Risk Factors for Housing Evictions: Evidence from Panel Data

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Abstract_ *A large number of individuals are evicted from their homes each year. Yet, virtually all prior studies addressing risk factors for being evicted have been based on individual-level, mostly cross-sectional, data. Using Swedish longitudinal municipal-level data, this study assesses whether the associations between various social and demographic risk factors and evictions found in previous studies hold when accounting for temporal and spatial variations. Panel regression analyses show that increased levels of unemployment, social assistance recipiency, low education, single households with children, and crime are significantly associated with more evictions over time. Increased levels of single households without children, family disruption, and individuals with foreign background were not found to be significantly related to more evictions. The results of this study advance our understanding about the correlates for being evicted and may thereby inform policy efforts designed to prevent eviction and stem its consequences.*

Keywords_ *Eviction, panel data, risk factors, Sweden*

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Introduction

The home is a physical base of relationships, which makes it important for general well-being and health outcomes (O'Mahony, 2006). The US financial crisis of 2007-2008 and the Eurozone crisis of 2010 have been associated with increasing risks of severe housing problems such as evictions and homelessness, not only among vulnerable segments of the population but also among traditionally established groups. In the aftermath of these crises, many individuals struggled with rent arrears or mortgage payments. Instability in the banking sector has moreover intensified the problems (Busch-Geertsema *et al*., 2014). Furthermore, it is highly likely that the present coronavirus pandemic with its severe economic consequences will trigger a large increase in evictions worldwide.

Evictions, the focus of the present study, are a governmentally sanctioned intervention with a long history in Western societies, estimated to affect millions of people each year (Stenberg *et al.*, 2011). In this study, evictions are understood as the involuntary removal of people from their homes, and are expected to have a wide range of negative personal and social consequences (Hartman and Robinson, 2003). A number of studies have identified links between evictions and decreased chances of decent and affordable housing, residential mobility, homelessness and unemployment (Van Laere *et al*., 2009; Desmond, 2012; Desmond and Gershenson, 2017) increased economic hardship (Kahlmeter *et al*., 2018); parenting stress (Desmond and Kimbro, 2015); family disruption (Berg and Brännström, 2018); depression (McLaughlin *et al*., 2012); and suicide (Fowler *et al*., 2015; Rojas and Stenberg, 2016). Yet, while many European countries were hit hard by the crises, and have faced an increasing number of evictions, the consequences in Sweden – where the data from this study stem – were comparatively moderate (von Otter *et al*., 2017).

While prior studies suggest that evictions are more common among people with few resources such as low income, immigrant background, and low education, as well as people living in single households with children (Stenberg, *et al*., 1995; Crane and Warnes, 2000; Hartman and Robinson, 2003; Van Laere *et al*., 2009; von Otter *et al*., 2017), little is known about these risk factors from a longitudinal perspective. Virtually all prior studies addressing risk factors for being evicted are based on individual-level, mostly cross-sectional, data. The few exceptions that do exist are based on sub-groups like youth and drug abusers (Phinney *et al*., 2007; Kennedy *et al*., 2017; Böheim and Taylor, 2000) or are based on very old data (Stenberg, 1991). Although cross-sectional studies have inherent problems related to selectivity, and (per definition) fail to account for variations over time, most scholars usually recognise these problems. Such studies will therefore continue to be a useful source of knowledge.

The overall purpose of this study is to further our understanding of various hypothesised socioeconomic and demographic factors that influence the risk of being evicted. Since a large number of individuals are served with an application for an eviction, but for whom the eviction is never executed (i.e. they are under threat of eviction), it has been hypothesised that many tenants move without being formally evicted because an eviction will reduce their chances of a new lease (von Otter *et al*., 2017). For that reason, this study also addresses whether the same socioeconomic and demographic factors also influence the risk of being under threat of eviction.

In order to reduce some of the standard problems related to the selection bias of micro-level cross sectional studies, as well as to account for temporal variations, this study takes advantage of data that are characterised by repeated observations on fixed spatial units. Such panel data that combines cross sectional data on N spatial units and T time periods to produce a dataset of N x T observations are typically recognised as more suitable for identifying and measuring associations, which are simply not detectable in pure cross-sectional or pure time-series data (Baltagi, 2013). Since each observational unit can be used as its own control, such data make it possible to account for time-invariant unobserved variables (Allison, 2009). Another advantage of panel data is that such an approach not only allows us capture the variation that emerges across time or space, but also the simultaneous variation of these two dimensions. Thus, instead of testing a cross-section model for all spatial units at a single point in time or testing a time-series model for one spatial unit using time series data, a panel data model is tested for all spatial units through time (Wooldridge, 2010).

Given these advantages, it should also be noted that to the extent to which a micro-level finding can be replicated with aggregated data, the former gains credibility (Norström, 1995; Norström and Skog, 2001). Rather than replicating prior studies in the sense of estimating associations on different but similar data sets that may be impaired by the same kind of bias (Norström, 1989), an advantage of an aggregate effect estimate is that it is typically expected to express the association of the hypothesised risk factor where selection bias is considerably reduced (Norström, 1988). Thus, a key rationale for the approach adopted in this study is to broaden the empirical basis and thereby ensure that the results from prior micro-level cross sectional studies are not method-bound.

This study asks whether the associations between various risk factors and evictions found in previous micro level cross-sectional studies hold when accounting for temporal and spatial variations. This is achieved by analysing annual municipal-level data for the years 2011-2015, where we anticipate that the more prevalent these risk factors are at the municipal-level, the more evictions we can expect. If higher levels of the hypothesised risk factors across municipali-

ties are not associated with more evictions over time, there are reasons to believe that prior individual-level associations are prone to selection bias (cf. Norström, 1989). Doing so not only contributes to furthering our theoretical understanding about the nature of risk factors for housing evictions; it may also inform policy makers and practitioners in their search of effective means to prevent evictions and thereby avoid its consequences.

Context

The Swedish housing market

Historically, the Swedish housing market has had a large proportion of rented dwellings in multi-family housing and a socially broad population of tenants. Private landlords have been forced to adjust rent levels to match those of the non-profit public sector (municipal housing companies), leading to below-market rents in the system as a whole (Kemeny, 1995). The housing market has become more market-oriented in recent years. Since 2011, public housing companies must operate according to business-like principles; rents are set in local negotiations between both private and public landlords and tenant organisations. The rent negotiations are still strongly connected to the utility value of the dwelling, and disagreements may be settled by a Rent Tribunal. Since both private and public housing operate on the same market, there is no room for a social housing sector comparable to other countries.

Presently there is an acute shortage of housing, low mobility, and a suboptimal use of dwellings (Boverket, 2014). This is largely due to rising incomes among high and middle income earners, low mortgage costs, and a growing population. Acquiring a rental lease or buying property is particularly difficult for marginalised persons and people in a vulnerable situation, especially in the urban regions. The substantial increase of homelessness between 2011 and 2017 (Socialstyrelsen, 2018) and the parallel decrease in evictions registered by the Swedish Enforcement Authority (Kronofogden, 2020) might be a reflection of this situation. Because official statistics only include legal leases and not unofficially rooming, subletting etc., the number of people who are left without stable housing might of course be higher. In the official mapping of homelessness in 2017, almost one-fifth of the respondents also reported eviction as a contributing factor to their lack of housing (Socialstyrelsen, 2018).

It is, however, unclear if these homeless people refer to evictions from housing with a legally regulated lease or from unofficially rented dwellings. According to the European Typology on Homelessness and Housing Exclusion (ETHOS), the latter situation is defined as living in insecure accommodation (Amore *et al*., 2011). As the official mapping of homelessness in Sweden include "private short-term living arrangements", it is possible that a large share of people living without legal leases

are categorised as homeless. If so, being forced to move from an insecure accommodation to open homelessness does not affect the total size of homelessness by formal measures. Independent of the movements of homeless people (between insecure housing and open homelessness) there might be a negative correlation between officially registered evictions and homelessness due to the fact that housing shortage locks out vulnerable groups from the regular housing market.

The eviction process

Formal evictions of tenants in Sweden are based on decisions made by Bailiffs in summary proceedings, decisions by regional rent tribunals, or judgements from district courts. Irrespectively of type of landlord, there are three basic steps in the eviction process: 1) the notice to quit, 2) the court procedure, and 3) the actual enforcement. This is a process similar to most other countries. Although the legal process is comparably swift in Sweden (Djankov *et al*., 2003; Kenna *et al*., 2016), the legal protection of tenants' leases is strong (Bååth, 2014). All leases (with exemption of subletting) are unlimited in time. Leases can only be terminated because of valid causes, typically rent arrears or extreme anti-social behaviour. On the other hand, tenants can prolong their contracts indefinitely and also have the right to terminate a lease at any time with three months' notice. Landlords can only refuse to prolong leases due to valid causes, such as repairs or renovations requiring the property to be vacated. In this instance, landlords are usually required to provide alternative accommodation. Also, if the landlord wants to sell the property, tenants' right to residency is retained and present tenants are "included in the bid". In many other countries, such as England, fixed-term contracts are rather common and landlords do not need a reason for terminating the contract (Kenna *et al*., 2016).

Data and Method

In this study the temporal and spatial variations in hypothesised risk factors was explored in order to further our understanding about variations in the number of evictions across municipalities from 2011 to 2015. We used administrative data from all Swedish municipalities (n=290). With five annual observations for each municipality, there were 1 450 observations in total. Covering the entire territory of the country, municipalities are the lower level local government entity. Using aggregated administrative data means that informed consent was not an issue.

Dependent variables

The key dependent variable used in this study was the frequency of enforced evictions and referred to the number of registered residents aged 18 and above who were formally evicted. Judicial eviction processes aimed at organisations, e.g. the local social service offices, were not included. As noted above, a large number of individuals were served with an application for an execution of an eviction but the eviction was never executed. One explanation was that many tenants move without being formally evicted since an eviction reduces their chances of a new lease (von Otter *et al*., 2017). By such background, a variable reflecting the yearly number of individuals aged 18 and above whom, after a verdict, received a notice of eviction (i.e. they were under threat of eviction), was also included in the analysis. In the current study, this variable has been referred to as the number of applications for evictions. Data on evictions and applications for evictions were retrieved from the Swedish Enforcement Authority's (Kronofogden) website.

Independent variables

When choosing the independent variables, consideration was taken to variables that are known from previous research to affect eviction, but the choices were also constrained to municipal-level population data that are recorded in the national registers. The latter is the trade-off to working with aggregated administrative data in a longitudinal design. All data were retrieved from the websites of Statistics Sweden (Statistiska centralbyrån/SCB), the Swedish National Council for Crime Prevention (Brottsförebyggande rådet/BRÅ), and the Swedish National Board of Health and Welfare (Socialstyrelsen).

Unemployment

A number of studies have observed a link between job loss and evictions (Stenberg, 1991; Desmond and Gershenson, 2017; von Otter *et al*., 2017). In this study, unemployment refers to open unemployment and represents the proportion of individuals in each municipality who were officially registered at any of the local public employment service offices as being immediately available for full-time work. Due to data limitations, the variable is only available as rates.

Economic strain/hardship

Unpaid rent is the main reason for becoming evicted. This can of course be an indication of economic strain or economic hardship. In Sweden, individuals have the possibility to apply for means-tested social assistance from the municipality that they live in when facing economic hardship. Yet, it has been shown that many people who are facing an eviction do not apply for means-tested social assistance (von Otter *et al*., 2017). The current study consequently used the number of people receiving social assistance in the municipality as an independent variable to capture economic strain/hardship.

Educational attainment

The education variable was set to test the hypothesis that low education has an impact on evictions (von Otter *et al*., 2017). In the current study, the hypothesis was that increased numbers of individuals with low educational attainment (only compulsory education; maximum nine years of schooling) are associated with more evictions.

Crime

Crime has been linked to evictions both before and after the event (von Otter *et al*., 2017; Alm, 2018). Desmond and Gershenson (2017) have also reported a positive association between increased neighbourhood-level crime rate and the risk of being evicted in a local US sample. Due to substantial variation in reporting standards, we made use of frequencies of theft and burglary as a measure of crime. At least in the Swedish context, such indicators have been shown to provide a more robust way to depict the level of crime in a longitudinal perspective (BRÅ, 2017).

Family disruption

Another factor that has been associated with evictions and economic hardship is divorces/partnership breakups (Stenberg *et al*., 1995). As official statistics about partnership breakups only is available for couples with children we are forced to use a variable that reflects the number of legally divorced individuals.

Family composition

Prior research suggests that single households, with or without children, are at a higher risk for being evicted, compared to married/cohabiting individuals, with or without children (von Otter *et al*., 2017). Studies originating from the US have also found that households with children are more likely to be evicted compared with households without children (Desmond and Kimbro, 2015). While findings also indicate that parenthood causes economic strain on households, it can be assumed that households with children will receive more help from the authorities to avoid children becoming evicted. This is also mirrored in the fact that among households threatened by eviction a much larger share of single households without children are evicted compared to single households with children (von Otter *et al*., 2017). The variables addressed in this study consisted of the number of single households without children and single households with children, respectively.

Ethnic background/minority

Ethnic background and ethnic minority, here understood as foreign background, is a variable that needs to be considered since previous research has identified ethnic background as a risk factor for becoming part of an eviction process (Desmond and Gershenson, 2017; von Otter *et al*., 2017). It consisted of the number of individuals that were born abroad and had migrated to Sweden (i.e. first-generation immigrants) and of individuals that were born in Sweden but had parents who had migrated to Sweden (i.e. second-generation immigrants).

Control variables

Since the number of evictions at the municipal level have been found to be associated with population size (von Otter *et al*., 2017), it was important to control for this factor. In this study, the population was measured as the number of individuals at the age of 18 and above. As evictions in Sweden mainly take place in rented housing it was also important to account for the structure of the dwelling stock, i.e. the number of rented apartments (Stenberg *et al*., 2011). Unfortunately, there were no available up-to-date data of the number of rented apartments across municipalities. In order to circumvent this problem, this study utilised a variable that measured the number of multifamily dwellings, where also the main part of rented housing is located. To the extent to which the number of rented apartments is correlated with the number of multifamily dwellings, the latter may be deemed as a sufficient proxy.

Statistical analyses

Multivariable random effects within-between (REWB) panel data regression models (for details, see Bell and Jones, 2015; Bell *et al*., 2018, and references therein) were used to estimate the impacts of the time and municipality varying hypothesised risk factors on the time and municipality varying frequency of enforced evictions and the number of applications of evictions.

An important aspect to consider with such an approach concerns confounding effects related to heterogeneity and correlated influences that might induce a spurious association between a municipality's frequency of enforced evictions/applications of evictions. We included year-specific fixed effects to pick up any unobserved macro effects that affect all municipalities in the same way. Although it is typically recognised that fixed-effects models have an advantage over random-effects models when analysing panel data because they control for all unobserved level-2 (here, municipal-level) characteristics (Allison, 2009; Wooldridge, 2010), an inherent shortcoming of such models is their inability to estimate the effect of variables that do not sufficiently vary within municipals (Schunck, 2013). This is the case for variables such as multifamily dwellings as it takes a long time to build new houses.

To circumvent these problems, the REWB model utilised in this study requests separate tests of whether the difference between within- and between-municipality estimates is equal to zero for individual regressors. If there was no statistical significant difference, the random-effect estimate (which corresponds to the mean of between- and within-estimates) was reported for these regressors. If not, the within- and between-municipality estimates are reported separately (Schunck, 2013). Viewing the nested data structure as a nuisance that needs correction, we also used the more conservative cluster-robust standard errors to account for the within-municipality error correlation (Cameron and Miller, 2010).

All analyses were performed using Stata 15/SE-version. The xthybrid command was used to estimate REWB regression models, and standard errors in our regressions were computed using the cluster-robust option (Schunck and Perales, 2017). To facilitate comparisons between estimated associations, standardised b-coefficients are reported. Since such coefficients have standard deviations as their units, higher absolute values indicate stronger associations.

Results

Descriptive statistics

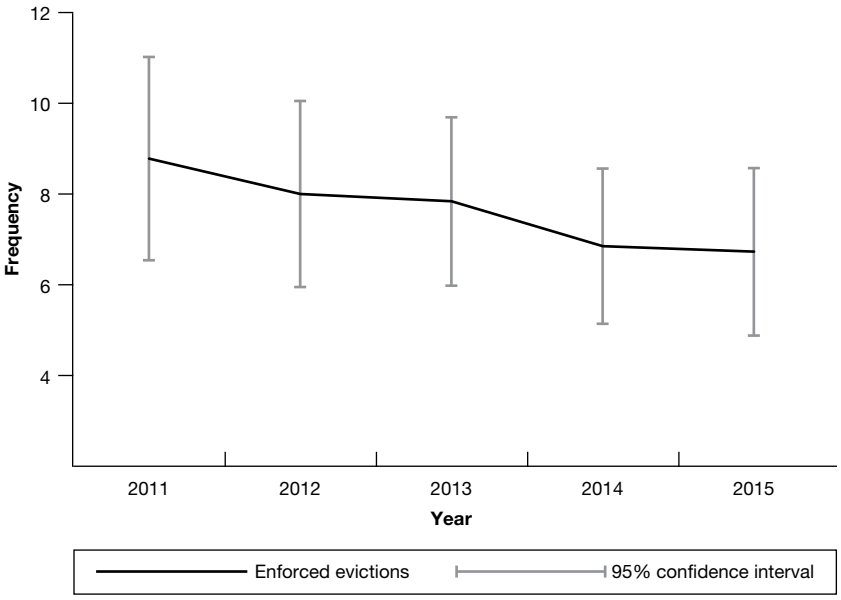
Table 1 offers descriptive statistics of the variables addressed in this study. The number of enforced evictions ranged between 0 and 235 and the overall average number of evictions was approximately 8 with a standard deviation of 17. The standard deviation of means of evictions between the 290 municipalities is almost 17. Finally, the within standard deviation is calculated within each municipality because there are five annual observations observed in every municipality. It tells us how much the variable varies within each municipality, while ignoring all variation between units. If we compare between and within variation, we can see that the variation between municipalities always is larger than the variation of the yearly observations within the municipalities. Ranging between 0 and 576, the mean number of applications for evictions was around 25. As shown in Figure 1, there was a negative trend in both these variables, which suggests that the number of enforced evictions and number of applications for evictions have diminished during the addressed period. As indicated by the broad 95% confidence intervals, there was a large variation across municipalities.

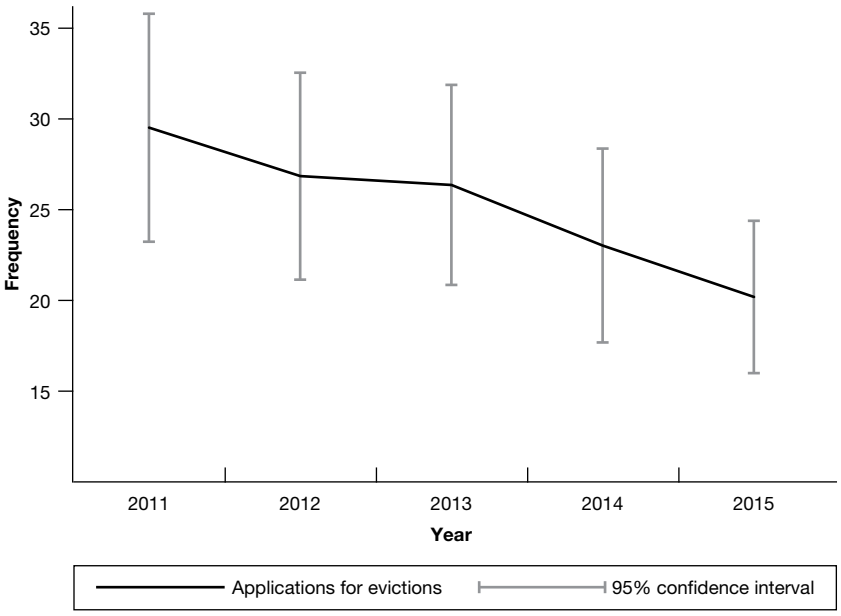
Focusing on the hypothesised independent variables, the average overall per cent of unemployed individuals was around 3.3. The mean number of means-tested social assistance recipients and individuals with only compulsory education was around 977 and 3519 respectively. The mean number of reported burglaries was approximately 73. The average number of single households without children, single households with children, divorced individuals, and individuals with foreign background was around 5489, 991, 163, and 6938 respectively. According to the range of these data (min-max values) and the size of the between-municipality standard deviations, there was substantial variation across municipalities.

Table 1. Sample properties: descriptive statistics.

Variable		Mean	Std. Dev.	Min	Max	Observations
Dependent variables						
Enforced evictions	Overall	7.67	17.18	0	235	N=1 450
	Between		16.89			n=290
	Within		3.24			T =5
Applications for evictions	Overall	25.19	48.03	0	576	N=1 450
	Between		47.19			n=290
	Within		9.28			T =5
Independent variables						
Unemployment (%)	Overall	3.317	0.98	1	7	N=1 450
	Between		0.87			n=290
	Within		0.45			T =5
Social assistance recipiency	Overall	977.08	2 316.61	0	25 397	N=1 450
	Between		2 315.66			n=290
	Within		138.63			T =5
Compulsory education only	Overall	3 518.98	6 222.51	228	79 717	N=1 450
	Between		6 230.02			n=290
	Within		116.62			T =5
Crime	Overall	72.769	211.77	0	3 525	N=1 450
	Between		210.52			n=290
	Within		25.508			T =5
Single households	Overall	5 489.18	12 983.10	170	178,42	N=1 450
without children	Between		12 999.08			n=290
	Within		226.44			T =5
Single households	Overall	991.18	2 227.20	37	28 176	N=1 450
with children	Between		2 229.48			n=290
	Within		59.54			T =5
Divorced	Overall	162.77	397.84	1	5 714	N=1 450
	Between		397.61			n=290
	Within		24.74			T =5
Foreign background	Overall	6 937.9	21 424.12	195	291 026	N=1 450
	Between		21 427.72			n=290
	Within		1 055.10			T =5
Control covariates						
Population size	Overall	33 203.65	68 100.79	2 421	923 516	N=1 450
	Between		68 044.25			n=290
	Within		4 525.31			T =5
Multifamily dwellings	Overall	8 369.101	27 777.2	82	405 452	N=1 450
	Between		27 803.05			n=290
	Within		834.89			T =5

Figure 1. Trends in enforced evictions and applications for evictions across Swedish municipalities 2011-2015.





Multivariable panel regression estimates

Table 2 reports the results when the dependent variable was enforcement of evictions. All interpretations of the coefficients assume that all other variables in the model were held constant. Increased rates of social assistance recipiency, only compulsory education, and single households with children were – as hypothesised – all significantly ($p<0.01$) associated with more evictions. For example, the random-effects estimates suggest that for every increase of one standard deviation of the number of social assistance recipients, the number of evictions rise by around 0.2 standard deviations (b=0.222, 95% CI: 0.161; 0.284).

However, and in contrast to expected patterns, increased rates of family disruption/divorce and foreign background were negatively associated with the number of evictions, i.e. associated with fewer evictions. For example, for every increase of one standard deviation of the number of individuals with foreign background, the number of evictions decrease with around 0.3 standard deviations (b=-0.296, 95% CI: -0.421; -0.171). While the negative association for foreign background was statistically significant ($p<0.01$), the association between divorce and eviction was nevertheless not statistically significant (b=-0.089, 95% CI: -0.238; 0.059).

Yet, the within-municipality effects of unemployment and crime were statistically different from their between-municipality counterparts, as can be seen from the small p-values in in the lower part of the table. For the statistically significant ($p<0.01$) between-municipality effect of unemployment, the estimated coefficient indicates – as expected – that a between-municipality one standard deviation increase in unemployment was associated with approximately 0.1 standard deviation increase in the number of evictions (b=0.101, 95% CI: 0.077; 0.126). However, the within-municipality effect of unemployment suggests a negative and statistically insignificant relationship (b=-0.016, 95% CI: -0.038; 0.005). This means that the previous positive between-municipality effect was sensitive for unobserved municipal-level characteristics. The statistically non-significant between-municipality effect of crime on the number of enforced evictions unexpectedly suggest that a between-municipality one standard deviation increase in the number of crimes was associated with fewer evictions (b=-0.017, 95% CI: -0.110; 0.076). However, focusing on the statistically significant within-municipality-effect of the number of crimes on the number of evictions, the coefficient is positive and suggests that a within-municipality one standard deviation increase in the number of crimes was associated with more evictions (b=0.228, 95% CI: 0.137; 0.318).

With the exception of the positive but statistically insignificant random effect estimate of crime, the overall pattern found in previous analysis remained when the number of applications of evictions was the dependent variable (Table 3).

Table 2. Risk factors for enforced evictions. Multivariable random effects within-between panel regression (OLS) estimates.

Variables\Outcome	Enforced evictions
	Standardised b-coefficient (95% CI)
Random-effects estimates[a]	
Social assistance recipiency	0.222 (0.161; 0.284) ***
Compulsory education only	1.212 (1.065; 1.358) ***
Single households without children	-1.134 (-1.360; -0.908) ***
Single households with children	0.120 (0.072; 0.167) ***
Divorced	-0.089 (-0.238; 0.059)
Foreign background	-0.296 (-0.421; -0.171) ***
Between-municipality estimates[b]	
Unemployment	0.101 (0.077; 0.126) ***
Crime	-0.017 (-0.110; 0.076)
Within-municipality estimates[b]	
Unemployment	-0.016 (-0.038; 0.005)
Crime	0.228 (0.137; 0.318) ***

Note: n=290, T=5, N=1 450. OLS=Ordinary least squares. CI=confidence interval. ***/**/* indicates statistical significance at the 1/5/10 per cent level respectively. Intercept, control covariates (population size, multifamily dwellings, and trend/year dummies), and variance components estimates suppressed.

[a] Variables do not sufficiently vary within municipalities. Random effect estimates=mean of between- and within-estimates.

[b] Tests of the random-effects assumption:
b-coef.[Between Unemployment]=b-coef.[Within Unemployment]=0; p=0.0000,
b-coef.[Between Crime]=b-coef.[Within Crime]=0; p=0.0002.

Table 3. Risk factors for applications for evictions. Multivariable random effects within-between panel regression (OLS) estimates.

Variables\Outcome	Applications for evictions
	Standardised b-coefficient (95% CI)
Random-effects estimates[a]	
Social assistance recipiency	0.402 (0.317; 0.488) ***
Compulsory education only	1.402 (1.201; 1.603) ***
Crime	0.040 (-0.099; 0.179)
Single households without children	-0.059 (-0.872; -0.312) ***
Single households with children	0.083 (0.010; 0.157) **
Divorced	0.096 (-0.054; 0.245)
Foreign background	-0.844 (-1.001; -0.687) ***
Between-municipality estimates[b]	
Unemployment	0.118 (0.080; 0.156) ***
Within-municipality estimates[b]	
Unemployment	-0.006 (-0.027; 0.014)

Note: n=290, T=5, N=1 450. OLS=Ordinary least squares. CI=confidence interval. ***/**/* indicates statistical significance at the 1/5/10 per cent level respectively. Intercept, control covariates (population size, multifamily dwellings, and trend/year dummies), and variance components estimates suppressed.

[a] Variables do not sufficiently vary within municipalities. Random effect estimates=mean of between- and within-estimates.

[b] Tests of the random-effects assumption:
b-coef.[Between Unemployment]=b-coef.[Within Unemployment]=0; p=0.0000.

Discussion

Each year, a large number of individuals in Sweden and other Western countries are evicted from their homes, and these involuntary removes have been shown to have a wide range of negative personal and social consequences (Desmond, 2012; McLaughlin *et al*., 2012; Desmond and Kimbro, 2015; Rojas and Stenberg, 2016). In order to inform policy interventions designed to prevent eviction and thereby stem its consequences, the purpose of this study is to further our understanding of various socioeconomic and demographic factors that might influence the risk of being evicted. This is achieved by examining whether and to what extent eviction rates across Swedish municipalities between 2011 and 2015 were related to rates a number of hypothesised risk factors that have been identified in prior empirical studies based on individual cross-sectional data. Under the assumption that a micro-level finding gain credibility if it could be replicated with data that do not share the same source of bias (Norström, 1989), this study is among the first to broaden the empirical basis by examining whether results from prior studies hold when accounting for temporal and spatial variations across municipalities. Doing so, this study strived to ensure that prior micro-level findings were not method-bound (see Norström, 1995; Norström and Skog, 2001).

Before discussing the results from the regression analyses, it is interesting to note that the number of evictions and the number of applications for evictions have decreased in the addressed period (see Figure 1). A possible reason for this can be that it has gradually become harder to obtain a lease (not least for poor individuals in the metropolitan areas), which results in fewer people with valid rental leases, and therefore there are less available people to evict (Stenberg *et al*., 2011).

We estimated multivariable REWB panel regression models with year-specific fixed effects to model temporal and spatial variations in the addressed outcomes and hypothesised predictors. In contrast to traditional random-effects and fixed-effects models, REWB models check for which of the estimated within- and between-municipality associations differ systematically (Schunck and Perales, 2017). Rates of social assistance recipiency, only compulsory education, and single households with children all show expected significant positive effects both for applications for evictions and enforced evictions. All in all, these factors are closely connected to economic strain that can cause rent arrears and consequently an increased risk of evictions, findings that also give credibility to studies based on individual-level data (Stenberg *et al*., 2011; von Otter *et al*., 2017). The number of single households without children and individuals with a foreign background are, in the current study, significantly negatively associated with more evictions and applications for evictions. These findings cast doubt on prior micro-level studies that have reported positive associations between these risk factors and the risk of getting evicted

(Desmond and Gershenson, 2017; von Otter *et al*., 2017). With the reservation that Swedish micro-level studies have been based on all family disruptions, the non-significant impact of divorcers also makes prior micro-level findings seem less clear (Stenberg *et al*., 1995; Desmond and Gershenson, 2017). Therefore, it seems safe to assume that these prior micro-level results probably are biased due to various sorting processes (i.e. selection bias).

Rates of unemployment and the frequency of crime show more complex associations. Unemployment has a positive and significant between-municipality effect for both applications and forced evictions, but has no within-municipality effect. Crime, on the other hand, only has a positive within-municipality effect on enforced evictions. As significant within-effects improve causal inference (Allison, 2009), the impact of crime supports previous studies that have highlighted the importance of crime rates in predicting evictions (Desmond and Gershenson, 2017). A high crime rate in an area is often associated with multiple socio-economic problems. These multiple factors can possibly also play a role as to why the eviction has been executed. Desmond and Gershenson (2017) suggest that the tenants that live in neighbourhoods with a higher crime rate are more willing to move when faced with an eviction. They also speculate that these individuals or families might not, at the same rate as individuals living in a more desirable neighbourhood, reach out to other family members for help, attend the court hearing, or negotiate with the landlord. Whether there is any truth in this is hard to say, but the results from the REWB model do not contradict it.

The impact of unemployment was expected, and perhaps not surprising, since unemployment/job loss is usually associated with loss of income. It can become hard to pay rent when one is faced with loss in income. Consideration should also be taken of the fact that job loss can result in multiple consequences for the individual such as a decrease in health due to stress. The reasons behind the link between job loss and evictions have nevertheless not been analysed in this study. Higher levels of economic strain/hardship, which was measured as the number of individuals receiving means-tested social assistance, is also found to be significantly related to more evictions, as was higher levels of individuals with only compulsory education. All in all, these findings are expected and they thus give credibility to such findings that are based on individual-level data (Stenberg *et al*., 2011; von Otter *et al*., 2017).

Strengths and limitations

Strengths of this study include the longitudinal design for which data from the same municipalities were collected repeatedly over time. In contrast to prior micro level cross-sectional studies, which for obvious reasons cannot account for trend, such an approach not only allows controlling for time-varying factors, but also for time-

invariant unobserved municipal-level variables (cf. within-municipality effects estimation). Aggregated data analysis is moreover less prone to selection bias (Norström and Skog, 2001). Although aggregated versions of bivariate individual-level associations may be susceptible to ecological fallacy due to aggregation bias (Robinson, 1950; Clark and Avery, 1976), multivariable regression analyses substantially reduce such potential problems (Firebaugh, 1978; Hanushek *et al*., 1974).

Still, this study is not without limitations. All studies based on panel data have inherent shortcomings, and this study is no exception. A fundamental limitation refers to that data were constrained to municipal-level population data that are recorded in the national registers. The latter is the trade-off to working with aggregated administrative data in a longitudinal design. The discrepancy between prior micro-level operationalisations of the hypothesised independent variables and the operationalisations in this study may thus be too large. In addition, however well substantiated an estimated model might be, there is always a possibility that some (perhaps yet unknown) important predictor has been left out (Norström, 1989). Although our specified multivariable regression models bought some protection against ecological fallacy, potential problems related to omitted variable bias may remain. Moreover, if it had been possible to address a longer period of time (e.g. 10 years), estimates that were found to be not significantly related to the outcomes would probably have reached statistical significance.

Also, and in line with Desmond and Kimbro (2015), evictions are not always a predictable outcome of certain behaviours or chained events. It is not possible to state that all tenants that break their rental agreement become evicted and not everyone that gets evicted has violated their rental agreement. There can be many different reasons as to why some get evicted whereas others do not. For example, the landlord and the social services might come to an agreement for a plan that results in the tenant keeping their apartment or the tenant might have a landlord that is working for an eviction. The underlying factors have not been analysed in this study, which might affect the generalisability of the results. This study is further limited in its generalisability through its focus on the Swedish context. As a consequence of this, its findings are embedded in how the Swedish law and eviction system is designed. However, the panel data approach of this study can be adapted to other countries, which may allow for testing whether the empirical findings can be reproduced.

Implications

The empirical findings of this study do to some extent replicate previous micro-level research and therefore offer a stronger indication to addressing risk factors related to economic strain/hardship, unemployment/job loss, single households with children, low education, and crime rate. The Swedish welfare system mainly

protects people with economic support connected to income losses due to old age, illness, unemployment etc. As evictions in more than 90 per cent of the cases is caused by rent arrears (von Otter *et al*., 2017) it is obvious that this support is not sufficient. Although Swedish tenants are strongly protected from arbitrary notices to quit, their situation is quite weak as soon as they by rent arrears or anti-social behaviour break the agreements stipulated in the lease. Furthermore, the time period between a rent arrear and an eviction is in an international comparison quite short (Kenna *et al*., 2016). About three months after a rent arrear the tenant loses the right to the lease and the future tenancy is in the hands of the landlords. This means that the social services must act promptly to prevent an eviction. Due to heavy workloads, this is often not possible. Instead of post eviction action, it is more productive to initiate preventive action by a stronger collaboration with landlords and enforcement authorities in order to discover households under risk of eviction. An eviction is not only a disaster for the tenant; it is also a severe economic loss most landlords want to avoid. In order to perform anti eviction work properly social services need to consider factors included in this study. Of special interest is that this study finds that more individuals with foreign background were related to fewer evictions, despite the fact that previous research has shown a correlation between foreign background and an increased risk of becoming evicted. This indicates the need of further research to determine what the actual cause is when individuals with foreign background become evicted. However, consideration should be taken to what von Otter and associates (2017) have suggested, namely that immigrants seem to move out before the eviction is executed.

References

Allison, P.D. (2009) *Fixed Effects Regression Models* (Los Angeles: SAGE Publications).

Alm, S. (2018) Isolating the Effect of Eviction on Criminal Convictions: Results from a Swedish Study, *Acta Sociologica* 61(3) pp.263-282.

Amore, K., Baker, M. and Howden-Chapman, P. (2011) The ETHOS Definition and Classification of Homelessness: An Analysis, *European Journal of Homelessness* pp.19-37.

Baltagi, B. (2013) *Econometric Analysis of Panel Data* (Chichester: Wiley).

Bell, A., Fairbrother, M. and Jones, K. (2018) Fixed and Random Effects Models: Making an Informed Choice, *Quality & Quantity* pp.1-24.

Bell, A. and Jones, K. (2015) Explaining Fixed Effects: Random Effects Modeling of Time-Series Cross-Sectional and Panel Data, *Political Science Research and Methods* 3(1) pp.133-153.

Berg, L. and Brännström, L. (2018) Evicted Children and Subsequent Placement in Out-of-Home Care: A Cohort Study, *PLOS ONE* 13(4) e0195295.

Busch-Geertsema, V., Benjaminsen, L., Filipovic Hrast, M., and Pleace, N. (2014) *Extent and Profile of Homelessness in European Member States: A Statistical Update* (Brussels: FEANTSA).

Boverket (2014) *Låst läge på bostadsmarknaden [A Locked Housing Market]* (Karlskrona: Boverket).

BRÅ (2017) *Brottsutvecklingen i Sverige fram till år 2015 [Crime Development in Sweden until 2015]* (Stockholm: BRÅ, Rapport 2017: 5.).

Bååth, O. (2014) *National Report on Sweden. Tenancy Law and Housing Policy In Multi-Level Europe (TENLAW)* (Brussels: European Commission, CORDIS).

Böheim, R. and Taylor, M.P. (2000) My Home was My Castle: Evictions and Repossessions in Britain, *Journal of Housing Economics* 9(4) pp.287-319.

Cameron, A.C. and Miller, D.L. (2010) Robust Inference with Clustered Data, in: A. Ullah and D.E.A. Giles (Eds.) *Handbook of Empirical Economics and Finance*, pp.1-28. (Boca Raton: Chapman & Hall, CRC Press).

Clark, W.A.V. and Avery, K.L. (1976) The Effects of Data Aggregation in Statistical Analysis, *Geographical Analysis (VIII)* pp.428-438.

Crane, M. and Warnes A.M. (2000) Evictions and Prolonged Homelessness, *Housing Studies* 15(5) pp.757-773.

Desmond, M. (2012) Eviction and the Reproduction of Urban Poverty, *American Journal of Sociology* 118(1) pp.88-133.

Desmond, M. and Gershenson, C. (2017) Who Gets Evicted? Assessing Individual, Neighborhood, and Network Factors, *Social Science Research* 62 pp.362-377.

Desmond, M. and Kimbro, R.T. (2015) Eviction's Fallout: Housing, Hardship, and Health, *Social Forces* 94(1) pp.295-324.

Djankov, S., La Porta, R., Lopez-de-Silanes, F. and Shleifer, A. (2003) Courts, *The Quarterly Journal of Economics* 118(2) pp.453-517.

Firebaugh, G. (1978) A Rule for Inferring Individual-Level Relationships from Aggregate Data, *American Sociological Review* 43(4) pp.557-572.

Fowler, K.A., Gladden, R.M., Vagi, K.J., Barnes, J. and Frazier, L. (2015) Increase in Suicides Associated with Home Eviction and Foreclosure during the US Housing Crisis: Findings from 16 National Violent Death Reporting System States, 2005–2010, *American Journal of Public Health* 105(2) pp.311-316.

Hanushek, E.A. (1974) Model Specification, Use of Aggregate Data, and the Ecological Correlation Fallacy, *Political Methodology* 1(1) pp.89-107.

Hartman, C. and Robinson, D. (2003) Evictions: The Hidden Housing Problem, *Housing Policy Debate* 14(4) pp.461-501.

Kahlmeter, A., Bäckman, O. and Brännström, L. (2018) Housing Evictions and Economic Hardship. A Prospective Study, *European Sociological Review* 34(1) pp.106-119.

Kemeny, J. (1995) *From Public Housing to the Social Market: Rental Policy Strategies in Comparative Perspective* (London: Routledge).

Kenna, P., Benjaminsen, L., Busch-Geertsema, V. and Nasarre-Aznar, S. (2016) *Pilot Project – Promoting Protection of the Right to Housing – Homelessness Prevention in the Context of Evictions* (Luxembourg: European Union).

Kennedy, M.C., McNeil, R., Milloy, M.J., Dong, H., Kerr, T. and Hayashi, K. (2017) Residential Eviction and Exposure to Violence among People who Inject Drugs in Vancouver, Canada, *International Journal of Drug Policy* 41 pp.59-64.

Kronofogden (2020) *Avhysningsstatistik 1982-2019 [Eviction Statistics 1982-2019].* (Kronofogden.se).

McLaughlin, K.A., Nandi, A., Keyes, K.M., Uddin, M., Aiello, A.E., Galea, S. and Koenen, K.C. (2012) Home Foreclosure and Risk of Psychiatric Morbidity during the Recent Financial Crisis, *Psychological Medicine* 42(7) pp.1441-1448.

Norström, T. (1988) Deriving Relative Risks from Aggregate Data. 1. Theory, *Journal of Epidemiology and Community Health* 42 pp.333-335.

Norström, T. (1989) The Use of Aggregate Data in Alcohol Epidemiology, *British Journal of Addiction* 84 pp.969-977.

Norström, T. (1995) The Impact of Alcohol, Divorce, and Unemployment on Suicide: a Multilevel Analysis, *Social Forces* 74(1) pp.93-314.

Norström, T. and Skog, O.J. (2001) Alcohol and Mortality: Methodological and Analytical Issues in Aggregate Analyses, *Addiction* 96(1s1) pp.5-17.

O'Mahony, L.F. (2006) *Conceptualising Home: Theories, Laws and Policies* (Oxford: Hart Publishing).

von Otter, C., Bäckman, O., Stenberg, S-Å. and Qvarfordt Eisenstein, C. (2017) Dynamics of Evictions: Results from a Swedish Database, *European Journal of Homelessness* 11(1) pp.35-57.

Phinney, R., Danziger, S., Pollack, H.A. and Seefeldt, K. (2007) Housing Instability among Current and Former Welfare Recipients, *American Journal of Public Health* 97(5) pp.832-837.

Robinson, W.S. (1950) Ecological Correlations and the Behavior of Individuals, *American Sociological Review* 15(3) pp.351-357.

Rojas, Y. and Stenberg, S-Å. (2016) Evictions and Suicide: a Follow-Up Study of Almost 22 000 Swedish Households in the Wake of the Global Financial Crisis, *Journal of Epidemiology & Community Health* 70(4) pp.409-413.

Schunck, R. (2013) Within and Between Estimates in Random-Effects Models: Advantages and Drawbacks of Correlated Random Effects and Hybrid Models, *The Stata Journal* 13(1) pp.65-76.

Schunck, R. and Perales, F. (2017) Within-and Between-Cluster Effects in Generalized Linear Mixed Models: a Discussion of Approaches and the xthybrid Command, *The Stata Journal* 17(1) pp.89-115.

Socialstyrelsen (2018) *Homelessness in Sweden 2017* (Stockholm: Socialstyrelsen).

Stenberg, S-Å. (1991) Evictions in the Welfare State – an Unintended Consequence of the Swedish Policy? , *Acta Sociologica* 34(2) pp.103-114.

Stenberg, S-Å., Kåreholt, I. and Carroll, E. (1995) The Precariously Housed and the Risk of Homelessness: a Longitudinal Study of Evictions in Sweden in the 1980s, *Acta Sociologica* 38(2) pp.151-165.

Stenberg, S-Å., van Doorn, L. and Gerull, S. (2011) Locked out in Europe: a Comparative Analysis of Evictions due to Rent Arrears in Germany, the Netherlands and Sweden, *European Journal of Homelessness* 5(2) pp.39-61.

van Laere, I., De Wit, M. and Klazinga, N. (2009) Preventing Evictions as a Potential Public Health Intervention: Characteristics and Social Medical Risk Factors of Households at Risk in Amsterdam, *Scandinavian Journal of Public Health* 37(7) pp.697-705.

Wooldridge, J.M. (2010) *Econometric Analysis of Cross Section and Panel Data* (Cambridge, MA: MIT press).