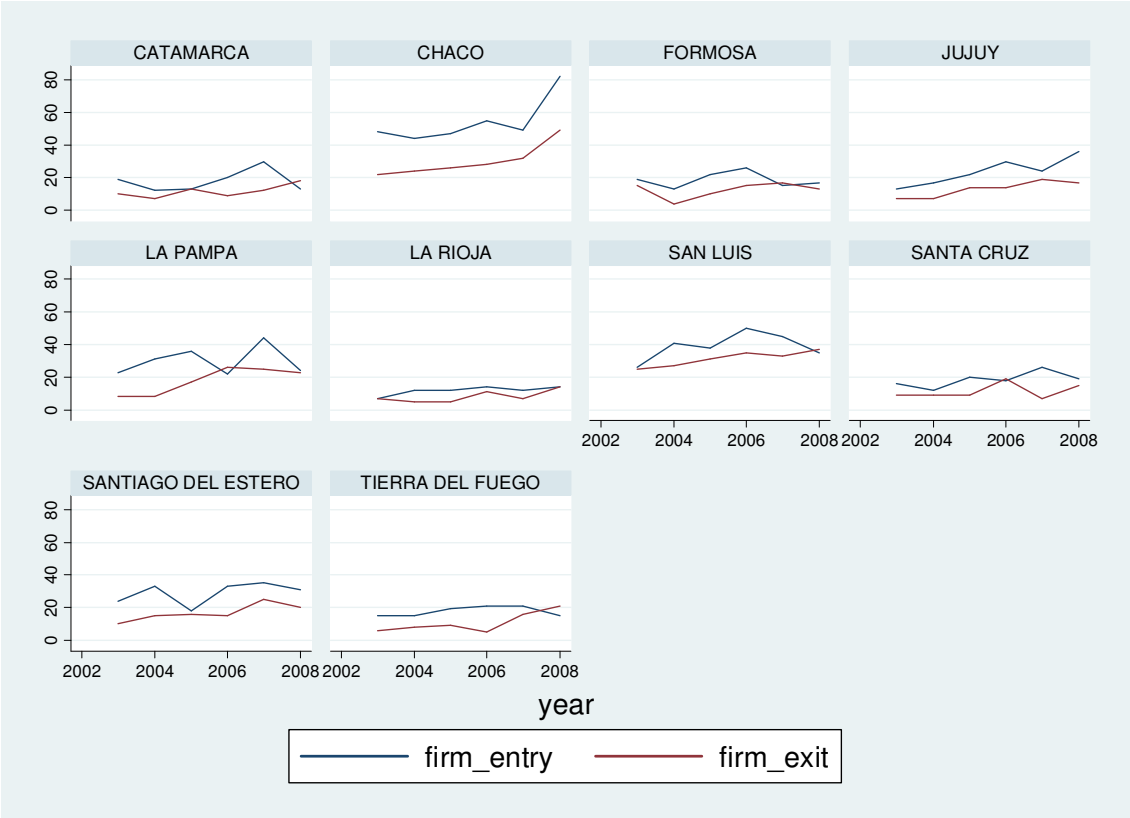

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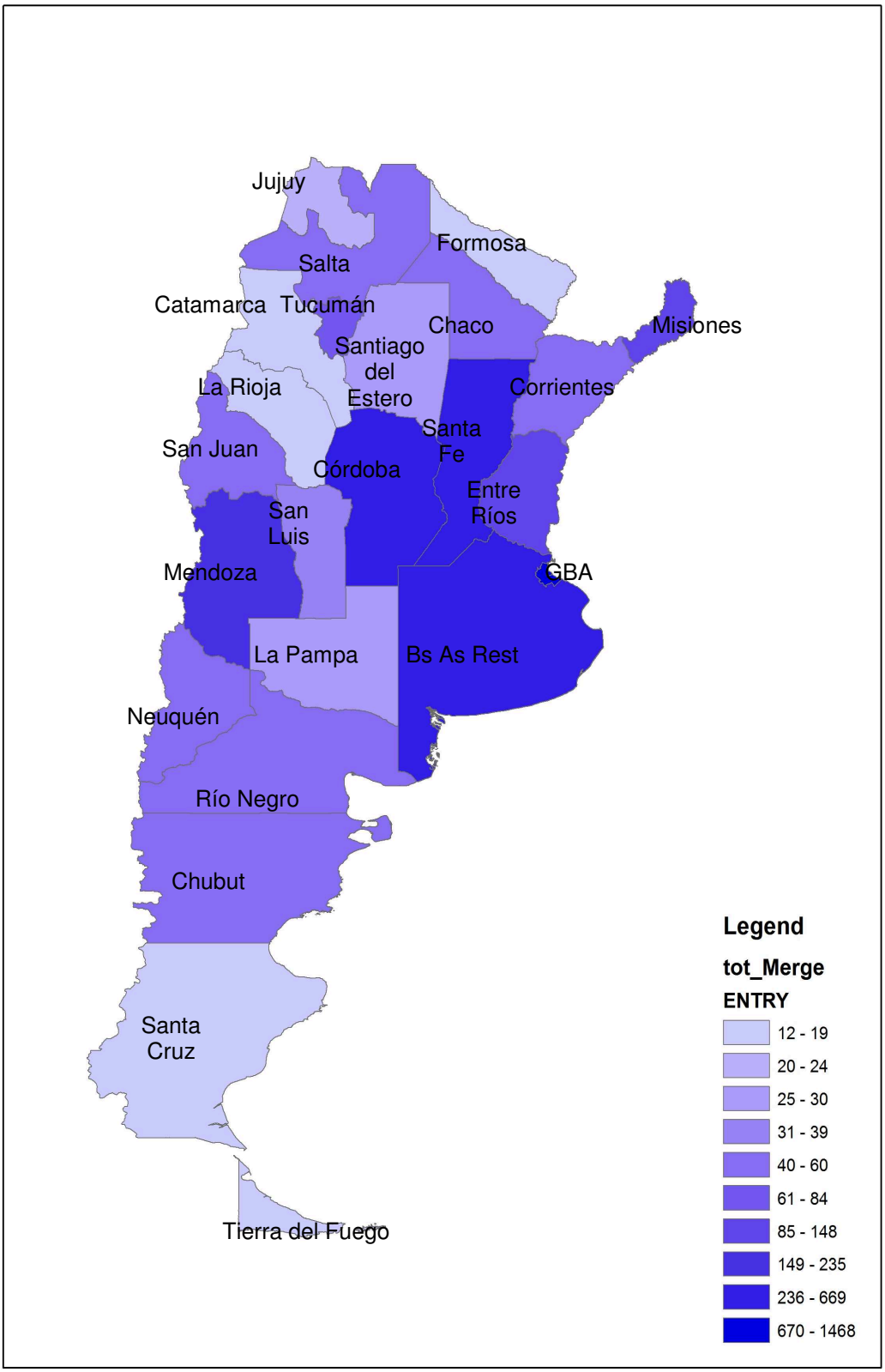
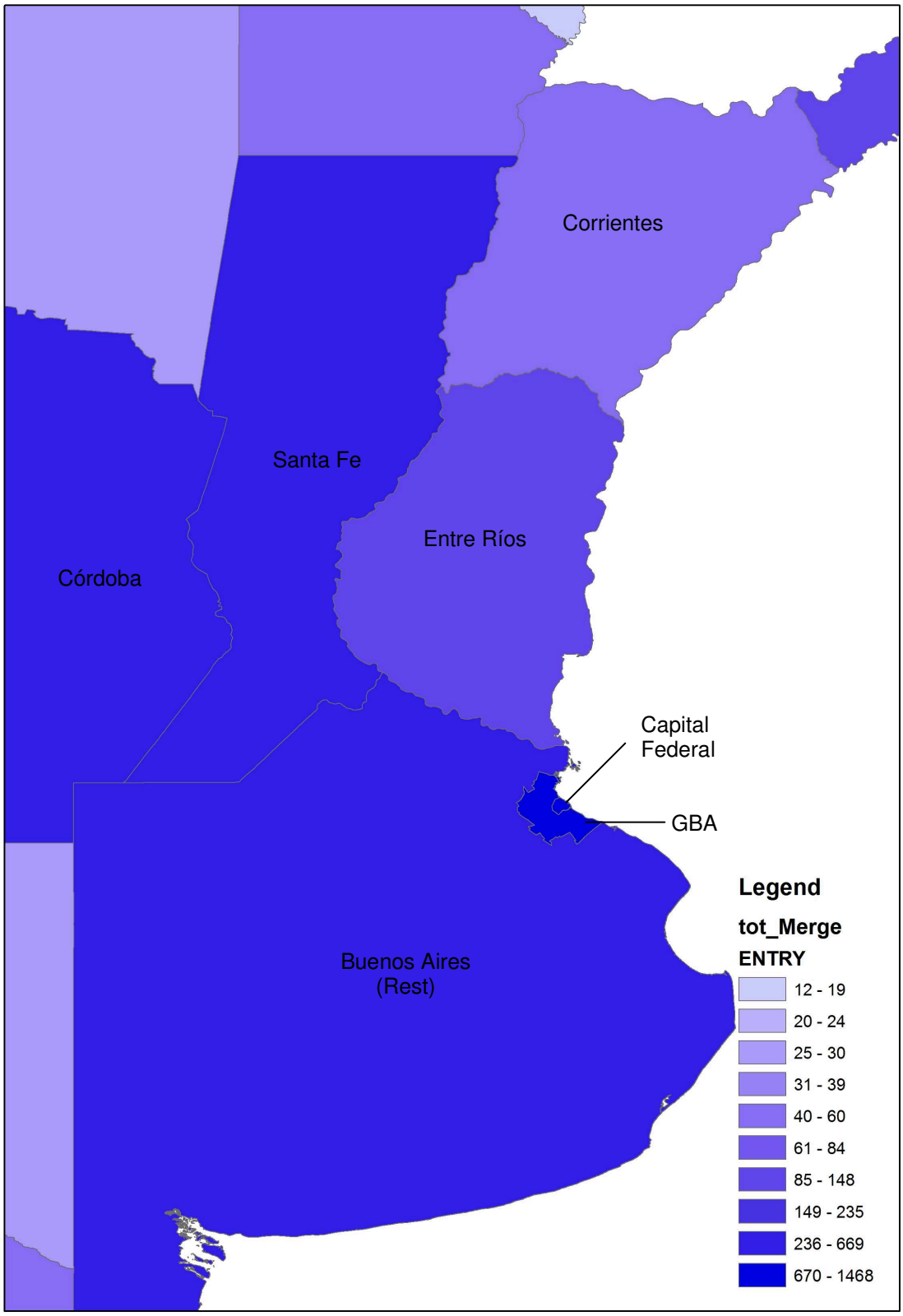
Figure 2. Entry firms by province. Average 2003-2008



Source: own elaboration from EBDO data

Figure 3. Entry firms by province. Detail of Buenos Aires province.
Average 2003-2008



Source: own elaboration from EBDO data

Table 1. Entry, exit and incumbent firms (2003 – 2008)

Year	Entry	Exit	Incumbents
2003	4.986	2.330	42.754
2004	5.994	2.326	45.234
2005	5.486	2.929	48.317
2006	6.264	3.623	49.987
2007	5.886	4.358	51.796
2008	5.389	5.103	52.417

Source: own calculations from data in EBDO

Table 2. Explanatory variables: definition, sources, expected signs and descriptive statistics

Variable	Definition	Source	Expected sign	Mean	St. Dev.	Min.	Max
UNEMP. RATE	Unemployment rate	Own calculations from National Population Survey (NPS)*	+/-	8,19	3,81	1,01	18,20
UNEMP. CHANGE	Change in unemployment rate		-	-10,11	27,86	-67,54	97,76
PRIMARY	Active individuals with primary education (in thousands)		+	125,72	306,33	6,59	1.709,68
SECONDARY	Active individuals with secondary education (in thousands)		+	182,40	386,17	14,73	2.044,84
UNIVERSITY	Active individuals with university-level education (in thousands)		+	141,84	255,40	8,92	1.108,19
ACTIVITY RATE	Active individuals between 25 and 40 years old (in thousands)		+	179,96	357,88	14,22	1.880,99
DENSITY	Population/Area (in thousands)	Own calculations from Military Geographical Institute and NPS	+	676,91	2.732,61	0,83	13.739,75
DENSITY2	Ln of (Population/Area)^2 (in millions)		-	5,27	4,12	-0,36	19,06
MICRO	Industrial micro firms over total industrial firms (formal)	Own calculations from EBDO	+	55,59	8,21	32,03	71,59
SME	Industrial small and medium firms over total industrial firms (formal)		+	39,92	5,77	27,27	57,03
HHI	Hirschman-Herfindahl Index		-	24,36	12,00	8,06	62,90
WAGES	Average monthly wage of private registered workers	EBDO	-	1.891,40	864,87	676,17	5.414,11
INCUMBENTS	Incumbent firms	Own calculations from EBDO	+	1.999,11	3.472,29	8,80	15.107,00
TRADITION	Incumbent firms 7 years ago (3-years moving average)		+/-	5.748,93	10.190,91	273,00	43.650,00
EXIT	Number of exits in the previous year		+/-	135,74	238,87	4,00	1.112,00
NON REGISTERED	Non registered workers over registered workers		+/-	0,81	0,31	0,16	1,51
PRIVATE/PUBLIC	Private employees/Public employees	Own calculations from National Population Survey (NPS)*	+	3,32	1,64	1,22	9,14
INDIGENCE	% of households below the indigence line		-	8,87	6,15	0,40	29,80
MIGRANTS	Migration from other provinces(number of individuals)		+	138,58	309,27	15,28	1.650,83
URBAN POP.	Population in urban clusters over province population	Own calculations from NPS and INDEC	+/-	0,51	0,22	0,26	1,12

* Data refer to 3rd quarter of every year, except for 2007 (4th quarter).

Source: own elaboration

Table 3. Determinants of firm entry

	Variables used in developed countries						Variables for Argentina					
	Poisson [1]			Negative Binomial [1]			Poisson [2]			Negative Binomial [2]		
Variables	Pooled	FE	RE	Pooled	FE	RE	Pooled	FE	RE	Pooled	FE	RE
Unemployment rate	-0.0110*	0.0217*	0.0167	0.0127	0.0347*	0.0308*	0.0157**	0.0287**	0.0270**	0.0081	0.0491***	0.0426**
	(0.004)	(0.010)	(0.009)	(0.014)	(0.014)	(0.014)	(0.005)	(0.011)	(0.010)	(0.014)	(0.014)	(0.014)
Unemployment variation	0.0001	-0.0006	-0.0002	0.0001	-0.0011	-0.0008	-0.0017***	-0.0003	-0.0002	0.0001	-0.0013	-0.0009
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Primary education	0.0027***	-0.0011*	-0.0016***	0.0044**	0.0001	-0.0013**	0.0034***	-0.0016***	-0.0016***	0.0042*	-0.0004	-0.0012**
	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)
Secondary education	-0.0032***	-0.0003	-0.0002	-0.0048**	0.0007	0.0001	-0.0016***	-0.0004	-0.0002	-0.0027	0.0002	-0.0000
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)
University	0.0030***	-0.0012**	-0.0011**	0.0046	-0.0022***	-0.0016**	0.0016***	-0.0019***	-0.0017***	0.0012	-0.0025***	-0.0021***
	(0.000)	(0.000)	(0.000)	(0.003)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.003)	(0.001)	(0.001)
Activity rate	-0.0039***	0.0010*	0.0013***	-0.0048	0.0012	0.0014*	-0.0046***	0.0019***	0.0021***	-0.0045	0.0026***	0.0018*
	(0.000)	(0.000)	(0.000)	(0.004)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
Density	-0.0003***	0.0006	-0.0002	-0.0004***	0.0010**	-0.0001	-0.0003***	0.0010*	-0.0003*	-0.0003***	0.0008*	-0.0002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Density^2$	0.1653***	1.0122	0.5132***	0.1515***	-0.2288	0.0887	0.1921***	-0.3657	0.4531***	0.1758***	-0.3698*	0.1237
	(0.008)	(0.931)	(0.120)	(0.024)	(0.163)	(0.075)	(0.008)	(1.011)	(0.111)	(0.026)	(0.173)	(0.082)
Micro-firms	0.1002***	0.0222	0.0503	0.1131***	0.0234	0.0642*	0.1403***	0.0064	0.0363	0.1028***	-0.0173	0.0598*
	(0.006)	(0.033)	(0.031)	(0.014)	(0.041)	(0.029)	(0.007)	(0.034)	(0.031)	(0.016)	(0.042)	(0.030)
SMEs	0.1209***	0.0581	0.0695*	0.1629***	0.0368	0.0763*	0.1686***	0.0412	0.0546	0.1403***	-0.0082	0.0697*
	(0.008)	(0.033)	(0.031)	(0.021)	(0.042)	(0.033)	(0.009)	(0.035)	(0.031)	(0.023)	(0.043)	(0.033)
HH Index	0.0025*	0.0133	0.0073	0.0003	0.0014	-0.0044	0.0029*	0.0177*	0.0072	0.0014	-0.0009	-0.0043
	(0.001)	(0.007)	(0.007)	(0.004)	(0.011)	(0.009)	(0.001)	(0.008)	(0.007)	(0.004)	(0.011)	(0.008)
Wages	0.0000	0.0000	0.0000	-0.0000	-0.0001	-0.0000	0.0001*	0.0001	0.0001	0.0001	-0.0001	0.0000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Incumbents	0.0006***	-0.0003***	-0.0001	0.0006***	0.0000	0.0001	0.0005***	-0.0004***	-0.0000	0.0005***	0.0001	0.0002**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tradition	-0.0000***	-0.0001**	0.0000	-0.0000	0.0000	0.0001***	-0.0000***	-0.0001**	0.0000	0.0000	0.0000	0.0001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Exit	0.0006***	-0.0005***	-0.0003**	0.0009	-0.0002	-0.0001	0.0004***	-0.0005***	-0.0002*	0.0006	-0.0001	-0.0000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Non-registered							0.4076***	-0.1576	0.0275	0.1437	0.2514	0.0519
							(0.066)	(0.120)	(0.114)	(0.227)	(0.191)	(0.182)
Private/Public							0.0277**	-0.0510**	-0.0568***	0.1564***	-0.0864**	-0.0594*
							(0.009)	(0.017)	(0.016)	(0.040)	(0.027)	(0.023)
Indigence							-0.0698***	-0.0077	-0.0233***	-0.0368**	-0.0280**	-0.0265***
							(0.004)	(0.007)	(0.006)	(0.014)	(0.010)	(0.008)
Migrants							-0.0011***	-0.0006	-0.0002	-0.0010	0.0012	-0.0003
							(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)
AIC	3180.98	927.83	1327.10	1435.07	931.76	1295.07	2602.74	919.04	1309.87	1414.94	924.21	1287.46
LR Test (1)	61292.00	274.15	265.38	427.80	171.74	205.55	61878.24	290.69	300.29	455.93	215.83	244.11
p-val.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hausman			-18.91			16.07			6.99			61.30
p-val			1.00			0.52			0.90			0.00
LR Test (2)			1855.88			178.12			1294.87			151.96
p-val.			0.00			0.00			0.00			0.00

Observations: 144. FE: Fixed Effects. RE: Random effects. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

LR Test (1) is a test of the joint significance of the explanatory variables (year dummies included but not reported). LR Test (2) is a test on the variance of the individual effects.

Table 4A. Determinants of entry (robustness check)

Variables	Poisson [3]			Negative Binomial [3]		
	Pooled	FE	RE	Pooled	FE	RE
Unemployment rate	0.0172***	0.0167	0.0246**	0.0077	0.0493***	0.0422**
	(0.005)	(0.010)	(0.009)	(0.014)	(0.014)	(0.014)
Unemployment variation	-0.0019***	0.0003	-0.0000	0.0002	-0.0012	-0.0008
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Primary education	0.0033***	-0.0011*	-0.0015***	0.0044*	-0.0005	-0.0012*
	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)
Secondary education	-0.0014***	-0.0004	-0.0003	-0.0021	0.0002	-0.0001
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)
University	0.0017***	-0.0020***	-0.0018***	0.0016	-0.0026***	-0.0022***
	(0.000)	(0.000)	(0.000)	(0.003)	(0.001)	(0.001)
Activity rate	-0.0051***	0.0025***	0.0023***	-0.0059	0.0028***	0.0019**
	(0.000)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
Density	-0.0003***	0.0000	-0.0003**	-0.0003***	0.0008*	-0.0002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Density^2$	0.1957***	1.5604*	0.3855***	0.1772***	-0.3711*	0.1172
	(0.008)	(0.908)	(0.097)	(0.026)	(0.167)	(0.081)
Micro-firms	0.1418***	0.0149	0.0396	0.1026***	-0.0200	0.0586*
	(0.007)	(0.034)	(0.030)	(0.016)	(0.042)	(0.030)
SMEs	0.1686***	0.0478	0.0552	0.1395***	-0.0115	0.0685*
	(0.009)	(0.035)	(0.030)	(0.023)	(0.043)	(0.033)
HH Index	0.0028*	0.0166*	0.0082	0.0013	-0.0014	-0.0041
	(0.001)	(0.008)	(0.007)	(0.004)	(0.011)	(0.008)
Wages	0.0001**	-0.0000	0.0001	0.0001	-0.0001	0.0000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Incumbents	0.0005***	-0.0001	0.0000	0.0005***	0.0002*	0.0002**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tradition	-0.0000***	-0.0000	0.0000**	0.0000	0.0000	0.0001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Non-registered	0.4337***	-0.0196	0.0556	0.1513	0.2565	0.0546
	(0.066)	(0.115)	(0.112)	(0.229)	(0.191)	(0.182)
Private/Public	0.0305***	-0.0677***	-0.0644***	0.1618***	-0.0912***	-0.0614**
	(0.009)	(0.017)	(0.015)	(0.040)	(0.026)	(0.023)
Indigence	-0.0714***	-0.0112	-0.0235***	-0.0369**	-0.0290**	-0.0266***
	(0.004)	(0.007)	(0.006)	(0.014)	(0.009)	(0.008)
Migrants	-0.0009***	-0.0003	-0.0003	-0.0008	0.0011	-0.0004
	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)
AIC	2627.73	935.56	1311.85	1414.21	922.62	1285.61
LR Test (1)	61851.25	271.78	300.86	454.67	215.79	242.66
p-val.	0.00	0.00	0.00	0.00	0.00	0.00
Hausman			-6.43			-4.68
p-val			1.00			1.00
LR Test (2)			1317.88			154.86
p-val.			0.00			0.00

Observations: 144. FE: Fixed Effects. RE: Random effects.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

LR Test (1) is a test of the joint significance of the explanatory variables (year dummies included but not reported).

LR Test (2) is a test on the variance of the individual effects.

Table 4B. Determinants of entry (robustness check)

Variables	Poisson [4]			Negative Binomial [4]		
	Pooled	FE	RE	Pooled	FE	RE
Unemployment rate	0.0431***	0.0185	0.0291**	0.0285	0.0379*	0.0429**
	(0.005)	(0.010)	(0.009)	(0.016)	(0.015)	(0.014)
Unemployment variation	-0.0030***	0.0004	-0.0002	-0.0006	-0.0006	-0.0008
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Primary education	0.0042***	-0.0015***	-0.0011**	0.0070**	-0.0010	-0.0009
	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)
Secondary education	-0.0005*	-0.0003	0.0001	-0.0014	0.0002	0.0001
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)
University	0.0016***	-0.0018***	-0.0019***	0.0008	-0.0022***	-0.0022***
	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.001)
Activity rate	-0.0060***	0.0026***	0.0026***	-0.0062	0.0027***	0.0020**
	(0.000)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
Micro-firms	0.1345***	0.0121	0.0411	0.1022***	-0.0028	0.0516
	(0.007)	(0.034)	(0.032)	(0.019)	(0.040)	(0.032)
SMEs	0.1771***	0.0360	0.0546	0.1512***	0.0089	0.0587
	(0.009)	(0.034)	(0.032)	(0.026)	(0.041)	(0.034)
HH Index	0.0057***	0.0190*	0.0068	0.0063	0.0008	-0.0053
	(0.001)	(0.007)	(0.007)	(0.004)	(0.011)	(0.009)
Wages	-0.0000	0.0001	0.0000	0.0002	0.0000	0.0000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Incumbents	0.0006***	-0.0001*	0.0001*	0.0006***	0.0001	0.0002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tradition	-0.0000***	0.0000	0.0000***	0.0000	0.0000*	0.0001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Non-registered	0.6812***	0.0197	0.1639	0.5232*	0.1177	0.1823
	(0.062)	(0.116)	(0.112)	(0.242)	(0.178)	(0.173)
Private/Public	0.0926***	-0.0787***	-0.0867***	0.2465***	-0.0908***	-0.0729**
	(0.009)	(0.017)	(0.016)	(0.047)	(0.026)	(0.024)
Indigence	-0.0570***	-0.0174**	-0.0227***	-0.0265	-0.0305***	-0.0266***
	(0.003)	(0.006)	(0.006)	(0.015)	(0.009)	(0.008)
Migrants	-0.0007**	-0.0004	0.0002	-0.0024	0.0005	-0.0000
	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)
Urban population	-1.2487***	-1.0052*	-0.7971*	-1.0894***	-0.5820	-0.6430
	(0.075)	(0.454)	(0.398)	(0.323)	(0.586)	(0.472)
AIC	2954.88	934.72	1321.02	1446.18	926.99	1283.87
LR Test (1)	61522.11	271.20	281.71	420.70	160.61	231.62
p-val.	0.00	0.00	0.00	0.00	0.00	0.00
Hausman			4.46			11.61
p-val			1.00			0.87
LR Test (2)			1635.85			173.48
p-val.			0.00			0.00
Observations: 144. FE: Fixed Effects. RE: Random effects.						
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1						
LR Test (1) is a test of the joint significance of the explanatory variables (year dummies included but not reported).						
LR Test (2) is a test on the variance of the individual effects.						

[i] Previous studies of firm entry on Argentina are merely descriptive (BARTELSMAN *et al.*, 2004; MTEYSS, 2007; KATZ and BERNAT, 2011; CALÁ and ROTONDO, 2012 being the only one following a regional perspective). An exception is CASTILLO *et al.* (2002), who study the determinants of the rates of employment creation and destruction using firm-level data. Interestingly, they find a wide heterogeneity in firm behaviour that may (potentially) be explained by regional differences. To the best of our knowledge the only study that accounts for regional differences is GENNERO *et al.* (2004), although they focus on the early stages of the firm creation process (new business ideas) and rely on population surveys to distinguish between actual and potential entrepreneurs.

[ii] One may argue that these features are also present in developed countries. However, the degree of heterogeneity and urban concentration and the size of the administrative units are considerably smaller. To illustrate, Argentina's surface is roughly four times the surface of France (the largest EU country) and the smallest province (Tierra del Fuego) is roughly two-thirds the surface of Belgium.

[iii] See also GHANI *et al.* (2011) for an analogous result when comparing the effects of incumbents' employment on the spatial distribution of entrepreneurship in India and the US.

[iv] As far as we know, these include AUDRETSCH and FRITSCH (1994) and FRITSCH and FALCK (2007) in Germany; DAVIDSSON *et al.* (1994) in Sweden; GAROFOLI (1994), CARREE *et al.* (2008) and SANTARELLI *et al.* (2009) in Italy; GUESNIER (1994) in France; KEEBLE and WALKER (1994) and FOTOPOULOS and SPENCE (2001) in the UK; HART and GUDGIN (1994) in Ireland; CAMPBELL (1996), RIGBY and ESSLETZBICHLER (2000) and ARMINGTON and ACS (2002) in the US; SPILLING (1996) in Norway; FOTOPOULOS and SPENCE (1999) in Greece; KANGASHARJU (2000) in Finland; ARAUZO-CAROD *et al.* (2008) in Spain; and TAMÁSY and LE HERON (2008) in New Zealand.

[v] Also, long-term unemployed individuals may have poorer abilities, less financial resources and less social capital to start a new business. Still, there is very limited evidence on this argument (FRITSCH and FALCK, 2007).

[vi] In addition, ACS and AMORÓS (2008) show that this relationship holds for both opportunity-based entrepreneurs (those that start a new firm because of the existence of business opportunities) and necessity-based entrepreneurs (those that start a new firm because of the lack of reasonable alternatives).

[vii] ACS *et al.* (2008b) show that developing countries generally exhibit higher turnover rates (especially when the informal economy is included). In addition, entrants in developing countries have a bigger impact on the generation of employment (MTEYSS, 2007).

[viii] Illustrated e.g. in the contents of the 2010 special issue of *Small Business Economics* on entrepreneurship in developing countries.

[ix] This means that our data set contains information neither on public nor on informal employment. In fact, no statistical source in Argentina allows to distinguish informal from formal entries/exits/ incumbents. Still, according to the National Household Survey unregistered work in the manufacturing industry was 26.9% in the 4th quarter of 2008.

[x] This constraint was suggested by the EBDO staff to avoid considering as new entries new offices or branches of large firms that are opened in another province with only one or two people. Moreover, new branch offices may be driven by factors that are different from the ones influencing the creation of "local" firms.

[xi] We speculate that most of these exits are likely to be the entrants of the previous years (AUDRETSCH, 1995a).

[xii] These five provinces also concentrated 62% of the population, 75% of expenditures in science and technology activities, 77% of university degrees, 62% of the universities, 85% of the exports of manufactured products, 71% of the GDP and 80% of the manufacturing value added in 2003.

[xiii] The Río Negro province was dropped from our sample because the NHS is performed since 2006 and the "aglomerados" surveyed actually cover both urban and rural areas that, in addition, are partly in the Buenos Aires province. This is why the final number of provinces considered in this study is 24 and the total number of observation is 144 (i.e. 24 provinces observed during the 2003 to 2008 period).

[xiv] Since our units of observation are extremely large (see footnote 2), we have also experimented with an alternative measure: the ratio between the population in the main urban areas of the province ("aglomerados") and the total population of the province. We expect this variable to have a negative impact on entry, indicating that jurisdictions with a bigger urban ratio are less attractive than jurisdictions with a smaller urban ratio.

[xv] Firms are distributed by the EBDO in four size levels depending on total employment: micro, small, medium and big. These roughly correspond to the following intervals: micro: 1-5 employees; small: 6-

25; medium: 26-100; big: more than 100. However, it is important to stress that these intervals vary by industry taking into account sectoral differences in average labour productivity and the maximum sales levels established in the Argentinean law for small and medium enterprises (MTEYSS, 2005).

[xvi] Notice, however, that these studies refer to international migration. Our dataset contains indeed information on the number of individuals coming from other countries. Unfortunately, the contents of this variable turn out to be flawed and its coefficient statistically non-significant when included in the models.

[xvii] We also explored the use of a variable constructed with a different threshold (the poverty line) and found that estimates remained essentially unaltered. However, this alternative variable had lower statistical significance.

[xviii] In any case, the role played by poverty in entrepreneurship is still uncertain (ACS *et al*., 2008b).

[xix] See e.g. PAPKE (1991), BECKER and HENDERSON (2000), JOFRE-MONSENY *et al.* (2011) for analogous applications in developed countries.

[xx] Coefficients estimates can be interpreted as semi-elasticities. We do not report marginal effects because of the difficulties in integrating out the unobserved heterogeneity in non-linear models (CAMERON and TRIVEDI, 2009). It is also important to bear in mind that only the ratio between the individual effect and the overdispersion parameter is identified in the negative binomial model, which makes difficult to construct an equidispersion test (CAMERON and TRIVEDI, 1998).

[xxi] See e.g. DAVIDSSON *et al.* (1994) and NYSTRÖM (2007) for evidence on the positive effects of density (see, however, TAMÄSY and LE HERON, 2008); see also GUESNIER (1994) and GLAESER and KERR (2009) for evidence on the rates of activity.

[xxii] There is however some evidence of a negative effect of education over entries in developed countries (see e.g. REYNOLDS, 1994).

[xxiii] These results are similar to those reported by GAROFOLI (1994) but contrast with those reported by TAMÁSY and LE HERON (2008) and LEE *et al.* (2004) on migration (although they analyse foreign people) and SANTARELLI *et al.,* (2009) on wages.

[xxiv] Notice that this variable may reflect better the uneven distribution of firms and individuals inside large provinces (with large extensions of available land without industrial activity) and the concentration of services in urban areas (PUGA, 1998; HENDERSON, 2000).