What happens when IKEA comes to town?

Sven-Olov Daunfeldt,[*] Oana Mihaescu,[*] Helena Nilsson,[*]

and Niklas Rudholm[*]

Abstract:
Using data from 2000-2011, the effects of a new IKEA store on retail revenues, employment, and inflow of purchasing power in the entry municipalities, as well as in neighboring municipalities were investigated. A propensity score matching method was used to find non IKEA entry municipalities that were as similar as possible to the entry municipalities based on the situation before entry. Our results indicate that IKEA-entry increased entry-municipality durable-goods revenues by about 20% and employment by about 17%. Only small and, in most cases, statistically insignificant effects were found in neighboring municipalities.

Keywords: Big-box retailing, retail revenues, job creation, employment, propensity-score matching, panel data.

JEL-codes: D22, L11, L25, L26.

[*] HUI Research, SE-103 29 Stockholm, Sweden, and Dalarna University, SE-791 88 Falun, Sweden.

1. Introduction

IKEA – with 345 stores in 42 countries (IKEA 2013), of which 19 in Sweden – is one of the world's largest retailers, with total revenues of about EUR 29.2 billion and operating income of about EUR 3.76 billion in 2012 (Wall Street Journal 2012). New IKEA stores tend to attract consumers from far away and are therefore widely believed to be more important for regional development than your average large retail (big-box) establishment. Local policymakers have therefore often been prepared to do a lot in order to get IKEA to establish a new store in their region.

Previous empirical studies on the effects of new large retail establishments (big-box stores) have mainly analyzed the effects of new Walmart stores in the United States. Walmart, though it only opened its first store in 1962, is – with more than 10,900 stores in 27 countries and 2.2 million employees – now one of the world's largest companies (Walmart 2012). But its expansion has been associated with concern that small businesses have been forced to close, reducing total retail employment (Hicks 2008; Neumark et al. 2008), though positive employment effects have also been found (Ketchum and Hughes 1997; Basker 2005).

Few studies have investigated the effects of entry by other major retail establishments than Walmart, and (to our knowledge) none have previously investigated the effects of entry by IKEA. Nor has much been known about how big-box entry in one municipality affects retail revenues and employment in neighboring municipalities. Most previous studies have neither controlled for selection effects. Entry of a big-box store is not random, but rather the result of an elaborate process of evaluating municipalities most likely to have favorable results.

Whether or not big-box entry is beneficial to a region is of interest, not in the least in terms of policy implications, since an intensive debate is ongoing on how external shopping centers affect local communities. Should politicians impose regulations that make suburban big-box entry more difficult, as has been done to protect retail trade inside city centers in the United Kingdom and Italy? Doing so might have a cost in terms of lower retail revenues and employment, as well as less investments, lower productivity, and higher prices (Schivardi and Viviano 2011; Haskel and Sadun 2012).

Using data from Statistics Sweden – as well as a purchasing-power index from HUI Research and an intervention-control approach – we estimated a linear-regression model of how retail revenues, employment, and inflow of purchasing power were affected in municipalities with a new IKEA store. A propensity-score matching model was used to control for the possibility that IKEA entered municipalities with more favorable conditions, which means that entry municipalities were compared to the very same municipalities in the period *before* entry and the matched municipalities. Next we used spatial econometrics to differentiate the direct effects in entry municipalities from indirect (spill-over) effects in neighboring municipalities.

Entry by IKEA increased durable goods revenues in the entry municipality by about 20% – primarily caused by an increased inflow of retail trade from other municipalities – and it increased related employment by about 17%, and total retail employment by about 10%.

Only small and in most cases statistically insignificant effects were found in neighboring municipalities, indicating that much of the inflow of retail demand into the entry municipalities came from municipalities further away. IKEA thus seems to have had beneficial effects on the entry municipality, but only negligible effects on neighboring municipalities.

The next section summarizes previous studies on the effects of big-box entry, while Section 3 briefly summarizes the history of IKEA. Section 4 describes the data and our matching procedure and its results, while Sections 5 and 6 describe our empirical methods and results. Section 7 summarizes and draws conclusions.

2. Previous studies

Family-owned local retail stores and small chains have faced increasing competition in recent decades. As noted, the entry of big-box stores like Walmart and Kmart is therefore controversial (Stone 1997). Some claim that local unemployment rises when big-boxes compete for sales with local retail establishments, sometimes even forcing them into bankruptcy (Mitchell 2009), while others emphasize the new job opportunities that the big-boxes bring (Forbes 2011).

Big-boxes typically operate with greater efficiency than smaller businesses, and can thus offer goods at lower prices, reducing sales of substitutes by competing retailers in the

surrounding area (Frank 2003). Employees laid-off because of those retailers' declining revenues will not all be absorbed by the big-boxes, since they operate with greater efficiency, and thus unemployment rises (Basker 2005).

However, lower prices might also increase the purchasing power of consumers and thereby other retailers' revenues and employment (Frank 2003). Businesses whose products are complements to those in big-boxes (e.g., restaurants) might also increase their revenues due to agglomeration externalities, positively affecting employment and entry of new firms. Effects might be most noticeable in the immediate vicinity of a new big-box store (e.g., within the same postal-code area), though eventually they might also be noticeable in neighboring areas (Paruchuri et al. 2009).

Empirical studies on the effects of entry of new big-boxes are summarized in Table 1. Most found that new big-boxes reduced revenues and the number of retailers (Barnes et al. 1996; Jones and Doucet 2000; Hernandez 2003; Artz and Stone 2006; Jia 2008). Basker (2005) found no effects on the revenues of stores with complementary goods, implying that the agglomeration effects were weak.

[Table 1 about here]

The effects of new big-boxes on employment were more ambiguous. Hicks (2008), Neumark et al. (2008), and Haltiwanger et al. (2010) found that retail employment fell when Walmart or another big-box entered, whereas Hicks (2008) found no change and Basker (2005) found more retail employment. Hicks (2007) found increased overall labor force participation, suggesting positive agglomeration (spill-over) effects.

Both Jia (2008) and Paruchuri et al. (2009) found negative effects of big-boxes on net entry of new firms, though Paruchuri et al. (2009) also found that, over time, revenues of other retailers increased after entry by Walmart. On the other hand, Barnes et al. (1996) found no effects on net entry of new retail establishments, or of small businesses overall.

The negative effects of big-box entry have been found mainly in their immediate vicinity (Stone 1997 and Haltiwanger et al. 2010) though, over time, neighboring areas have also been found to experience weak negative effects (Stone 1997). Artz and Stone (2006) found weak effects on retail stores selling substitute goods in metropolitan compared to other areas.

These mixed results might be explained by the variety of empirical methods used. Only eight of the fifteen studies controlled for unobserved firm and region characteristics as well as for selection effects. Thus there is a risk that omitted variables might have biased many of the results. If endogeneity in the big-box's choice of location is not dealt with the effects of entry may be distorted by general economic development.

All studies except two were conducted on U.S. markets (Hernandez 2003 and Jones and Doucet 2000 studied Canadian markets), and all but three studied the effects of Walmart (Jones and Doucet 2000 and Haltiwanger et al. 2010 studied the effects of big-box retailers in general, whereas Hernandez 2003 studied the entry of the home-improvement giant Home Depot). To our knowledge, there have been no studies of regions outside of North America.

3. The history of IKEA

In 1943 at the county administrative board in Växjö, Sweden, the 17-year-old Ingvar Kamprad registered the firm "Ikea i Agunnaryd" (his hometown), which developed into IKEA. Ingvar had been in business already as a child, buying packets of matches in quantity and reselling them to his neighbors at triple the price. Later he added cigarette lighters as well as reservoir and ballpoint pens. He advertised in the local newspaper and began accepting orders by mail. He even struck a deal to have the milkman deliver his products, making use of his spare capacity.

In 1948, after military service, Kamprad added furniture to his products. Demand was high during the boom in Swedish housing production in the 1950s, responding to pent-up demand after the war and the now-booming economy. However, a price-fixing cartel and the logistics of the furniture industry prevented healthy competition, resulting in unnecessarily high prices for consumers.

Kamprad placed orders with a few nearby manufacturers and, with delivery assistance from the milkman, avoided expensive middlemen and kept prices low. However, price competition with other retailers drove down product quality unacceptably. He began offering slightly better quality at a slightly higher price. In order not to lose costumers, he demonstrated that the price was justified by displaying the furniture models where

customers could examine them, and at the same time distributed the first IKEA catalogue. It worked. Total revenues reached SEK 3 million in 1953, twice the previous year's.

Storage costs increased with rising sales, leading – on the advice of an architect working for the chain Nordiska Kompaniet (NK), which had rejected the idea – to the introduction of ready-to-assemble furniture. Shipping smaller compact packages also reduced costs and risk of damage in transit.

Kamprad understood the advantages of controlling design and production. By selling its own proprietary furniture, IKEA was less vulnerable to pressure from the furniture industry. And it enabled use of parts manufactured at different sites, which improved efficiency and reduced costs.

Kamprad opened the first IKEA department store in 1958 in nearby Älmhult. The second Swedish store – still (at least as of 2012) the world's largest IKEA (Ikanofastigheter 2012) – opened in Huddinge outside Stockholm in 1965. Other large retail stores were located in the city center, but IKEA located instead on the outskirts, in an area where 100,000 new apartments were soon built. This shrewd location choice – in combination with consumers' increased purchasing power during those boom years – enabled IKEA's breakthrough (Björk 1998).

Already in 1963 IKEA had opened its first department store outside of Sweden (located outside Oslo, Norway). IKEA was initially concentrated in the Nordic countries, but soon expanded to the rest of Europe, starting with Switzerland in 1973, and to other continents: Australia and Asia in 1975, North America in 1976, and Russia in 2000 (IKEA 2013). IKEA now has 345 stores in 42 countries, with over 150,000 employees and annual sales of EUR 29.2 billion (IKEA 2013).

There are 19 IKEA stores in Sweden (Map 1). After Älmhult (1958) and Stockholm (Huddinge, 1965) came stores in Sundsvall and Malmö in 1966, then Mölndal (outside Gothenburg) in 1972, Linköping in 1977, Jönköping and Gävle in 1981, Helsingborg, Örebro, and Uppsala in 1982, Västerås in 1984, Järfälla (outside Stockholm) in 1993, Gothenburg in 2004, Kalmar and Haparanda in 2006, Karlstad in 2007, and Borlänge and Uddevalla in 2013 (IKEA 2012). A store is also planned for Umeå.

[Map 1 about here]

The product range today is primarily furniture, accessories, bathroom and kitchen fixtures and appliances, textiles, rugs, and toys, but no paint or wallpaper, and only a small selection of laminate floors. Every IKEA store also comes with a restaurant and a fast-food diner – often located by the exit – together with a supermarket with an assortment of IKEA's own-brand groceries plus, especially outside Sweden, a few Swedish specialties such as gingerbread cookies, caviar, and rye bread.

4. Data and matching municipalities

4.1 Data and descriptive statistics

We used a database covering the 290 Swedish municipalities over 12 years (2000-2011) yielding 3,480 observations. The independent and dependent variables are defined in Table 2.

[Table 2 about here]

The main independent variable (see below for additional regressors) is an indicator variable ($IKEA_{it}$) equal to one if there was an IKEA store located in the municipality (i.e., in the entry year and subsequently), otherwise zero.

The dependent variables – by municipality and year – are the natural logarithms of revenues in durable-goods retail trade ($\ln R_{it}$), employment in durable-goods retail trade ($\ln EMP_{it}$), and total retail employment ($\ln EMPTOT_{it}$), plus a purchasing-power index relating retail revenues to population size ($INDEX_{it}$). An index above 100 indicates that there was inflow of retail demand from somewhere else. For descriptive statistics, see Table 3.

[Table 3 about here]

4.2 Matching procedure

Our empirical strategy exploited variation in IKEA-entry across municipalities and across years to assess its effects on the four dependent variables. The intuition is as follows. Suppose there were two similar municipalities of which IKEA entered one but not the other during the study period. The non-entry municipality, as well as the entry municipality

before entry, were used as controls to estimate the counterfactual, i.e., the level of the dependent variables in the absence of entry.

To implement this design perfectly, IKEA-entry should be assigned to municipalities randomly. But of course IKEA-entry is not random, but rather the result of an elaborate process of IKEA executives evaluating municipalities for highest potential sales and profits. Our results could be positively biased if, for example, IKEA chose municipalities for entry because of more favorable levels of the outcome variables even in the pre-entry period. This potential selection problem will not be adequately addressed by the inclusion of fixed effects and trend variables in the model. A propensity-score matching method (Rosenbaum and Rubin 1983) was therefore used to match intervention (i.e., entry) municipalities which – based on levels of the dependent variables in the pre-entry period – had similar probabilities of entry. The first step was thus to estimate propensity scores relating to the probability of entry, calculated using a logit estimation of the equation

$$\Pr(IKEA_{it-entry} = 1) = EXP(\gamma_0 + \gamma_1 lnR_{it-entry} + \gamma_2 EMP_{it-entry} + \gamma_3 EMPTOT_{it-entry} \quad (1)$$

$$+\gamma_4 INDEX_{it-entry} + \gamma_5 TREND_t + \varepsilon_{it-entry})$$

where $IKEA_{\text{it-entry}}$ is an indicator equal to one for IKEA-entry municipalities *before* entry, otherwise zero; and ln $R_{\text{it-entry}}$, $EMP_{\text{it-entry}}$, $EMPTOT_{\text{it-entry}}$, and $INDEX_{\text{it-entry}}$ are as defined above (and in Table 2) *except* that they were measured *before* IKEA-entry. $TREND_t$ is a time-trend variable and $\varepsilon_{\text{it-entry}}$ is a random-error term.

We thus used the panel-data properties and pre-entry conditions of our observable dependent variables to estimate propensity scores and identify control municipalities where IKEA did not enter, but which had a similar probability of entry as the actual entry-municipalities during 2000-2011 (Göteborg, Kalmar, Haparanda, and Karlstad). In the second step, the four municipalities with propensity scores most similar to each of those four IKEA-entry municipalities were used as controls.

There were thus 16 controls which – plus the 4 entries – yielded 20 municipalities of interest. Over 12 years (2000-2011) they yielded 240 municipality-year observations, of which 25 (the intervention group) were post-entry observations for the entry-municipalities, and the remaining 215 (including entry-municipalities *before* entry) were the controls.

We also present results when fewer controls (three, two, and one municipalities) were used. In a final empirical specification, all 286 Swedish municipalities without entry were included as controls. The results from the latter estimation were expected to be positively biased because of the selection problem mentioned above and thus the results must be interpreted with caution.

4.3 Matching results

When estimated, all variables in Equation 1 except revenues had statistically significant effects on the probability of IKEA-entry (Table 4). Pseudo R^2 of 0.35 is high for the small number of independent variables.

[Table 4 about here]

In order to deduce whether the matched municipalities were appropriate, a balancing test was performed. Comparing the mean values of the independent variables in the estimation of the propensity score (results from Equation 1) before and after the matching procedure this test reports the resulting reduction in bias, and thus it indicates the suitability of the match. The results in Table 5 reveal that the matching clearly reduced bias in the variables and hence the matching procedure improved the selection of control municipalities.

[Table 5 about here]

However, the IKEA-entry municipalities still had more revenues and employment than the matched controls. Therefore in the next step we included fixed effects capturing average differences in size between entry municipalities and their controls. We also included municipality-specific time-trends to control for whether IKEA chose entry-municipalities with more positive time-trends than others, plus time-specific fixed effects to capture any additional time-variant heterogeneity.

Map 2 shows the four entry municipalities as well as the 16 control municipalities, which are scattered somewhat similarly.

[Map 2 about here]

5. Effects of IKEA-entry within a municipality

5.1 Empirical method

To analyze how IKEA-entry affected retail revenues and employment in four Swedish municipalities during 2000-2011 we used a model similar to those used to study the 1912 Stockholm slaughterhouse-reform (Rämme et al. 2013) and the Stockholm congestion charges introduced in 2007 (Daunfeldt et al. 2009 & 2013). We estimated

$$Y_{it} = \alpha_i + \alpha_t + \sum_{it=2}^{21} \beta_{it} \, (DMUNICIPALITY_i * TREND_t) + \beta_1 IKEA_{it} + \varepsilon_{it} \qquad (2)$$

where Y_{it} is an *n x 1* vector of the dependent variables (Table 2) assumed to be affected by IKEA-entry in municipality *i* in year *t*. To capture time-invariant heterogeneity across municipalities – remaining size-differences after matching – municipality-specific fixed effects α_i were also included. And since revenues in durable goods trade, the index, and employment on the municipal level typically changes quite slowly over time, these fixed effects will capture the remaining size differences after the matching procedure. To capture for the afore mentioned time-variant heterogeneity (e.g., business cycles and other nationwide trends in revenues and employment) a year specific fixed effects term, α_t , was included.

To control for the possibility that IKEA entered municipalities with trends in the variables which matching missed, we also allowed for municipality-specific time-trends $DMUNICIPALITY_i * TREND_t$.

The effects of IKEA-entry were captured by the indicator variable $IKEA_{it}$ which was set equal to one in the year of entry and thereafter, otherwise zero. The estimated coefficient thus compares the dependent variables within the municipality after IKEA-entry to before entry as well as to all other municipalities in the control group. A positive and statistically significant β_1 will indicate that – even after controlling for other factors via matching and fixed effects and trends – the dependent variables increased after entry.

Finally, ε_{it} is a random-error term assumed to have zero mean and constant variance. Initial estimation of Equation 2 revealed first-order serial correlation in the errors. Therefore

Equation 2 was re-estimated using a Prais-Winsten (1954) estimator with White (1980) heteroskedasticity robust standard errors.

5.2 Results

In Model 1 the four most-similar municipalities were used as controls for each IKEA-entry, which was found to have increased durable-goods retail revenues by a magnitude of 22.85% (Table 6). Despite the declining number of observations, Models 2 and 3, with fewer control groups, also yielded statistically significant results (although the latter at the 10% level of significance).

[Table 6 about here]

IKEA-entry was also found to have increased durable-goods retail employment by 33.58% and total retail employment by 17.85%, while the purchasing-power index increased 20.86%, suggesting that most of the increase in revenues came from consumers living in other municipalities. Again, despite the declining number of observations, Models 2 and 3 (and at least regarding durable-goods employment and total retail employment - Model 4) yielded statistically significant effects on these variables.

When all non-entry municipalities (including entry-municipalities *prior* to entry) were used as controls (Model 5), the estimated effects of entry appear to be stronger, especially regarding retail revenues and purchasing-power index. This increase in magnitude indicates that there is a selection problem that must be dealt with lest there will be bias in the estimates.

6. Effects of IKEA-entry on neighboring municipalities

6.1 Empirical method

Using Maximum Likelihood (ML) estimation and spatial econometric techniques based on the Stata command xsmle (Belotti et al. 2013a & 2013b), we also investigated how neighbors to entry- and control-municipalities (Map 3) were affected by IKEA-entry. All models – which were based on a contiguity row-normalized queen-weight matrix **W** which defined municipalities as neighbors if they were contiguous at any point – included spatial

and time-specific fixed effects and time-lagged dependent variables to address potential problems with autocorrelation in the error-terms.

[Map 3 about here]

Two commonly used models allowing for indirect effects (such as on the neighboring municipalities) are the spatial autoregressive (SAR) model and the spatial Durbin model (SDM). We used Log-Likelihood (LL), as well as Akaike information criterion (AIC), Bayesian information criterion (BIC) and Hausman and Likelihood-Ratio (LR), tests to compare SAR and SDM. Though the differences were not large, SAR was the preferred model (results can be obtained upon request). We used the specification

$$Y_{it} = \delta Y_{it-1} + \rho \boldsymbol{W} Y_{it} + \beta_1 IKEA_{it} + \alpha_i + \alpha_t + \varepsilon_{it}, \varepsilon_{it} \sim N(0, \sigma^2 I_n) \quad (3)$$

where Y_{it} is again an *n x 1* vector of the dependent variables; Y_{it-1} is a time-lagged *n x 1* vector of the same variables; the scalar ρ (bound by $-1 < \rho < 1$ due to use of a row-normalized weight matrix **W**) defines the strength of spatial dependence in the dependent variables; $\mathbf{W}Y_{it}$ is the *n x 1* spatial lag of the dependent variables, a linear combination of the values from neighboring municipalities; β_1 is the main parameter to be estimated; $IKEA_{it}$ was set equal to one in the year of entry and thereafter, otherwise zero; α_i and α_t are spatial- and time-fixed-effects; and ε_{it} is the error-term with the desired properties $N(0, \sigma^2 I_n)$.

6.2 Results

The models used here are the same as model 1-5 but with the inclusion of the neighboring municipalities to the control municipalities; i.e Model 1 includes the intervention group, the four control municipalities plus all their neighbors and so forth. The direct effect defines the impact of a new IKEA establishment in municipality *i* on our dependent variable Y_{it}, averaged over all entry municipalities. In the same manner, the indirect effect defines the impact of a new IKEA store in municipality *i* on the dependent variable Y_{it} of the neighboring municipalities *j* (*i≠j*), averaged over all neighbors of entry municipalities.

In Model 1 IKEA-entry was found to have increased durable-goods retail revenues by 19.72% and employment by 17.42% in the entry municipality (total retail employment went up by 9.98%) while reducing revenues in neighboring municipalities by 1.88% without negative effects on employment (Table 7). The purchasing-power index was found to have increased by 17.83% in the entry municipality while falling 9.76% in neighboring municipalities, indicating inflow of retail demand to the entry municipalities. Again, despite the declining number of observations, Models 2 and 3 (and even Model 4) also yielded many statistically significant results, although primarily regarding the direct effects. Even when statistically significant, indirect effects were generally small.

[Table 7 about here]

Again, when all non-entry municipalities (including entry-municipalities *prior* to entry) were used as controls (Model 5), the estimated direct effects of entry on durable-goods retail revenues and employment appear stronger, while indirect effects were negligible.

7. Summary and conclusions

We investigated how new IKEA stores in Sweden during 2000-2011 affected revenues, employment, and retail demand in the municipality they entered as well as surrounding municipalities. Previous studies on the entry-effects of big-box retailers – mostly on Walmart stores in the U.S., few outside of the U.S., and (so far as we know) none on IKEA – have had ambiguous results.

Most previous studies have not controlled for selection effects. Entry of a big-box store is not random, but rather in markets thought most likely to have favorable results. Thus revenues and employment might have risen even without entry. But this is a complex problem, since we cannot observe the contra factual, i.e. what would have happened if entry had not occurred?

We used propensity-score matching to control for the possibility that IKEA entered municipalities with favorable conditions. We were able to find control municipalities that closely resembled the municipalities which IKEA entered. Thus we could compare the results of entry with what happened in similar municipalities without entry. As some other

unobserved factors could also drive results, we included time-specific and municipality-specific fixed effects to control for time-variant as well as municipal heterogeneity.

After matching, we first estimated a linear regression model of entry-effects on retail revenues, employment, and inflow of purchasing power using an intervention-control approach. Then we estimated spatial regression models to distinguish between IKEA-entry effects in the entry-municipality (direct effects) and in neighboring municipalities (indirect effects). The signs of direct effects were the same, and magnitudes were similar, in both models.

IKEA-entry had a large positive effect (about 20%) on durable-goods retail revenues in the entry municipality, most apparently due to inflow of demand from elsewhere. However, the effect in neighboring municipalities was small, and in most cases not statistically significant. Thus most of the inflow of demand must have come from more distant municipalities. However, consumers might have chosen to spend more on durable goods after IKEA-entry – perhaps spending less on other goods – or they might have reduced saving. More research is needed in this area.

IKEA-entry increased durable-goods retail employment in the entry municipality by 17-34% (depending on the model) and overall retail employment by about 10%, while effects in neighboring municipalities were small. A new IKEA store thus seems important for job creation, leading to a net increase in the number of employees in durable-goods trade within the entry municipality.

Are these effects large enough to be economically meaningful? Consider the two Swedish municipalities where IKEA will soon open new stores, Borlänge and Umeå. Based on figures available from *Handeln i Sverige* (HUI Research), a 20% increase in durable goods retail revenues in Borlänge would add SEK 416 million (~USD 65 million), while in Umeå it would add SEK 716 million (~USD 112 million). Correspondingly, employment would rise by 157 and 302 persons. Thus IKEA seems to have large beneficial effects on entry-municipalities, but only negligible effects on neighboring municipalities.

We also performed additional regressions including all non-entry municipalities as control group (i.e. we estimated the effects of IKEA entry without correcting for potential selection bias). The estimated impacts of IKEA-entry were then of greater magnitude compared to those including the matched municipalities as control group. This indicates that IKEA

clearly entered municipalities more likely to have favorable outcomes, and thereby illustrating the necessity of accounting for this selection problem in order not to overstate the effect of IKEA-entry on economic development.

We still know little about how IKEA-entry affects other firms in entry-municipalities (e.g., others selling furniture, or those selling complementary products), new-firm formation and firm-survival rates. Longitudinal firm-level data is needed to answer these questions. This could be a fruitful area for further research.

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Table 1. Summary of previous studies

Study	Country	Entrant	Unit of analysis	Type of study	Period	Reverse causality	Fixed effects	Dependent variable
Barnes et al. (1996)	USA	Walmart	county	descriptive	1988-1993	n/a	n/a	net entry / retail sales
Stone (1997)	USA	Walmart	city	descriptive	1980s-1990s	n/a	n/a	retail sales
Jones and Doucet (2000)	Canada	big-boxes in retail	GTA area	descriptive	1989-1997	n/a	n/a	store share / sales / closure rates / employment
Franklin (2001)	USA	Walmart Supercenter	metropolitan area	descriptive	1993-1999	n/a	n/a	market share
Hernandez (2003)	Canada	Home Depot (home improvement big-boxes)	GTA area	descriptive	1995-2001	n/a	n/a	closure rates
Basker (2005)	USA	Walmart and Walmart Supercenters	county	inferential	1977-1998	yes	yes	employment / net entry
Artz and Stone (2006)	USA	Walmart Supercenters	county	inferential	1990-2005	yes (only entry timing)	yes	retail sales
Singh et al. (2006)	USA	Walmart Supercenters	firm	inferential/ case study	1999-2001	no	no	retail sales
Hicks (2007, 2008)	USA	Walmart and Walmart Supercenters	county	inferential	1988-2003	yes	yes (only spatial)	labor force participation / retail & total employment
Jia (2008)	USA	Walmart	county	inferential	1988-1997	no	no	closure rates
Neumark et al. (2008)	USA	Walmart and Walmart Supercenters	county	inferential	1977-2002	yes	yes	employment
Paruchuri et al. (2009)	USA	Walmart	postal code	inferential	1983-2004	yes (only location)	yes	net entry of retailers
Haltiwanger et al. (2010)	USA	retail big-boxes	firm	inferential	1976-2005	no	yes	retail employment / net entry of retailers
Artz and Stone (2012)	USA	Walmart	city	inferential	1976-2008	yes (only location)	yes	retail sales
Hicks et al. (2012)	USA	Walmart and Walmart Supercenters	state/ county	inferential	1989-2002	no	yes (only spatial)	net entry rates

Table 2. Definitions of independent and dependent variables

Variable	Definition
$IKEA_{it}$	Indicator variable equal to one if there was a new IKEA store in municipality *i* in year *t*, otherwise zero
ln R_{it}	Revenues in durable-goods retail trade in municipality *i* during year *t* (natural logarithm)
ln EMP_{it}	Employment in durable-goods retail trade in municipality *i* during year *t* (natural logarithm)
ln EMPTOTit	Total retail employment in municipality i during year t (natural logarithm)
INDEXit	Purchasing-power index relating retail revenues to population size, by municipality and year

Table 3. Descriptive statistics of the independent and dependent variables

Variable		Mean	Std Dev	Minimum	Maximum
$IKEA_{it}$	overall	0.04856	0.21498	0	1
	between		0.20742	0	1
	within		0.05770	-0.61810	0.6318
ln R_{it}	overall	5.43659	1.50387	1.38629	10.4131
	between		1.49101	1.99247	10.2293
	within		0.21344	4.06734	6.6825
ln EMP_{it}	overall	4.91900	1.40995	0	9.9027
	between		1.39348	1.64887	9.7331
	within		0.22871	1.98120	6.6725
ln $EMPTOT_{it}$	overall	5.80043	1.15943	0	10.3138
	between		1.15141	2.35024	10.1578
	within		0.15068	3.45019	7.5277
$INDEX_{it}$	overall	65.51753	50.26897	0	394
	between		48.52762	3.33333	316.1667
	within		13.39722	-61.14914	276.8509

Table 4. Estimation results, probability of IKEA-entry (%)

Variable	Coefficient	z-Value
ln $R_{it\text{-}entry}$	0.04	0.89
$EMP_{it\text{-}entry}$	-0.80***	-5.07
$EMPTOT_{it\text{-}entry}$	0.51***	6.88
$INDEX_{it\text{-}entry}$	1.14***	4.19
$TREND_t$	-9.77***	-2.84
Pseudo R^2	0.35	
No. of observations	5,241	

*** = significant at the 1% level. Number of observations refer to the number of pre-entry firm-years used in the estimation of eq 1

Table 5. Balancing test results, before and after matching of controls with entry municipalities

Variable	Means (Entries)	Control Sample	Means (Controls)	t-values
$R_{it\text{-}entry}$	3323.20	Unmatched	425.02***	23.76
		Matched	1560.30***	2.85
$EMP_{it\text{-}entry}$	1931.70	Unmatched	240.15***	26.04
		Matched	951.65***	2.69
$EMPTOT_{it\text{-}entry}$	3450.80	Unmatched	484.04***	27.79
		Matched	1901.30***	2.54
$INDEX_{it\text{-}entry}$	117.45	Unmatched	61.79***	9.53
		Matched	102.45	1.59
$TREND_t$	7.92	Unmatched	11.02***	-4.03
		Matched	6.80	1.26

*** = significant at the 1% level

Table 6. Estimated effects of IKEA-entry, 2000-2011 (%)

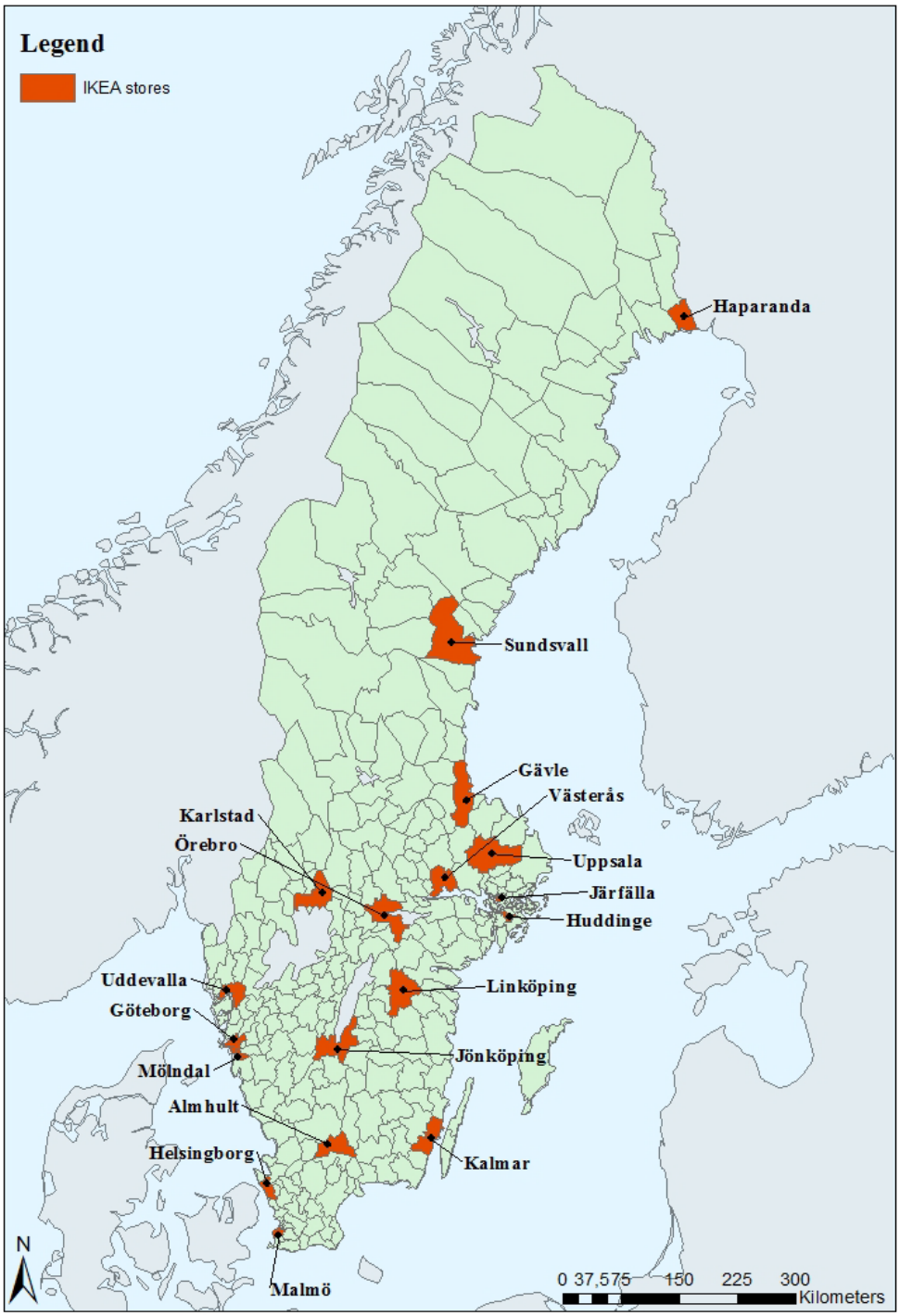
	Model 1 (4 controls)		Model 2 (3 controls)		Model 3 (2 controls)		Model 4 (1 control)		Model 5 (All controls)	
Dependent Variable	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
ln R_{it}	22.85**	2.12	22.23**	2.05	19.44*	1.79	14.10	1.15	29.02**	2.55
ln EMP_{it}	33.58**	2.09	34.83**	2.20	33.91**	2.20	31.92**	2.02	33.01**	2.29
ln $EMPTOT_{it}$	17.85**	2.37	18.87**	2.59	18.20**	2.48	15.60**	2.03	18.07**	2.52
$INDEX_{it}$	20.86*	1.96	20.04*	1.91	18.02*	1.73	13.29	1.15	26.83**	2.05
Number of observations	240		192		144		96		3,346	

** = significant at the 5%-level; * = significant at the 10%-level

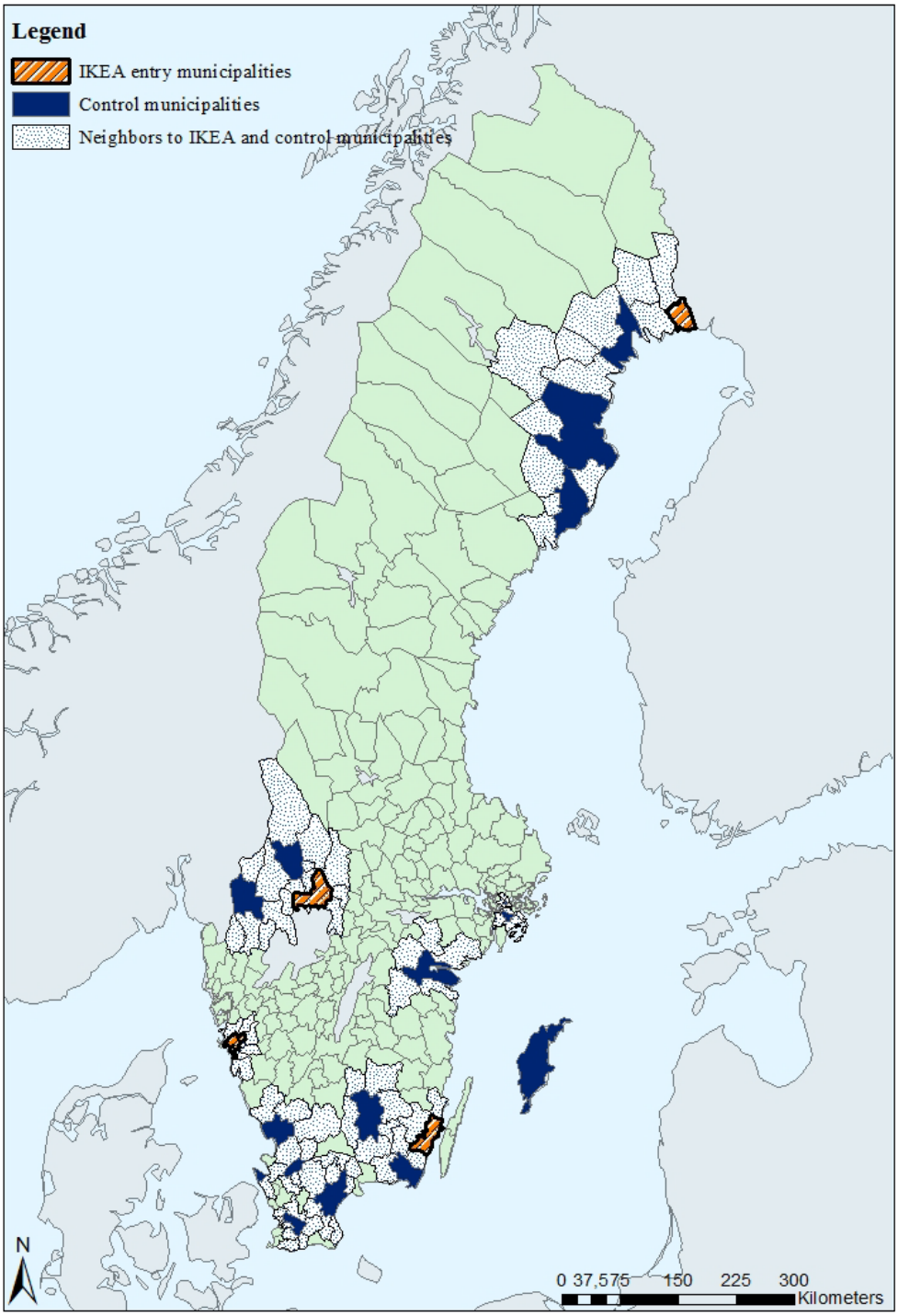
Table 7. Estimated direct and indirect effects of IKEA-entry in Sweden, 2000-2011 (%)

	Model 1 (4 controls)		Model 2 (3 controls)		Model 3 (2 controls)		Model 4 (1 control)		Model 5 (All controls)	
Dependent Variable	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficients	t-value	Coefficient	t-value
Direct effects (effects on entry municipalities)										
ln R_{it}	19.72***	5.95	18.91***	5.55	18.33***	5.11	18.74***	4.62	20.92%***	6.83
ln EMP_{it}	17.42***	4.49	16.30***	4.11	15.68***	3.88	17.63***	4.04	19.46%***	4.14
ln $EMPTOT_{it}$	9.98***	4.19	9.93***	4.19	9.57***	3.74	9.28***	3.60	9.20%***	3.44
$INDEX_{it}$	17.83***	7.88	16.08***	6.06	12.39***	5.85	12.01***	4.91	14.58%***	8.74
Indirect effects(effects on neighboring municipalities)										
ln R_{it}	-1.88***	-3.04	-1.22**	-2.41	-0.95*	-1.81	-0.29	-0.44	0.08	0.19
ln EMP_{it}	-0.35	0.03	1.11*	1.76	0.71	1.11	0.79	0.95	-0.05	-0.10
ln $EMPTOT_{it}$	0.86*	1.92	0.20	0.66	0.69	1.63	0.25	0.67	0.61**	2.15
$INDEX_{it}$	-9.76***	-7.52	19.23***	4.66	-0.56*	-1.89	-0.43	-1.24	3.04***	5.65
Total effects										
ln R_{it}	17.85***	5.87	17.70***	5.39	17.38***	4.96	18.45***	4.44	21.00%***	6.68
ln EMP_{it}	17.07***	4.43	17.41***	4.00	16.39***	3.78	18.42***	3.91	19.41%***	4.08
ln $EMPTOT_{it}$	10.85***	4.10	10.13***	3.93	10.26***	3.62	9.54***	3.49	9.81%***	3.41
$INDEX_{it}$	8.06***	7.99	35.31***	5.31	11.83***	5.68	11.57***	4.73	17.62%***	8.41
Number of observations	1,236		1,020		864		588		3,480	

*** = significant at the 1%-level; ** = significant at the 5%-level; * = significant at the 10%-level



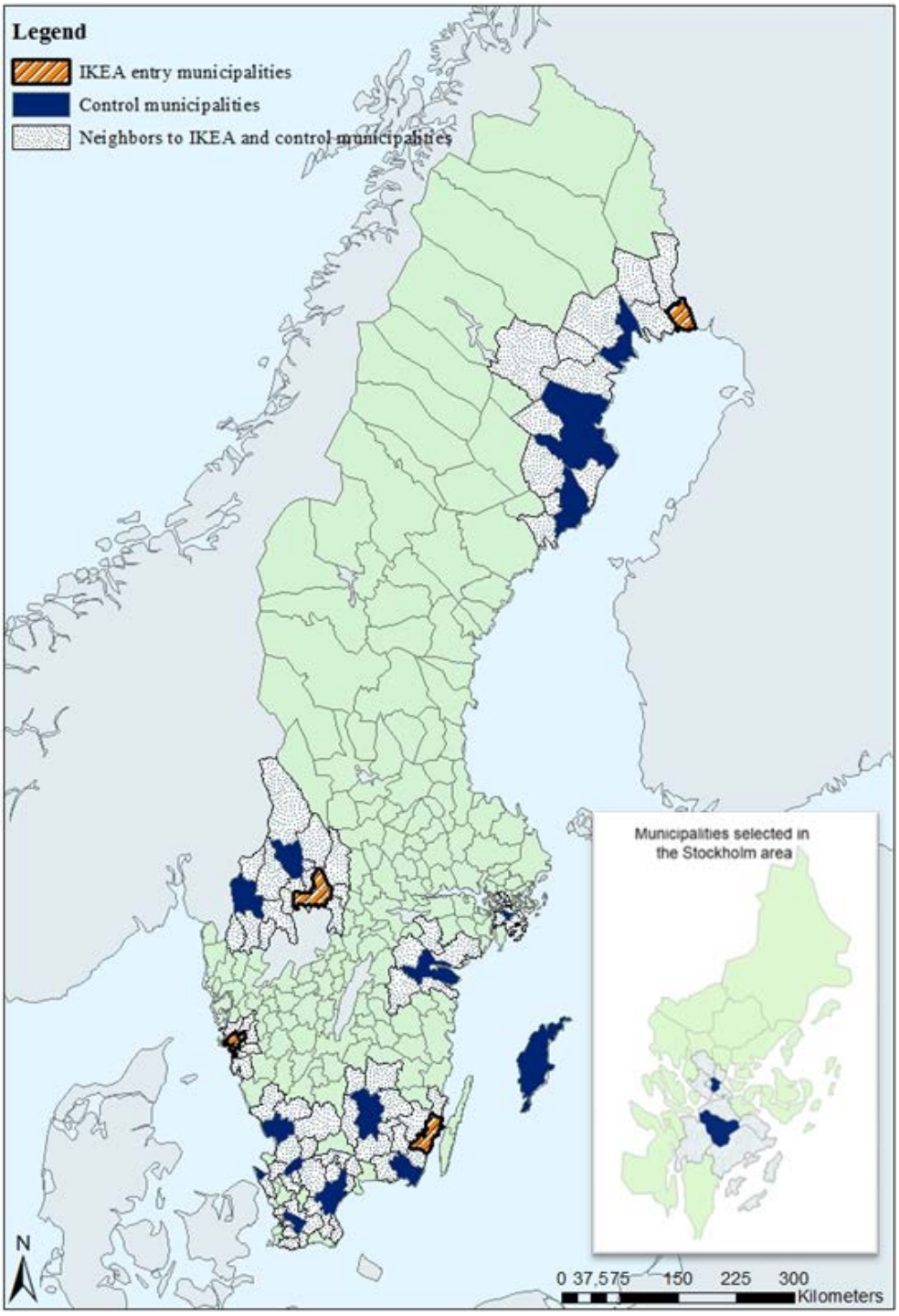
Map 1. Swedish municipalities with IKEA stores



Map 2. IKEA-entry and control municipalities

Entry municipalities: Göteborg (2004), Kalmar and Haparanda (2006), Karlstad (2007).

Control municipalities: Gotland, Halmstad, Huddinge, Höganäs, Karlskrona, Kristianstad, Luleå, Lund, Norrköping, Skellefteå, Solna, Sunne, Umeå, Växjö, Årjäng and Örkelljunga.



Map 3. IKEA-entry, control, and neighboring municipalities
Entry municipalities: Göteborg, Karlstad, Kalmar, Haparanda.
Control municipalities: Gotland, Halmstad, Huddinge, Höganäs, Karlskrona, Kristianstad, Luleå, Lund, Norrköping, Skellefteå, Solna, Sunne, Umeå, Växjö, Årjäng and Örkelljunga.