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Explaining the spatial variation in housing prices: an economic geography approach

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Abstract

Housing prices vary geographically, even between neighbouring municipalities. Local differences can be attributed to differences in socio-economic variables and real estate characteristics. This article argues that one should additionally take into account the geographical location of municipalities. In particular, housing prices are affected by distance and travel-time to important economic centres offering jobs and extensive services. Following the economic geography literature, we develop a model showing the explicit impact of geographical barriers on housing prices. As such, we distinguish ourselves from the existing literature on the dynamics of housing prices since geographical elements are fairly constant over time. We estimate our model on municipality-level housing prices for all 589 Belgian municipalities in 2001. We also differentiate between the two main regions of Belgium (Flanders and Wallonia). Our empirical results confirm expectations. Geographical barriers have significantly

negative effects on housing prices. Nevertheless we find important differences between the Belgian regions and the means of transport considered.

Keywords:

housing prices | spatial variation | geography | distance

JEL Classification::

R21 | R31

Notes

[1] See e.g. van Dijk et al. (2009) for disparities in Dutch regional housing prices, Beenstock and Felsenstein (2010) for regional housing prices in Israel. It is often observed that the real estate prices vary more than commodity prices (see e.g. Tabuchi (2001) for Japan). The disparities have even become larger in many countries (see e.g. Ley and Tutchener, 2001).

[2] For recent econometric contributions, see Bitter et al. (2007), Smith and Wu (2009), Montero and Larraz (2010) and Brady (2011). A limited number of studies take into account specific geography-related factors as fundamental explanations for housing prices. For example, Ottensmann et al. (2008) study the effect of both distance and journey time to an economic centre. Hamnett (2009) studies housing price differences in inner London and explains the changing housing price patterns in terms of spatially-displaced demand.

[3] In an overview of the housing literature, Gibb and Hoesli (2003) call a coherent economic analysis of the spatial dimension of real estate markets a major research topic.

[4] Since we are mainly interested in the geographical determinants of housing prices – that vary less over time – we do not explicitly consider time-varying variables such as interest rates in the literature overview or in our own contribution.

[5] Belgium consists of three regions (Flanders, Wallonia and Brussels). Housing prices tend to be highest in the Brussels' area because of the attractiveness of the capital city.

Further, both Flanders and Wallonia are each composed of five provinces (for Flanders: East-Flanders, West-Flanders, Antwerp, Limburg and Flemish Brabant, for Wallonia: Liège, Namur, Hainaut, Luxembourg and Walloon Brabant).

[6] Hence there are no tenants in our model.

[7] The motivation for this assumption is that we do not want to introduce any separate impact of ambition or efforts.

[8] Workers from the periphery are attracted by higher wages in the core than in the periphery. These higher wages are the typical centripetal force in economic geography models. Assume that, in a Dixit–Stiglitz framework with differentiated products and free entry, the number of brands produced in the core is fixed and higher than the number obtained endogenously if labour demand is equalized to local labour supply. This high number of brands is the result of some core functions, like shopping centres, greater marketing efforts, etc. In order to produce those additional brands, the core needs more workers. As workers from the periphery face commuting costs, the only way to convince them to commute is by paying higher wages. Which individuals will commute in the end might be the result of a selection process, i.e. the core attracts the best workers among those willing to commute from the periphery. We however do not take heterogeneity between workers into account in our model and introduce a representative worker.

[9] Note that , i.e. the total amount of leisure is the same if one works in the region of residence, whatever that region is. This is true because the total working time in both regions is assumed to be the same.

[10] For a more general discussion of the relationship between consumption and housing prices see e.g. Attanasio et al. (2009).

[11] H entails the cost of housing – this might imply both buying and renting. Note that we only consider buying a house and do not take the means of financing explicitly into account.

[12] For example, a larger number of construction projects thanks to lower investment costs.

[13] This migration approach is similar to van Nieuwerburgh and Weill (2010). It also acknowledges the interaction between migration and housing prices, as argued by

Carmeron et al. (2006). In an alternative approach by Vermeulen and van Ommeren (2009) it is assumed that within-country migration is caused by housing price differences across cities. In this article the growth of the housing stock, within-country migration and employment growth are simultaneously determined. Jeanty et al. (2010) assume a similar, simultaneous and spatially interdependent setting between housing prices and migration. As in our approach, in these previous studies migration is the main channel through which inhabitants adjust to housing market conditions. In contrast to the previous studies, we follow an endogenous approach to migration, focusing on the impact of other fundamentals, in particular the role of geography, in the cross-sectional steady state.

[14] Note that we focus on nominal wages instead of real wages. However, both housing prices and transport costs may differ between regions. We can therefore argue that migration will result from differences in nominal wages but does not necessarily need to continue until the nominal wages are fully equalized. A (small) nominal wage difference due to differences in housing prices and transport costs is to be expected.

[15] Table 1 explains the abbreviations and further describes the variables in this equation; ln stands for logarithms.

[16] We took logarithms of housing prices, income, population density, the satisfaction indicators and our geographical determinants.

[17] Almost one out of six Belgian jobs is located in the Brussels region.

[18] There are 11 provinces in Belgium. The provincial capitals are: Gent for Oost-Vlaanderen, Brugge for West-Vlaanderen, Antwerpen for Antwerpen, Hasselt for Limburg, Leuven for Vlaams-Brabant, Wavre for Walloon Brabant, Liège for Liège, Namur for Namur, Mons for Hainaut, Arlon for Luxembourg and Brussels for Brussels.

[19] See data from the Home-To-Work Travel Survey of the Belgian Government. To Brussels, 36% commutes by car and 38% by train. For the Flemish provincial capitals, the average percentages are around 60% for car commuting and 10% for train commuting. To the Walloon provincial capitals, on average 75% of workers commutes by car and 8% by train.

[20] The average housing price in 2001 in the Brussels region was 100 557 Euros; the average price in Flanders was 95 655 Euros while in Wallonia it was 78 479 Euros.

[21] Note that if we do not include the satisfaction with respect to the ‘green’ variable, the agricultural variable does become significant.

[22] Note that the number of observations drops to 277 when we add either the presence of a station or the travel time by train as an explanatory variable. The reason for this is that not every municipality has a station.

[23] One could therefore state that the ‘provincial’ effect dominates the ‘geographical municipality’ effect.

[24] The positive effect of closeness to Brussels may partly be explained by the expectation of a better transport network around Brussels (GEN-project and Brabant-Brussels-network). Further research is needed to figure out this possibility.

[25] There are 307 Flemish and 263 Walloon municipalities. Including the stations or travel time by train as an explanatory variable decreases the number of observations to 141 for Flanders and 123 for Wallonia.

[26] The average unemployment rate in the five Flemish provincial capitals is 5.77% while in the Walloon provincial capitals it is 10.23%.