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

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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 et al. ([2010](#)). The latter take into account the impact of the distance to the nearest housing prices. For the purpose of this paper, we focus on the differences in housing prices between the different regions and the differences in inner city housing prices. The impact of spatially-displaced housing prices is not taken into account.

³ In a recent paper, Bitter et al. ([2007](#)) have taken into account the impact of the distance to the nearest housing prices. For the purpose of this paper, we focus on the differences in housing prices between the different regions and the differences in inner city housing prices. The impact of spatially-displaced housing prices is not taken into account.

⁴ Since we are interested in the impact of the distance to the nearest housing prices, we have to control for the impact of the distance to the nearest housing prices. For the purpose of this paper, we focus on the differences in housing prices between the different regions and the differences in inner city housing prices. The impact of spatially-displaced housing prices is not taken into account.

⁵ Belgium is a country with a high level of regional heterogeneity. 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 the region of residence is exogenous to the region of employment. This means that the region of residence is the same in both regions in the core and in the periphery.

¹⁰ For a more detailed discussion of the role of migration and housing prices see e.g. [10].

¹¹ Here we only consider the role of migration. Note that we only consider the role of migration implicitly into the model.

¹² For example, the role of investment costs.

¹³ This model also acknowledges the interaction between migration and housing prices, as argued by [10]. It also

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

¹⁸ There are four regions in Belgium: Flanders, Brussels, Wallonia and the German-speaking Community. In this study we focus on the Flemish region (Flanders) and the Brussels region. The Flemish region is divided into five provinces: Antwerp, Brabant, Flanders, Limburg and West-Flanders. The Brussels region is divided into five municipalities: Brussels, Ixelles, Saint-Josse, Woluwe and Zaventem. The Wallonia region is divided into five provinces: Ardenne, Flanders, Limburg, Namur and Walloon Brabant. The German-speaking Community is divided into five municipalities: Aachen, Eupen, Sittard, Verviers and Zaventem.

¹⁹ See also the map of Belgium in the appendix. To the north of Belgium are the Netherlands, to the east is Germany, to the south is France and to the west is the United Kingdom. The average commuting time by car in Belgium is 25 minutes. The average commuting time by car in the Netherlands is 20 minutes. The average commuting time by car in Germany is 25 minutes. The average commuting time by car in France is 25 minutes. The average commuting time by car in the United Kingdom is 25 minutes.

²⁰ The average commuting time by car in Belgium is 25 minutes. The average commuting time by car in the Netherlands is 20 minutes. The average commuting time by car in Germany is 25 minutes. The average commuting time by car in France is 25 minutes. The average commuting time by car in the United Kingdom is 25 minutes.

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%.

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