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Entry Thresholds and Actual Entry and Exit in Local Markets

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ABSTRACT. Bresnahan and Reiss (1991) derive entry thresholds for local markets but do not investigate actual entry and exit flows. This paper investigates for thirteen Belgian retail and consumer service industries whether markets with actual numbers of firms higher (lower) than the thresholds display exit (entry) in subsequent periods. The results confirm that over a three-year period the rate of (net) entry is positively affected by the presence of 'market room'. The exit rate, however, does not show a negative relation with 'market room'.

KEY WORDS: Entry, exit, entry thresholds, ordered probit

JEL-CODES: L80, R12

1. Introduction

Local markets are a key characterization of many service industries like plumbers, dentists, shoe stores, flower shops or restaurants. The (equilibrium) number of firms in these local service markets will be primarily dependent upon local demand. Bresnahan and Reiss (1991), in an oft-cited article, derive and estimate their so-called entry threshold, a measure of the market size required to support a given number of firms. The entry threshold is a zero-profit equilibrium level of demand (see also Schmalensee, 1992 and Sutton, 1991), which can be estimated using ordered probit analysis. Although the title of their article ''Entry and Competition in Concentrated Markets'' would suggest differently, their article does not consider actual entry into markets, nor exit. There have been other papers using the Bresnahan and Reiss (1991) methodology, like Asplund and Sandin (1999) and Dranove et al. (1992), but they also did not include actual entry or exit.

The current paper investigates whether markets that have less firms than the entry threshold show (net) entry of firms in the subsequent period and whether markets that have more firms than this threshold show (net) exit of firms. Bresnahan and Reiss (1991) remark that more complete data on entry and exit (in local markets) is required to investigate the timing of entry and exit decisions. This is important to progress from an essentially static cross-sectional framework as developed by Bresnahan and Reiss (1991) towards a dynamic framework of entry and exit adjusting for market disequilibria. We have compiled a dataset for a range of carefully selected service industries in the 455 local regions (municipalities) of Belgium with less than 20,000 inhabitants. These data include number of firms, entry, exit and factors determining market size.

The empirical investigation of the determinants of entry and exit of firms in industries started with the article by Mansfield (1962). The empirical framework proposed by Orr (1974) has been quite influential in this field of research. Many empirical studies have since investigated to what extent entry and exit of firms can be explained from profitability, market growth and

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barriers to entry and exit. See Siegfried and Evans (1994) and Carree (2006) for a review of this literature. Carree and Thurik (1996) show that the majority of empirical studies find a significant and positive effect of market growth and of profitability on both gross entry and net entry rates. That is, entrepreneurs appear to be attracted to profitable growing markets, while they tend to avoid saturated markets that are on the decline. Bresnahan and Reiss (1991) and Carree and Thurik (1999) derive that in an oligopoly a doubling of market demand less than doubles the equilibrium number of firms. Hause and DuRietz (1984), however, suggest that there may be a convex effect of market *growth*: a doubling of the growth rate leads to a more than doubling of the entry rate. The issue of regional variation in entry and exit rates is subject of a different, related, literature (see e.g. the special issue of *Regional Studies* in 1994). There has been quite some attention for the 'unemployment push' hypothesis tested by whether regions with high unemployment rates have high subsequent (net) entry rates (e.g. Carree, 2002). The emphasis in that literature is shifting away from unemployment concerns towards agglomeration effects and high-tech start-ups (Armington and Acs, 2002).

In this study we focus upon industries with relatively low barriers to entry and exit in which relatively small firms are providing relatively homogeneous goods for a local market. This allows for net entry to be modeled as an error-correction process (see also Geroski, 1995). Regions where there are many firms given consumer demand are expected to show more exit than entry (hence, net entry is negative), while regions in which there are relatively few firms given consumer demand are expected to show higher entry than exit (hence, net entry is positive). We also disentangle the two components of net entry: gross entry and gross exit, to examine which of the two contribute most to this error-correction process. Since we do not compare entry and exit rates across industries but across local markets for a specific industry, entry and exit behavior may be less influenced by barriers to entry and exit and more by market opportunities.

Entry and exit of firms are important indicators of the economic dynamism of a region. The importance of new entry for market competition, efficiency and economic development is largely undisputed. Alfred Marshall (1961) already used the parable of the young trees of the forest replacing large and old trees gradually loosing vitality. Industries with low birth and death rates are likely to be more vulnerable to an inadequate allocation of resources, limited innovativeness, and some form of formal or tacit collusion (Geroski and Jacquemin, 1985). Therefore, high barriers to entry and exit may be serious impediments to dynamic market efficiency. Entrepreneurs may not only be hindered but sometimes also not aware of profit opportunities available and, hence, there may be limited competition in the sense of "the free entry of rivals, each in an incessant race to better the others" (Ikeda, 1990, p.79). The amount of entrepreneurial activity may be just too low to quickly adjust profits to long-run equilibrium levels. For example, Geroski and Masson (1987) estimate the speed of the competitive process of excess profits disappearing over time to be very slow. Geroski (1995) claims that a slow reaction of entry to high profits is a stylized fact in the empirical literature on entry.

The aim of this paper is to extend the work by Bresnahan and Reiss (1991) and gain insight in the dynamic (error-correction) process of entry and exit in retail and consumer service industries dominated by small firms. In section 2 we discuss the entry thresholds and estimate them for Belgian regional data. In section 3 we consider the effect of the presence of 'market room' on entry and exit. The speed of adjustment is the key empirical issue in this section. Section 4 concludes.

2. Entry thresholds from ordered probit analysis

This research deviates from earlier research using count data, like Asplund and Sandin (1999), Bresnahan and Reiss (1991), Dranove et al. (1992) and Shonkwiler and Harris (1996), to examine actual local entry and exit rates. The availability of both entry and exit rates at a local level and detailed industry level allows this study to progress upon insights obtained in these articles. The four articles mentioned estimate entry thresholds using data on the number of providers/firms for one year of observation.

Asplund and Sandin consider driving schools in 250 Swedish regional markets, Bresnahan and Reiss (1991) use data for five retail and professional service industries (dentists; doctors; druggists; plumbers; tire dealers) in 202 U.S. distinct geographic markets, Dranove et al., deal with specialized hospital services in 87 local markets in California and Shonkwiller and Harris concentrate upon outlets in three retail sectors (building materials and garden supply stores; clothing and accessory stores; furniture and home furnishing stores) in 242 rural communities. A theoretical paper by Serra et al. (1999) deals with the location decision of retail outlets in an entry threshold model. Bresnahan and Reiss (1994) did consider net entry data in their estimation of the difference between entry and exit thresholds. They apply a natural monopoly model to data of dentists who practiced in 152 U.S. rural counties. Their analysis did not use actual entry nor exit data but data on the numbers of firms in two years (1980 and 1988). Their conslusion that entry and exit thresholds may differ makes it especially valuable to investigate the impact of 'market room' on both entry and exit flows.

Number of entries, exits and incumbents are obtained for all 455 Belgian municipalities whose local market size (measured by population) is less than 20,000 inhabitants (source: Belgian National Institute of Statistics).[1] We assume that firms in the same industry in such municipalities are competing for the same consumers. The size of the markets is on average much smaller than used by Campbell and Hopenhayn (2005), who also study narrowly-defined retail industries but identify metropolitan statistical areas as their separate markets, and Dranove et al. (1992), who study medical services provided by hospitals and, hence, consider cities (with an average size of 200,000 inhabitants). However, the sizes used in the current study are somewhat larger, on average, than that of the distinct local markets as used in Bresnahan and Reiss (1991) and in Shonkwiler and Harris (1996). The data are derived from the stock of active taxable firms and self-employed (in the value-added-tax books) at the end of each year, as well as the number of registrations and deletions per year, from 1998 to 2001.

Special attention was paid to select retail and consumer service industries that are composed of firms with similar economic activities (relatively homogeneous products and services). We opted for an industrial definition according to five-digits NACE-Belgium. The industries are selected to have their firms dependent upon local market conditions and to be commonly present in local markets (municipalities). That is, industries with a large majority of municipalities with zero firms are left out of consideration. In addition, we have selected industries that are only limitedly confronted with competition from supermarkets and department stores. The following 13 industries (NACE-Belgium code) were found to fulfill these conditions best: Plumbing (45330), Painting (45441), Butcheries (52220), Bakeries (52240, 15812; retail sale and craftsmen of bread and confectionery), Pharmacies (52310), Clothing (52421–52424), Shoe stores (52431), Flower shops (52483), Jewelry (52484), Restaurants (55301), Fast food outlets (55302), Caterers (55522) and Real estate agencies (70311).

Summary statistics of the number of incumbents (in 1998), entrants and exits are presented in Table I. For entry and exit we provide data both for 1999 and for the three-year period 1999–2001. The average number of incumbents per municipality range from 1.64 for jewelry and 2.29 for shoe stores to 9.76 for fast food and 10.18 for restaurants. The average number of entrants and exits are both lowest for jewelry and both highest for fast food. Net entry is positive for five out of 13 industries (plumbing, painting, restaurants, caterers, real estate agencies). In none of the retail industries we find a positive net entry. The restaurants show the strongest growth in number of firms, with the butcheries and bakeries displaying the strongest decline. Industries with relatively high (low) entry rates also have relatively high (low) exit rates. This may be a consequence of differences in the height of entry barriers across different retail and consumer service industries. The distribution of municipalities in our sample according to population size is given in Figure 1.

The entry threshold N_t^* in year t (1998) is computed using an ordered probit analysis since the threshold only takes integer values (starting

TABLE I
Summary statistics: Averages across municipalities

Industry	Stock98	Entry99	Exit99	Entry99-01	Exit99-01
Plumbing	9.35 (32)	0.55 (4)	0.49 (4)	1.66 (7)	1.57 (7)
Painting	4.75 (19)	0.30 (4)	0.29 (4)	0.95 (7)	0.89 (6)
Butcheries	6.51 (28)	0.26 (3)	0.43 (5)	0.65 (6)	1.39 (12)
Bakeries	9.42 (67)	0.51 (4)	0.76 (5)	1.52 (7)	2.18 (9)
Pharmacies	4.54 (23)	0.22 (3)	0.23 (4)	0.56 (4)	0.68 (6)
Clothing	5.73 (54)	0.41 (5)	0.49 (6)	1.21 (8)	1.40 (14)
Shoe stores	2.29 (13)	0.13 (2)	0.20 (3)	0.39 (3)	0.59 (6)
Flower shops	4.64 (19)	0.32 (3)	0.34 (3)	0.87 (5)	0.96 (7)
Jewelry	1.64 (10)	0.06 (2)	0.11 (2)	0.18 (3)	0.30 (3)
Restaurants	10.18 (91)	0.91 (9)	0.74 (8)	2.71 (22)	2.24 (20)
Fast food	9.76 (80)	1.13 (6)	1.16 (9)	3.33 (23)	3.33 (25)
Caterers	3.24 (13)	0.28 (3)	0.23 (4)	0.81 (4)	0.71 (6)
Real estate	4.70 (62)	0.40 (5)	0.32 (4)	1.19 (13)	0.96 (9)

Note: The maximum number of firms across municipalities per category is given between brackets. The minimum number is always zero.

at 0). The entry threshold is assumed to depend upon six exogenous variables. These are personal income per capita measured in 1998 (*PersInc*); the rate of commuting, viz. net number of commuters (commuting 'in' minus 'out') per capita, according to the 1991 census (*Commute*); the population growth rate from 1990 to 1998 (*PopGr*); and three dummy variables. The dummy variables are: a *Flanders* dummy (1 if Flanders; 0, otherwise); a *City* dummy for the presence of a city with more than 20,000 inhabitants less than ten kilometers away; and a *Border* dummy (1 if the municipality

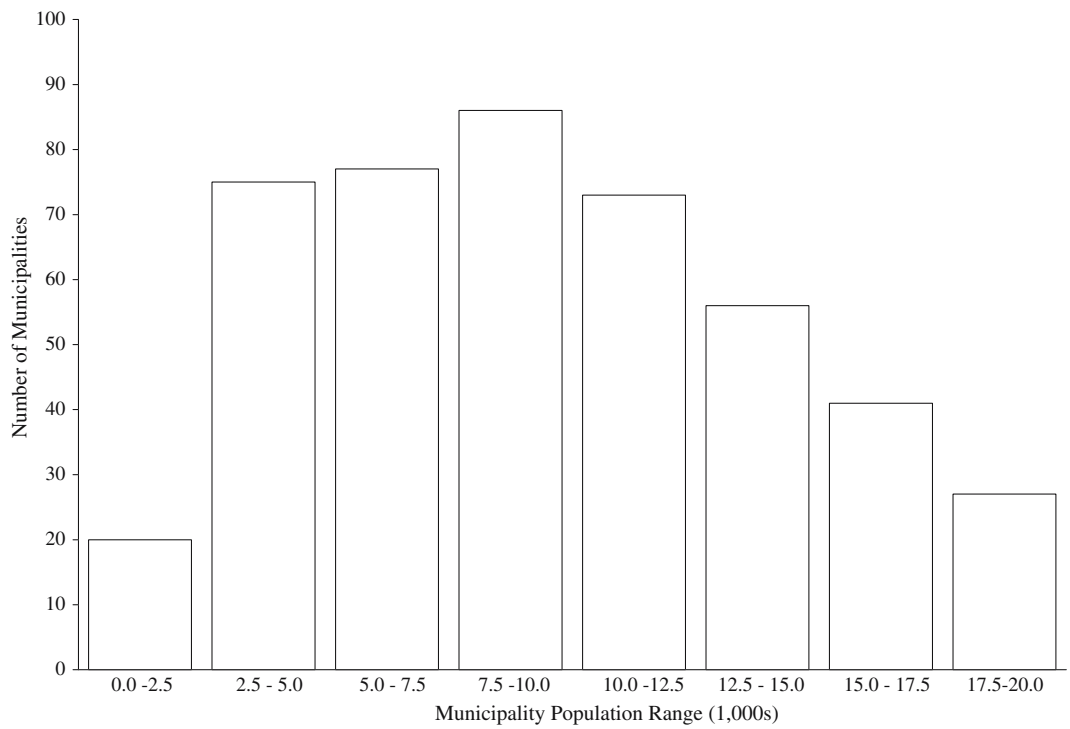

Figure 1. Distribution of municipalities according to population size.

is on the border of a neighboring foreign country; 0, otherwise). In the ordered probit regression these variables are all multiplied with population (*Pop*) as in Bresnahan and Reiss (1991, p.979).

Population and average personal income are included as key determinants of market size. We correct for the rate of commuting since many commuters may buy goods in the municipality where they work. We introduce a *Flanders* dummy to correct for potential regional differences in tastes, entrepreneurial culture and policy environment (Belgium consists of three main regions: Flanders, Brussels and Wallonia with the latter two (predominantly) French-speaking). The *City* dummy is used to correct for demand effects of the presence of a large city nearby (effects described by Reilly's Law (1931) of retail gravitation). The *Border* dummy corrects for possible demand effects of a municipality being on the border of France, Luxembourg, Germany or the Netherlands. The (latent) variable is determined as:[2]

$$N_t^* = (\alpha_0 + \alpha_1 PersInc_t + \alpha_2 Commute_t + \alpha_3 PopGr_t + \alpha_4 Flanders + \alpha_5 City_t + \alpha_6 Border) * Pop_t$$

The number of firms in a municipality is determined from N_t^* as follows (with M being the largest number of firms in a municipality):

$$N_t = \begin{cases} 0 & if \quad N_t^* \leq \gamma_1 \\ 1 & if \quad \gamma_1 < N_t^* \leq \gamma_2 \\ \vdots & \vdots \\ M & if \quad \gamma_M < N_t^* \end{cases}$$

The ordered probit maximum likelihood routine (Stata 8.0) renders estimates for the parameters α_0 through α_6 and the threshold values γ_1 through γ_M.[3] The estimates for the parameters for each of the thirteen industries are presented in Table II. The fit of the ordered probit model is relatively constant over the different industries. The average pseudo R^2 for the thirteen industries is 0.1540. It ranges for a minimum of 0.1025 for caterers to a maximum of 0.2058 for bakeries.

The effect of personal income is significant for eight industries. Five times a significant positive effect is found: for plumbing, pharmacies, clothing, restaurants and real estate.[4] It is significantly negative for butcheries, bakeries and fast food. The first two industries have suffered from hypermarkets introduced in the areas with most buying power. One can juxtapose the negative effect for fast food to the positive effect for restaurants (serving traditional food). Fast food is a relatively cheap way of eating out. The effect of the rate of commuting is significant for seven industries, the majority of which positive. A positive effect is as expected since a positive net rate of commuting implies increased buying power. The effect of population growth (in the previous periods) is significant for eight industries. It is negative for butcheries, bakeries and flower shops. Cities in which population declines or is stagnant are likely to have a relatively high percentage of elderly. These are probably more likely to buy in the traditional butcheries and bakeries. The effect of population growth is very strong for the fast food and real estate industries. These industries profit probably from a relatively young population. The *Flanders* dummy is significant for eight industries and only one is negative (pharmacies). The positive effect found in many industries could for example be due to Flemish families having more financial means next to personal income or to Flanders having a more developed entrepreneurial culture. The *City* dummy is eight times significant and only for plumbing there is a positive effect. Hence, in general, shops in small municipalities suffer from the presence of larger cities nearby. The *Border* dummy is only significant for four industries and all of these effects are negative.

3. Entry and exit adjusting for disequilibrium

For each of the industries in Table II we computed the predicted number of firms in a municipality (in 1998), $\hat{N}_t$. This is used to compute the market disequilibrium: the difference between the predicted and actual number of firms, $\hat{N}_t - N_t$. A positive difference indicates 'market room' for new entry (an unsaturated market), while a negative difference indicates lack of 'market room' (a crowded market). Entrepreneurs who are alert to profit opportunities are more likely to

TABLE II
Ordered probit regression results (all multiplied with population)

Industry	const	PersInc	Commute	PopGr	Flanders	City	Border
Plumbing	0.148***	0.218**	−0.008	0.391***	−0.015	0.037***	0.012
	(0.041)	(0.099)	(0.051)	(0.136)	(0.011)	(0.012)	(0.013)
Painting	0.234***	−0.126	0.049	0.034	0.031***	−0.029**	−0.020
	(0.041)	(0.098)	(0.051)	(0.136)	(0.011)	(0.012)	(0.013)
Butcheries	0.409***	−0.486***	−0.085*	−0.481***	0.061***	−0.034***	−0.017
	(0.043)	(0.100)	(0.051)	(0.137)	(0.011)	(0.012)	(0.013)
Bakeries	0.574***	−0.560***	0.008	−0.278**	0.054***	−0.044***	−0.025*
	(0.045)	(0.100)	(0.051)	(0.137)	(0.011)	(0.012)	(0.013)
Pharmacies	0.127***	0.419***	−0.128**	−0.130	−0.052***	−0.015	−0.028**
	(0.041)	(0.102)	(0.052)	(0.138)	(0.011)	(0.012)	(0.013)
Clothing	0.195***	0.236**	0.237***	0.043	0.033***	−0.051***	−0.017
	(0.041)	(0.099)	(0.053)	(0.136)	(0.011)	(0.012)	(0.013)
Shoe stores	0.271***	−0.109	0.152***	−0.178	0.031***	−0.041***	−0.016
	(0.042)	(0.101)	(0.053)	(0.140)	(0.011)	(0.013)	(0.013)
Flowers	0.262***	−0.006	−0.064	−0.254*	0.030***	−0.018	−0.000
	(0.042)	(0.099)	(0.052)	(0.137)	(0.011)	(0.012)	(0.013)
Jewelry	0.229***	0.009	0.195***	−0.142	−0.006	−0.037***	−0.019
	(0.042)	(0.101)	(0.054)	(0.141)	(0.011)	(0.013)	(0.013)
Restaurants	0.180***	0.195**	0.204***	0.233*	0.005	−0.054***	−0.001
	(0.040)	(0.098)	(0.052)	(0.136)	(0.010)	(0.012)	(0.013)
Fast food	0.401***	−0.289***	0.065	0.684***	0.038***	−0.010	0.006
	(0.042)	(0.099)	(0.051)	(0.138)	(0.011)	(0.012)	(0.013)
Caterers	0.114***	0.134	0.007	0.303**	−0.008	−0.012	−0.030**
	(0.041)	(0.099)	(0.052)	(0.138)	(0.011)	(0.012)	(0.013)
Real estate	−0.096**	0.714***	0.114**	0.540***	−0.016	−0.008	−0.030**
	(0.041)	(0.102)	(0.052)	(0.138)	(0.011)	(0.012)	(0.013)

Note: ***, ** and * mean significant at the 1%, 5% and 10% significance levels, respectively. The exogenous variables are presented in columns.

enter local markets with considerable 'market room' when compared to more saturated markets. Entrepreneurs in crowded local markets (who make losses) are more likely to leave than entrepreneurs in unsaturated markets, maybe to enter other more promising local markets. Hence, we expect that local markets in which the predicted number of firms exceeds the actual number to show higher entry rates, lower exit rates and, consequently, higher net entry rates than local markets in which the actual number exceeds the predicted number.

In Table III we test this by means of regressions of the number of entrants in period t, E_t, the number of exiting firms in period t, X_t, and the difference (net entry), E_t–X_t, on the preceding 'market room' variable $\hat{N}_{t-1} - N_{t-1}$ and on the preceding stock of firms N_{t-1}.[5] We choose for regression analysis since net entry can be negative and to allow for comparison of gross entry, gross exit and net entry results. In Table IV we show negative binomial estimation results for gross entry and gross exit. Results are similar, although in Table IV there are more significant effects than in Table III. Our discussion is based upon the results in Table III. The period $t-1$ is always 1998. The results for period t are given for 1999 (one-year reaction) and 1999–2001 (three-year reaction).

The results clearly indicate that entry is indeed positively affected by 'market room'. Nine out of 13 industries have a significant positive effect and none of the industries have a negative effect in case the year 1999 is chosen. In case the three-year period 1999–2001 is chosen, all thirteen industries show a significant positive effect. The results for exit are quite different. For the

TABLE III
Regression results for entry, exit and net entry adjusting for disequilibrium

Industry	Ent99	Exit99	NE99	Ent9901	Exit9901	NE9901
Plumbing	0.015	0.007	0.007	0.064***	0.041**	0.023
	(0.013)	(0.011)	(0.016)	(0.021)	(0.020)	(0.026)
Painting	0.053***	−0.015	0.068***	0.153***	0.043*	0.111***
	(0.016)	(0.014)	(0.020)	(0.029)	(0.024)	(0.033)
Butcheries	0.018*	−0.027*	0.045***	0.044**	−0.007	0.051**
	(0.010)	(0.013)	(0.014)	(0.018)	(0.022)	(0.023)
Bakeries	0.015	0.015	−0.000	0.043**	0.080***	−0.037*
	(0.010)	(0.012)	(0.013)	(0.017)	(0.021)	(0.022)
Pharmacies	0.075***	0.019	0.056***	0.110***	−0.002	0.112***
	(0.015)	(0.016)	(0.018)	(0.023)	(0.025)	(0.026)
Clothing	0.020*	0.009	0.010	0.080***	−0.007	0.088***
	(0.010)	(0.010)	(0.013)	(0.018)	(0.015)	(0.022)
Shoe stores	0.029*	−0.008	0.036	0.090***	−0.001	0.091**
	(0.016)	(0.019)	(0.022)	(0.027)	(0.031)	(0.036)
Flowers	0.047***	−0.012	0.058***	0.114***	−0.001	0.115***
	(0.015)	(0.016)	(0.020)	(0.026)	(0.026)	(0.031)
Jewelry	0.014	−0.012	0.026	0.073***	0.046*	0.027
	(0.013)	(0.017)	(0.021)	(0.024)	(0.026)	(0.033)
Restaurants	0.001	0.027***	−0.025**	0.033**	0.025**	0.008
	(0.008)	(0.007)	(0.010)	(0.014)	(0.013)	(0.017)
Fast food	0.019**	−0.009	0.028**	0.073***	0.014	0.058***
	(0.010)	(0.009)	(0.012)	(0.019)	(0.017)	(0.019)
Caterers	0.069***	−0.009	0.078***	0.182***	0.050	0.132***
	(0.020)	(0.018)	(0.027)	(0.034)	(0.033)	(0.044)
Real estate	0.014*	0.001	0.013	0.056***	0.016	0.040**
	(0.009)	(0.008)	(0.012)	(0.017)	(0.013)	(0.020)
Average R^2	0.139	0.203	0.036	0.267	0.415	0.081

Note: ***, ** and * mean significant at the 1%, 5% and 10% significance levels, respectively. Ent99 is entry in 1999; Exit99 is exit in 1999; NE99 is net entry in 1999; Ent9901 is entry in the years 1999–2001; Exit9901 is exit in the years 1999–2001; NE9901 is net entry in the years 1999–2001.

TABLE IV
Negative binomial results for entry and exit adjusting for disequilibrium

Industry	Ent99	Exit99	Ent9901	Exit9901
Plumbing	0.030	0.023	0.039***	0.031***
	(0.021)	(0.021)	(0.012)	(0.012)
Painting	0.170***	−0.010	0.160***	0.064**
	(0.044)	(0.046)	(0.028)	(0.025)
Butcheries	0.058*	−0.045	0.055**	0.010
	(0.034)	(0.032)	(0.024)	(0.015)
Bakeries	0.027*	0.022	0.034***	0.029***
	(0.016)	(0.016)	(0.009)	(0.009)
Pharmacies	0.226***	0.079	0.145***	0.033
	(0.050)	(0.054)	(0.033)	(0.031)
Clothing	0.048**	0.034**	0.048***	0.028***
	(0.023)	(0.016)	(0.014)	(0.011)
Shoe stores	0.192*	−0.007	0.191***	0.017
	(0.108)	(0.089)	(0.062)	(0.050)
Flowers	0.130***	−0.015	0.118***	0.016
	(0.042)	(0.045)	(0.027)	(0.027)
Jewelry	0.167	−0.073	0.304***	0.111
	(0.179)	(0.147)	(0.117)	(0.081)
Restaurants	0.016**	0.026***	0.024***	0.021***
	(0.008)	(0.008)	(0.005)	(0.006)
Fast food	0.025***	0.016**	0.030***	0.020***
	(0.007)	(0.007)	(0.006)	(0.006)
Caterers	0.224***	−0.005	0.201***	0.083*
	(0.066)	(0.075)	(0.038)	(0.043)
Real estate	0.037**	0.019	0.050***	0.029**
	(0.017)	(0.020)	(0.012)	(0.013)
Average pseudo R^2	0.069	0.093	0.081	0.129

Note: ***, ** and * mean significant at the 1%, 5% and 10% significance levels, respectively. Standard errors between brackets. Ent99 is entry in 1999; Exit99 is exit in 1999; Ent9901 is entry in the years 1999–2001; Exit9901 is exit in the years 1999–2001.

year 1999 there are only two industries showing a significant effect, one positive (Restaurants) and only one the expected negative effect (Butcheries). For the years 1999–2001 there are five industries with a significant effect, but each of them positive. However, the results for entry are stronger than those found for exit, resulting in most industries to have a positive effect for *net* entry. The one exception is Bakeries.[6] Note that the R-squared is on average relatively low for net entry (8%) in case of a three-year period. It indicates that a simple error-correction framework is not able to explain the variety in the net entry rates across regions very well. The explanatory power of the error-correction model for gross entry is substantially higher on average (27%).

The results suggest that net entry indeed adjusts for disequilibrium. For four industries (Painting, Pharmacies, Flowers, Caterers) this adjustment is more than 10% for a three-year period.[7] However, for other industries this adjustment is more modest. The results also indicate that the adjustment for disequilibrium mainly takes places through differences in entry rates between municipalities.[8] This suggests that when the actual number of firms is higher than the available 'market room', a negative net entry rate is caused by a lower entry rate rather than by a higher exit rate. Exit being affected to a lesser extent by profit opportunities than entry is a general finding in the empirical industrial organization literature (Carree and Thurik, 1996). Location-specific sunk costs causing exit thresholds to be lower than entry thresholds may be a reason for this. Bresnahan and Reiss (1994), for example, find that a dentist will set up a monopoly practice in a town of 1,400 or

more residents, while a monopoly incumbent dentist will stay until a town has less than 800 residents.

4. Conclusion

The current study shows how the Bresnahan and Reiss (1991) cross-sectional framework can be extended to a dynamic framework. We derive a relationship between local market size and number of firms for thirteen different Belgian retail and service industries (in 1998) using ordered probit analysis. We investigate whether markets that have higher (lower) actual than predicted numbers of firms show exit (entry) in subsequent periods of one and three years. The results confirm that over a three-year period the rate of (net) entry is positively affected by the presence of 'market room'. The exit rate, however, does not show a negative relation with 'market room'. This indicates that changes in entry rates are a more likely source of adjusting for market disequilibria than changes in exit rates. The speed of adjustment is relatively low for most industries, however.

Although the rate of entry and net entry can to a certain extent be explained from an estimate of whether a local market is crowded or unsaturated, it has also become clear that much variance is left unexplained for. There are several possible reasons for this, but apparently entrepreneurs in their decision to start a retail or consumer service venture are only limitedly influenced by whether a market is saturated or not (as measured in the current study). It indicates that the choice to enter or not is based more upon their (assumed) individual entrepreneurial qualities and/or circumstances and less on market opportunities. This suggests that the inter-temporal dynamics of entry and exit in regions would be a promising route for future research.

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Notes

[1] One municipality, Herstappe, with a population of less than 100 inhabitants, was left out from the analyses.

[2] Shonkwiler and Harris (1996) argue that there may be interdependence in the number of firms in different retail industries. This would indicate a multivariate count-data procedure which is, however, infeasible in case of thirteen industries.

[3] The threshold values may be overestimated in case of relatively new industries that have only recently begun to gain legitimacy. This would lead to an underestimation of the 'market room' present. This is not a problem in the current study since all industries are well-established.

[4] The jewelry industry does not have a significant positive effect. This surprising outcome may be the result of most consumers buying jewelries in a nearby city. This is confirmed by the effects of the rate of commuting and the *City* dummy.

[5] We do not report the coefficients for the effect of the stock of firms in the previous period to save space.

[6] The unexpected effect of market disequilibrium for Bakeries led us to a further investigation of this industry. An official of the Belgian Confederation of the Bakery, Pastry, Chocolate and Ice-Cream industry suggested that the growing number of bakeries selling their products through multiple locations – breaking the traditional one producer - one selling point relationship could account for this. This type of restructuring was taking place mostly in cities. We have tested the assumption that the effect of market room on net entry was dependent upon municipality population size. We found indeed that the negative effect is strongest for the municipalities with most inhabitants in our sample.

[7] This rate of adjustment is likely to be an overestimation of the actual impact of entry and exit in the local markets. It has been reported that the entrant and exit relative size is only about half of that of the incumbents in U.S. retailing (Jarmin et al., 2003, Table II) and in Dutch retailing and hospitality industries (Audretsch et al., 1999, Table 10.2).

[8] This confirms earlier findings in Carree and Thurik (1999).

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