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A. Innocenti, F. Lorini, C. Rapallini

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ETHNIC HETEROGENEITY, VOTING PARTICIPATION AND LOCAL ECONOMIC GROWTH. THE CASE OF BELGIUM

Alessandro Innocenti
Università di Siena

Francesca Lorini
Università di Siena

Chiara Rapallini
Università di Firenze

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Abstract. The paper analyzes the case of Belgium to provide insight into the relationships among ethnic heterogeneity, voting participation and local economic growth. We find that heterogeneity, and external and internal mobility reduce immigrants' voting participation, while we do not find support for the hypothesis that voting participation is related to local economic growth, with the exception of Flanders, which is the most ethnically homogeneous region of Belgium. This finding is interpreted as showing that an increase in ethnic heterogeneity prevails over other factors in determining local economic performance via a decline in social capital.

Keywords: ethnic heterogeneity, voting, political participation, local economic growth, Tiebout model.

JEL Codes: D72, H4, H7, N4, R1.

1. Introduction

Tiebout's (1956) model states that if a sufficient number of local communities exist to accommodate different types of preferences, individuals can move to the community whose local government best satisfies their set of preferences. To quote Oates (1969, pp. 957-958), "Tiebout's world is one in which the consumer "shops" among different communities offering varying packages of local public services and selects as a residence the community which offers the tax-expenditure program best suited to his tastes."

Innocenti and Rapallini (2011) provide laboratory evidence on Tiebout efficiency-enhancing by checking if local sorting and decentralization produce welfare gains. Their main result is that 'voting with feet' increases efficiency if it is joined with voting with ballots. Only if local community members exercise the right to vote is the increase in individual welfare positively related to the number of moving decisions. According to these findings, voting participation is a necessary condition for the validity of Tiebout's model.

In fact, an increase in racial heterogeneity in local communities (Rhode and Strumpf, 2003) is associated with a decrease in voting participation in most democracies. In countries where voting rights have been extended to minorities and immigrants, they exhibit much lower rates of voting participation than natives (Cho, 1999; Ramakrishnan and Espenshade, 2001; Bevelander and Pendakur, 2011).

To provide insight into this issue, this paper analyzes a case study. Despite the advantages of inter-regional comparisons, few studies have analyzed these relationships, which are very difficult to test. Immigrants to Belgium have had the right to vote in local elections since 2006. This partial extension makes it possible to check if political participation has had an impact on the economic growth of local communities. Our starting hypothesis is that voting may enhance the ties between immigrants and local communities, reduce internal mobility, increase social capital, and consequently increase economic growth.

Ethnic heterogeneity is indeed acknowledged to have a greater impact on economic growth at the local than at the national level (Alesina and La Ferrara, 2000; Putnam, 2007). Research on this topic has been characterized by two approaches proceeding "in a parallel way: one on cross country comparisons, and one on local communities" (Alesina and La Ferrara, 2005; p. 762). In the first strand, diversity has been analyzed across different dimensions (ethno-linguistic, religious, etc.) by comparing national economic performances (Mauro, 1995; Easterly and Levine, 1997; La Porta et al. 1999, Bluedorn, 2001; Alesina et al. 2003; Montalvo and Reynal-Querol, 2005). At the local level, the relationship between ethnic heterogeneity and economic growth has been analyzed

through the concept of social capital to assess the effect of immigration on labour markets and local welfare, and also on political participation, widely defined, which is the main focus of our analysis.

The paper is structured as follows. Section 2 reviews the empirical literature on local growth and immigrant political participation. The data set and methods are illustrated in Section 3. Section 4 presents and discusses the statistical results. Section 5 concludes.

2. Background literature

2.1 'Voting with your feet'

A common assumption in migration theory is that immigrants' human capital is less location-specific than that of natives and this increases their probability of moving across local communities. Internal mobility flows depend on many factors, such as labour market efficiency, housing costs and social networks, producing different location choices for natives and immigrants. The latter are less likely to be house owners, are concentrated in ethnic communities, and are mainly motivated by job searching. Assuming that residential displacement is driven by economic factors, Sasser (2010) compares three factors determining domestic state-to-state migrations in the U.S. between 1977 and 2006: labour market conditions, per capita incomes, and housing affordability. On the basis of Internal Revenue Service data, Sasser (2010) shows that, even if all three indexes of economic well-being are significant determinants of migration, the magnitude of their impact is highly variable and changes over time. Per capita income is decreasing in relevance, housing affordability is more and more relevant, while the condition of the labour market is the most prominent factor in the late 1980s and early 1990s.

Closer to our work, a lively strand of literature, mostly concerning the U.S., compares the internal mobility of immigrants and natives to assess the impact on the labour market of native mobility in response to migrant inflows. Frey (1996) and Wright et al. (1997) come to different conclusions on the relationship between immigrant inflows and native outflows in U.S. metropolitan areas. The former find a strong positive correlation between the two flows, while the latter's data analysis does not show any correlation. Borjas et al. (1997) report strong negative correlations between net native migration and immigration from abroad, while Card and DiNardo (2000) study the effect of the inflow of skill-group-specific immigrants on the location choices of the natives belonging to the same skill group. Their conclusion is that inflows of immigrants have quite significant impacts on the skill distributions of local communities, although they do not trigger rapid adjustments in the native population.

Empirical evidence for European countries is somewhat sparse. Hatton and Tani (2005) study internal migration across eleven British regions over two decades to understand if the effects of immigration on wages and/or unemployment are compensated by inter-regional labour mobility. They conclude that there is a displacement effect, especially for the southern regions, where immigration from abroad is concentrated. Moccetti and Porello (2010) and Brucker et al. (2011) study the displacement effect of immigrants in Italian local labour markets. In the first of these papers, a panel data analysis from 1995 to 2005 is performed to demonstrate that immigration is positively associated with inflows of highly-educated natives, suggesting the existence of potential complementarities. Moreover, the authors show how the displacement of poorly-educated natives has partially substituted the traditional south-north mobility of less-skilled natives. The main finding of Brucker et al. (2011) is that, conditional on unemployment and wage differentials, the presence of foreign workers in the labour force of the destination regions discourages internal labour mobility. Significantly enough, their conclusion is that spatial correlation studies, which use variation in the proportion of foreigners across regions to identify the effect of immigration on wages and levels of employment, tend to understate the actual impact of foreign immigration. De Valk and Willaert (2012) analyze the internal mobility of migrants in Belgium to test whether different migrant groups have different patterns and if the perceived neighbourhood characteristics are relevant to mobility decisions. They find that patterns of mobility and casual factors, mainly socio-economic ones, are similar for all the origin groups in Belgium. The use of census data allows them to draw conclusions about the displacement decisions of groups defined by ages and generation of immigration. For example, young adults of the second generation show similar patterns to young native adults, and people from northern European countries or from the U.S. are more similar in their displacement decisions to natives than other immigrant groups.

A very recent strand of literature focuses on the role of ethnic groups as networks to provide information about jobs. In this perspective, in ethnic enclaves, which usually have higher employment rates, minorities may be disadvantaged in the job search process, but at the same time members of ethnic enclaves more easily share information on new job opportunities. These labour market mechanisms are thoroughly analyzed for the U.S. (Falcon and Melendez, 2001; Elliott, 2001; Conley and Topa, 2002; Mouw, 2002; Munshi, 2003) and there are also some studies for European countries. Boman (2010) compares the internal mobility of natives and immigrants in Sweden in the late 80s in order to disentangle two effects: on the one hand non-natives are more likely to migrate to search for a job because they are endowed with less location-specific human capital; on the other hand immigrants tend to cluster in ethnic enclaves. The exercise shows that the migration propensity of the foreign-born is not significantly different from that of native Swedes,

although an extended model reveals a significant locking-in effect of enclaves on non-Nordic immigrants and a strong negative effect of living in a city. That is to say, when controlling for these additional effects, immigrants are more mobile than native Swedes. Frijters et al. (2005) and Battu et al. (2011) provide evidence for the UK that personal networks are the commonest method used by minorities to find a job, even if it is not the most effective. By using individual-level data from the UK Labour Force Survey, Patacchini and Zenou (2012) show that the higher the percentage of a given ethnic group living nearby, the higher the probability of finding a job through social contacts, but this effect decays very rapidly with distance. In contrast, Boeri et al. (2011) find that in Italy migrants who are resident in areas with high concentrations of non-natives are less likely to be employed compared to migrants resident in less segregated areas. By taking into account ethnic identity, Bisin et al. (2011) investigate the relationship between ethnic identity and employment for immigrants moving to Europe from non-European countries and find that immigrants with strong ethnic identity have more difficulties in finding a job, even if large differences emerge not only between first and second generation immigrants but also across countries.

Finally, the impact that social capital has on job searching is discussed by David et al. (2010), who analyze the relations among local social capital, geographical mobility and labour market efficiency in a cross countries analysis, without separating immigrants from natives. They compare northern and southern European countries in terms of family and friendship ties and claim that an accumulation of local social capital reduces the mobility of workers and increases unemployment rates. According to the authors, this is a key finding for policy implications: "Local social capital may indeed act as a bottleneck, preventing mobility. Attempts to handle unemployment by changing labour market institutions may fail given [a] vicious circle involving immobility and high local social capital. Deregulating labour markets may simply increase inequality, but will not necessarily increase mobility a great deal." (David et al., 2010; p. 201)

2.2 Voting with ballots

How enclaves work in immigrant integration in the host society is a key issue, not only for labour economics but also for political participation. In a seminal paper, Alesina and La Ferrara (2000) investigate whether population heterogeneity, in terms of both income and ethnicity, influences the degree of participation in U.S. local communities. They define participation as a set of social activities and they show that engagement in these activities is weaker in communities where income inequalities and ethnic fragmentation are greater. The factors explaining political participation in heterogeneous societies are studied by Anderson and Paskeviciute (2006), using a data set in which macro data for 44 countries are analyzed together with individual-level data from

surveys collected as part of the World Values Surveys (WVS) in 1999–2001. The data set allows them to show the difference between ethnic heterogeneity and linguistic heterogeneity in differently explaining the multiple aspects of political participation, such as political discussion, membership, trust and political interest. Voting tornout is considered one of the many possible ways of participating and "studies that include an analysis of the voting behaviour of immigrants and their descendants are far less frequent in part because of lack of data and in part because immigrants are generally not given voting privileges until after attaining citizenship" (Bevelander and Pendakur, 2011, p. 72). Costa and Khan (2003) give evidence that in the U.S. the likelihood of voting is higher where heterogeneity is lower, while Campbell (2006) shows that voting participation increases both in homogeneous and in heterogeneous communities. In the first case, civic engagement drives the desire to vote, while in the second the key driving force is political motivation. In other words, in homogenous communities people decide to vote because of a shared social norm, while in heterogeneous contexts voters try to influence the result of an election. Both papers focus on the homogeneity/heterogeneity of the communities, but no distinction is made between the political participation of immigrants and natives. Extension of the traditional model of voting participation to immigrants needs to take into account not only the institutional barriers to registering and voting and the role of social networks, but also the role of personal characteristics (see Ramakrishnan and Espenshade, 2001). Among these features, some influence both native and immigrant propensities to vote, such as, for example, age, socio-economic status, level of education and the history of voting participation in each State; while there are others, such as language proficiency, residential mobility, the generation of immigration and years spent in the host country, that are specific for immigrants. Taking all these characteristics into account, Ramakrishnan and Espenshade (2001) do not find any statistical significance for an impact of the proximity of co-ethnics on U.S. voting participation. They give an interesting twofold explanation of this result: on the one hand, the poverty of some of the communities with the highest concentrations of immigrants may be the main cause of the low level of voting participation; on the other hand, in these local communities immigrants without citizenship are probably more present than in others. Cho (1999) shows not only that different ethnic groups have different voting turnouts in US elections, but also that the generation of immigration and language proficiency affect groups' voting participation differently. Bevelander and Pedankur (2011) demonstrate that being a Swedish citizen increases the voting participation of immigrants, even though the right to vote in local elections in Sweden has been accorded to non-citizen immigrants since 1975. With the aim of studying the effect of ethnic enclaves on the political participation of immigrants, Bilodeau (2009) tests the following alternative hypotheses: (a) immigrants in ethnic enclaves participate more because they are better socialized –

it is easier for political parties to reach them, they feel the "strength of numbers", or (b) immigrants in ethnic enclaves participate less because they feel far from the host society. The evidence collected shows that immigrants participate more actively when living in federal constituencies with high concentrations of immigrants, and the impact of residential segregation is greater for immigrants from non-English-speaking countries.

In countries where immigrants have the right to vote, they normally bear the burden of taxation and enjoy entitlement to social benefits. In this situation, one may ask what the consequences of different policies are on immigrant internal mobility and on the public budget. This question has been addressed in a Tiebout framework by distinguishing between native and immigrant voters. Michel et al. (1998) theoretically analyze the consequences of two different assimilation policies in a general equilibrium model in which only fully-fledged citizens benefit from redistribution and participate in the political process. Under the first policy, a migrant becomes a citizen right away, while in the second he takes a period of time to acquire citizenship. The model concludes that in small and open economies, such as local communities, with immediate assimilation, there is no redistribution effect regardless of the planning horizon of the government, while the contrary is true with deferred assimilation. This theoretical approach is related to the empirical literature on the impact of immigration on preferences for redistribution at the local level. In this work, the research question concerns the influence of groups of voters, natives and immigrants, on local public choice. In a paper on Spanish local communities, Monseny et al. (2011) provide support for the hypothesis that ethnic heterogeneity reduces income redistribution and the percentage of the municipal budget allocated to welfare. They also find a positive impact of immigrant density on voting share accruing to right-wing parties. Dahlberg et al. (2011) investigate the causal link between ethnic diversity and preferences for redistribution by exploiting an exogenous variation in immigrant shares stemming from a nationwide programme placing refugees in municipalities throughout Sweden during the period 1985-1994. They match data on refugee placement with panel survey data on inhabitants in the hosting municipalities and find significant negative effects of the increase in immigration on financial support for redistributive policies. By analyzing the same nationwide programme for refugees in Sweden as a natural experiment, Aslund (2005) is able to disentangle three different factors which influence residential decisions among immigrants: the presence of people from one's country of birth; labour market prospects; and the availability of local public services. Specifically, the paper analyzes the decisions of immigrants in their initial and subsequent location choices by showing that they are attracted by regions where the number of welfare recipients is relatively high.

While surveys and field experiments are useful tools to test specific hypotheses, our paper focuses on census data to provide new evidence on the different patterns of migrant mobility in Belgium. In this way, the analysis of data on local communities and ethnic groups can help to disentangle the relationships among ethnic composition, voting participation and local economic growth.

3 Data sets and methods

3.1 Why Belgium?

In Belgium non-European immigrants have the right to vote for local government but they are not allowed to vote in regional or national elections. Only immigrants who have been permanently resident for at least five years are eligible to vote upon registration.

Belgium is one of the fifteen European countries[1] where non-national residents are entitled to vote in local elections. In six of these countries this right is also accorded for the regional and national representative bodies.[2] We decide to exclude these countries because when the exercise of voting is extended to all the levels of government, the decision to vote in municipal elections is part of a more complex process. Besides, in four European countries[3] non-nationals cannot stand as candidates in local elections. Belgium in one of the three countries, together with Luxembourg and Slovenia, in which non-national residents are entitled to vote only in local elections and where they cannot stand as candidates in local elections.

Belgium is divided into three main Regions – Brussels-Capital Region (Brussels), the Walloon Region (Wallonia) and the Flemish region (Flanders), 11 provinces, 43 districts and 589 municipalities (Table 1).

Brussels is the smallest of the three regions but it is the most densely populated. Its population increased by 8.7 per cent in the period 2000-2007 due to a large inflow of immigrants of foreign European origin, which account for 50.1 per cent of the total foreign population (Table 2). The immigrant population is markedly heterogeneous, as shown by the index of fractionalization of 0.18 (Table 3). If we consider the top ten nationalities, their share of the total number of foreigners is 71.9 per cent, while the percentage of the first largest nationality out of the total number of foreigners is 16.7 per cent (Table 4). In the last decade, the Brussels Region was highly attractive to immigrants, as shown by the increase in the migration rate from 43.1 per cent (2000) to 80.04 per

[1] Together with Denmark, Estonia, Finland, Hungary, Ireland, Lithuania, Luxembourg, the Netherland, Portugal, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.
[2] Denmark, Hungary, Portugal, Slovakia, Sweden and the United Kingdom.
[3] Belgium, Estonia, Hungary, Luxembourg, Slovenia.

cent (2009), which was associated with a lower internal mobility, which declined from -3.63 per cent (2000) to -9.53 per cent (2009) (Table 5). Brussels' economy is characterized by a level of income significantly lower than the other regions (Table 3) and a marked specialization in the service sector.

Flanders accounts for 58 per cent of the total Belgian population. In the period 2001-2009, the growth of the foreign population was 26.1 per cent (Table 2), but the share of this on the native population (5.4 per cent) (Table 2) and heterogeneity (0.02) (Table 3) were lower than in the other regions. The latter figure is due to the region's large share of the first foreign nationality, which accounts for nearly 30 per cent of the total. The Flemish Region is highly attractive to immigrants. In the period 2000-2009, the migration rate from abroad increased from 46.9 per cent to 74.7 per cent and the internal migration rate from 2.21 per cent to 7.17 per cent (Table 5). The average income was the highest (13,730 Euros per year) among the country's regions, as was the rate of economic growth (Table 4).

Finally, Wallonia hosts 32.6 per cent of the total population, with a share of non-European foreign population equal to 9.2 per cent (Table 2). In the period 2000-2007 it recorded the lowest increase in the foreign population (1.3 per cent). The share of foreigners on the native population was slightly higher than in Flanders (9.2 per cent) (Table 2) and the heterogeneity of the population was approximately the same (0.02) (Table 3). The proportion of the most numerous foreign nationalities out of the total number of foreigners was 41.69 per cent and that of the top 10 nationalities 84.96 per cent (Table 4). Compared with Brussels and Flanders, Wallonia attracts a lower number of immigrants from outside the country and more internal ones (Table 5). The average income is higher than in Brussels and lower than in Flanders, as is the economic growth rate. Until the 70s, Wallonia was the main engine of the Belgian economy, but it suffered from the crisis that affected the steel industry in the following two decades.

3.2 Data set

Our data set collects various sources of information at the municipal level for all the municipalities of Belgium (N=589) for the period 2000-2007. First, we collected data from the National Institute of Statistics (INS) on the number of residents by nationality and municipality and their displacements between municipalities. Second, we used data from the Ministry of Economy and Finance of the Belgian Federal Government on average income levels declared for personal income tax. Finally, the *Direction Génerale Institutions and Population* releases data about non-nationals (both European and non-European) resident in Belgium for more than five years, who are potential voters in local elections, and about those who signed up to vote. In our analysis we

consider the foreigners who registered as voters because, according to Belgian law, voting is mandatory once registered.

3.3 Research hypothesis and methods

Our data analysis is in two parts. First, we test whether economic growth is related to population heterogeneity by checking for internal and external mobility. Second, we include the relationship between political participation and economic growth in our analysis.

More precisely, in the first step of the analysis our research hypotheses are the following: (1) fractionalization reduces local social capital and accordingly local growth; (2) external mobility increases fractionalization, and by reducing local social capital it is expected to have a negative effect on local growth; (3) the effect of internal mobility on the fractionalization, on the social capital and local growth is uncertain because it depends on which factors drive internal mobility, i.e. local economic resources or the presence of ethnic networks. If the first prevail, internal mobility increases fractionalization and thus reduces growth, while if the second prevail internal mobility reduces local heterogeneity and increases local growth. In our analysis the initial level of income is assumed to be positively related not only to internal mobility, but also to local growth.

In the second step of the analysis, when political participation is considered, a further research hypothesis has to be verified, i.e. (4) how fractionalization influences political participation. As underlined in Section 2.2, the sign of this relation may be debatable, even if it is generally expected to be negative. On the one hand, internal mobility is expected to reduce participation, not only because residential stability is a prerequisite for civic engagement and thus for voting participation, but also because in a Tiebout framework 'voting with your feet' is considered an alternative to voting with ballots. On the other hand, there are multiple factors that influence the political participation of immigrants in both directions. Individual socio-economic status and the history of voting participation in each local community may both influence the turnouts of natives and immigrants (Ramakrishnan and Espenshade, 2001). The generation of immigration, the years spent in the host county, language proficiency and ethnic networks are relevant for immigrant voters (Cho, 1999). Our data do not allow us to take into account all these personal characteristics and thus we are only able to verify the sign of the relation. On the contrary, the initial income level is expected to positively influence the political participation of both natives and immigrants.

We use ordinary least squares (OLS) estimation in two specifications based on two different structural equation models.

Model 1 is specified as follows:

$$LogGROWTH_i = \alpha + \beta_1 logINCOME_{i00} + \beta_2 FRAC_i + \beta_3 INT_{MOB\,i} + \beta_4 EXT_{MOB\,i} + \varepsilon_i,$$

where the dependent variables represent the log of growth in local community *i* over the chosen period, $logINCOME_{i00}$ is the log of average income per capita in local community *i* in the initial year of the period, $FRAC_i$ represents the average ethnic heterogeneity of the population in community *i,* INT_MOB_i the average percentage of net new entry of immigrants from other municipalities of Belgium in local community *i*, and EXT_MOB_i the average percentage of net new entry of immigrants from other countries in local community *i* . INCOME is the average taxable income per capita from 2000 to 2007 as recorded at municipality level, and the growth rate is calculated as the one-period growth rate (*a*) and the geometric average growth rate from 2000 to 2007 (*b*), which are defined as follows:

$$_{t-1}R_t\,\% = \left\{\left(\frac{x_t - x_{t-1}}{x_t}\right)\right\} \cdot 100 \qquad \text{(a)}$$

$$R_g\,\% = \left[\sqrt[t-1]{\frac{x_t}{x_{t-1}}} - 1\right] \cdot 100 \qquad \text{(b).}$$

FRAC is the widely used "fractionalization index" (also called the Hirschman-Herfindahl index) calculated at the municipal level. The index reflects the probability that two randomly selected individuals from a population belong to different groups:

$$\text{FRAC} = 1 - \sum_{i=1}^{N} s_i^2,$$

where s_i is the share of group *i* (i=1…N) out of the total of the population. Immigrants are classified according to the continent of origin (Africa, Asia, UE Europe, Extra-UE Europe, the Americas, Oceania). INT_MOB represents the internal mobility of immigrants, which is the percentage of net new entry of immigrants from other Belgian municipalities, while EXT_MOB is the external mobility of immigrants to other countries. Both variables are defined as the percentage of net new entry as follows:

$$INT\_MOB_{00-07} = \frac{Net\ new\ internal\ entry_{00-07}}{(Gross\ new\ internal\ entry_{00-07} + 1)} * 100$$

$$EXT\_MOB_{00-07} = \frac{Net\ new\ external\ entry_{00-07}}{(Gross\ new\ external\ entry_{00-07} + 1)} * 100$$

The second specification (Model 2) of the OLS estimation takes into account political participation. The structural equation model is defined as follows:

$$LogGROWTH_i = \alpha + \beta_1 logINCOME_{i00} + \beta_2 FRAC_i + \beta_3 INT\_MOB_i + \beta_4 EXT\_MOB_i + \beta_5 PARTICIPATIONi + \varepsilon_i,$$

in which the variable PARTICIPATION*i* is the rate of political participation of immigrants in local elections in 2006.

In order to assess causal relationships, we estimate two different specifications for each of the two models.

The two versions of Model 1 assume two dependent variables, the growth rate and the FRAC index (Figure 1). In the first specification, Model 1.A, the growth rate (LOG_GROWTH) is explained by the level of income in 2000 (LOG_INCOME_00), population heterogeneity (FRAC) and two indexes of mobility, internal (INT_MOB2) and external (EXT_MOB2), which are also assumed to affect local population heterogeneity. In the second specification, Model 1.B, external mobility is still directly linked to population heterogeneity, but internal mobility only influences the growth rate. Accordingly, mobility from abroad only affects the fractionalization index.

Model 2.A (Figure 2) includes political participation, which is assumed to be dependent on the initial average income of the municipality (LOG_INCOME_00), population heterogeneity (FRAC), and internal (INT_MOB2) and external mobility (EXT_MOB2). Economic growth (LOG_GROWTH) is affected by all the factors, i.e. internal and external mobility, heterogeneity, income and political participation. In contrast, Model 2.B excludes any effect of internal mobility on population heterogeneity and political participation.

4. Results and interpretation

Table 6 shows the results of the OLS estimation of Model 1, which confirm our hypothesis (1) that local economic growth is negatively related to ethnic heterogeneity for the set of all municipalities. Local growth also decreases if mobility is higher, both internal and external,

although the statistical significance of the coefficient on external mobility is greater than that on internal mobility. Estimations on the regions show that the two coefficients related to external mobility are significant for Flanders and Wallonia, but not for the Brussels region, which is, however, characterized by a value of internal mobility much greater than external mobility.

The estimates of Model 1.A are shown in Table 7. As expected, local growth is reduced by external mobility and heterogeneity (hypothesis 1 and 2). In particular, if a municipality with low income attracts immigrants, from abroad and other municipalities, the increase in population heterogeneity reduces the growth of local income. Internal mobility and heterogeneity are found to be positively related, although the relation is not statistically significant. This finding confirms that the effect of internal mobility on heterogeneity is uncertain. As discussed before, if two main drivers of internal mobility are assumed, i.e. local economic resources and ethnic networks, and the former prevail, the final result of the internal mobility is an increase in heterogeneity.

Model 1.B (Table 8), which assumes that internal mobility directly affects only the growth rate, confirms the negative and statistically significant impact of external mobility and population heterogeneity on local economic growth (hypothesis 1 and 2), while it shows a negative but not statistically significant relation between internal mobility and local growth (hypothesis 3). Like model 1.A, model 1.B shows an unexpected negative influence of the initial level of income on local growth.

The model specification, i.e. the path diagram of the final model in Figure 1B, is also verified and fit indices exceed minimum thresholds of adaptation, revealing a good fit of the model with the population. In particular, the Chi-square test is not statistically significant (χ^2 (4) = 9.178, p <0.057) and the other indices considered are satisfactory (RMSEA =0.047; CFI =0.990; NNFI =0.983)[4].

Thus, the first part of our analysis supports the hypothesis that both heterogeneity and external mobility have a negative impact on economic growth.

The OLS estimation of Model 2 is shown in Table 9. The sign of the coefficient of the variable PARTICIPATION is positive and significant for the Flemish region, in which the higher local political participation is, the higher the growth rate is. In contrast, it is negative and significant for all the municipalities and Wallonia. Although the correlations are statistically significant and coherent with our hypothesis, i.e. political participation is negatively correlated with mobility and heterogeneity is positively correlated with growth, the coefficients are significant but with the expected sign only for Flanders.

[4] See Loehlin (2004) and Byrne (2001)

By taking into account political participation, Model 2.A shows an unexpected result, i.e. that political participation is negatively influenced by the initial level of income (Table 10). However, negative relationships between both local heterogeneity and external mobility and political participation are confirmed. The only variable that positively affects political participation is internal mobility but the relationship is not significant. This finding does not support our hypothesis that voting with ballots is considered an alternative to internal mobility by immigrants, while all the other relationships are consistent with our interpretation.

According to Model 2.B (Table 11), political participation is greater if heterogeneity, external mobility and initial income are lower. As discussed in Section 2.2. the negative relation between the initial level of income and participation was not expected. Moreover, the lower population heterogeneity and external mobility are, the higher local growth is, although the relationship between political participation and the growth rate is not statistically significant. Similarly to model 1.B, post-estimation tests show a good fit of the model assumed with the population (RMSEA=0.043; CFI=0.992; NNFI=0.984), although the Chi-Square tests are not statistically significant ($\chi^2(5)=10.272$, $p<0.068$).

To summarize, the second part of the analysis supports our hypothesis that political participation and local growth are directly related only for the Flemish region, but not for Belgium as a whole or for Wallonia and Brussels. The estimations of the models provide robust evidence supporting the hypothesis that both heterogeneity and external mobility have a negative impact on economic growth. Contrary to the starting hypotheses, local economic growth is negatively related to political participation. One of the possible reasons for this result is the unexpected negative influence of the initial level of income on local growth and political participation.

We also find that the growing population of immigrants coming from abroad, which increases the heterogeneity of local communities as measured by the fractionalization index, has a negative effect on political participation. The estimates of two specifications of the tested models corroborate our findings.

Although we expected that low internal mobility would be positively related to high political participation, high social capital and local economic growth, we did not have any starting hypothesis on the effect of internal mobility on fractionalization. This explains the choice to test the structural models in the two versions, A and B, where the latter assumes that internal mobility only affects growth and not fractionalization. The B Models provide better fits than the A Models. This is because internal mobility is not statistically significant in explaining fractionalization. Besides, internal mobility is not significant in explaining political participation. This last finding means that voting with ballots is not considered by immigrants an alternative to internal mobility.

Finally, the data analysis supports the theory that voting participation *per se* does not suffice to increase local economic growth. This interpretation is corroborated by the contrasting finding of a direct relationship between voting participation and growth in the Flemish region, which is the least ethnically heterogeneous region of Belgium.

From this evidence, we suppose that among the factors affecting economic growth the effect of ethnic heterogeneity on economic growth appears to be the most relevant at the local level through the decline in local social capital. This factor appears to prevail over one of the most important components of political participation, which is immigrants' voting participation.

5. Conclusions

This paper has analyzed the case of Belgium to provide insight into the relationships among ethnic heterogeneity, political participation and local economic growth. In Belgium, immigrants have the right to vote only in local elections. This feature of the Belgian political system allows investigation into whether immigrant political participation is related to local economic growth.

Our data analysis provides evidence that ethnic heterogeneity, and internal and external mobility are negatively related to voting participation, while it does not provide support for the hypothesis that immigrant voting participation is related to local economic growth. The only region in which the two variables are directly related is Flanders, which is the most ethnically homogeneous region of Belgium. This finding may be interpreted as showing that an increase in ethnic heterogeneity prevails over other factors in determining local economic performance via declining levels of social capital. Analysis of the relationships between ethnicity, voting and economic development is indeed made complex by the multi-dimensional definition of ethnic identity, which depends on a variety of factors such as gender, language, origin and religion. In particular, immigrant voting participation might probably be boosted by an increase in immigrants' socioeconomic status.

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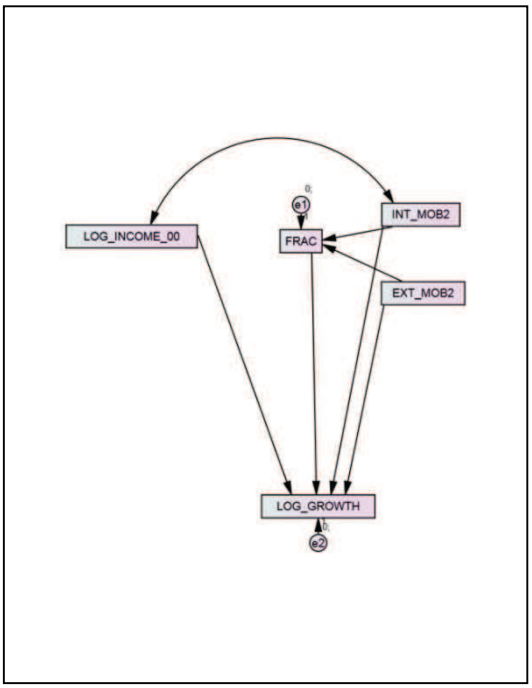
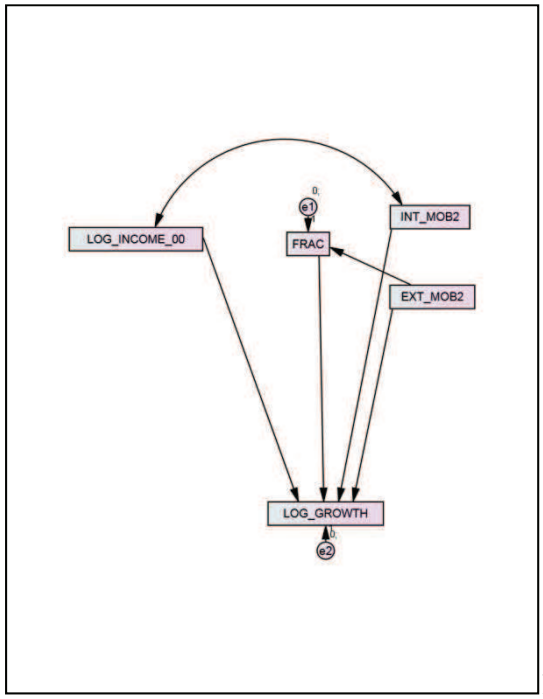
FIGURES

Figure 1. Model specifications 1.A and 1.B

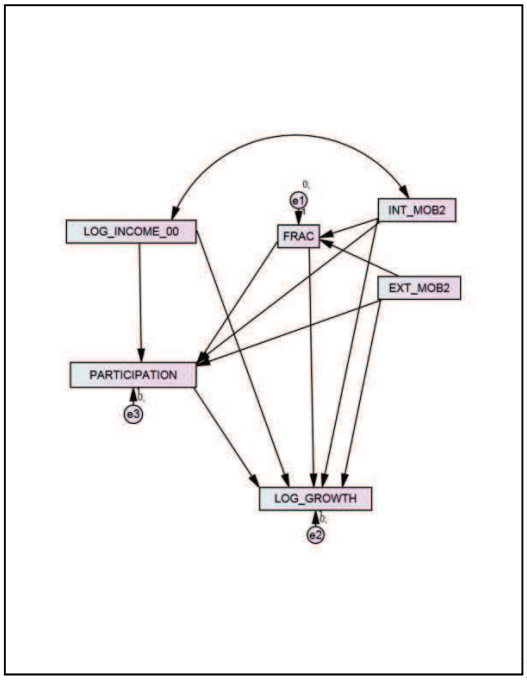


1A

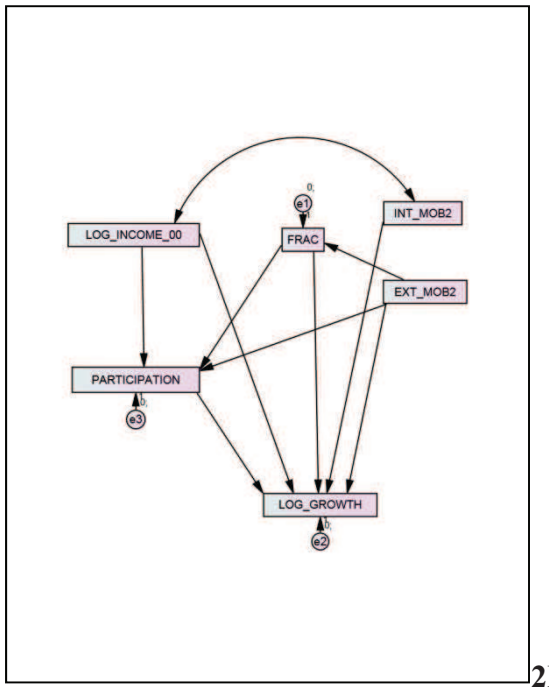


1B

Figure 2. Model specifications 2.A and 2.B



2A



2B

TABLES

Table 1. Levels of government in Belgium

Regions	Provinces	Districts	Municipalities
Brussels Region		**1**	**19**
Flemish Region		**22**	**308**
	Anvers	3	70
	Limburg	3	44
	East Flanders	6	65
	Flemish Brabant	2	65
	West Flanders	8	64
Walloon Region		**20**	**262**
	Brant Walloon	1	27
	Hainaut	7	69
	Liege	4	75
	Including German-speaking Community		9
	Luxembourg	5	44
	Namur	3	38
Belgium		**43**	**589**

Table 2. Population by Regions

Regions	Total population (% per Region)	Total population (Var % 00-07)	Density of population per KM2 in 2007	Foreign population (Var% 00-07)
Brussels Region	9.4	8.7	6496	12.3
Walloon Region	32.6	3.3	205	1.3
Flemish Region	58.0	3.5	455	26.1
Belgium	100.0	3.9	349.0	12.7

Regions	Incidence of foreign population in 2007	Incidence of foreigners on total pop. (Var% 00-07)	Percentage of European foreign (average 00-07)	Percentage of non European foreigners	Incidence of the first foreign nationality
Brussels Region	27.6	3.3	49.9	50.1	16.7
Walloon Region	9.2	-1.9	69.6	30.4	41.7
Flemish Region	5.4	21.8	54.4	45.6	30.1
Belgium	8.8	8.5	58.4	41.6	20.5

Table 3. Descriptive statistics (average values for the period 2000-2007)

	Mean	St. Dev.	Min	Max
All Municipalities (N=589)				
Income (€ per capita)	12967.24	1777.93	6841.68	18970.04
Log income	4.11	.06	3.84	4.28
Log income $_{i=2000}$	4.03	.07	3.72	4.21
Growth	37.50	14.01	13.51	181.93
Log growth	1.56	.12	1.13	2.26
Growth rate	4.60	1.30	1.83	15.96
Log growth rate	.65	.10	.26	1.20
Frac	.02	.04	.00	.39
Internal mobility	-2.35	29.20	-302.41	49.98
External mobility	52.48	20.45	-26.04	92.31
Brussels Region (N=19)				
Income (€ per capita)	11638.73	2345.67	6841.68	15024.86
Log income	4.06	.09	3.84	4.18
Log income $_{i=2000}$	4.01	.10	3.76	4.12
Growth	23.82	5.50	17.82	40.05
Log growth	1.37	.09	1.25	1.60
Growth rate	3.09	.64	2.37	4.93
Log growth rate	.48	.08	.37	.69
Frac	.18	.08	.08	.39
Internal mobility	-2.50	22.16	-54.22	33.36
External mobility	68.55	20.82	25.41	92.31
Flemish Region (N=308)				
Income (€ per capita)	13730.04	1568.25	9698.65	18970.04
Log income	4.13	.05	3.99	4.28
Log income $_{i=2000}$	4.06	.06	3.90	4.21
Growth	35.06	6.69	17.53	63.82
Log growth	1.54	.08	1.24	1.80
Growth rate	4.37	.73	2.33	7.31
Log growth rate	.63	.07	.37	.86
Frac	.02	.02	.00	.14
Internal mobility	-3.98	32.74	-302.41	49.98
External mobility	56.09	20.55	-26.04	90.43
Walloon Region (N=262)				
Income (€ per capita)	12166.85	1546.24	9009.03	18243.21
Log income	4.08	.05	3.95	4.26
Log income $_{i=2000}$	4.00	.07	3.72	4.20
Growth	41.35	18.76	13.51	181.93
Log growth	1.59	.13	1.13	2.26
Growth rate	4.98	1.66	1.83	15.96
Log growth rate	.68	.11	.26	1.20
Frac	.02	.02	.00	.14
Internal mobility	-.43	24.87	-147.14	46.59
External mobility	47.06	18.75	-11.70	87.02

Table 4. Share of the first and the top ten nationalities on total foreign population

Share of the first nationality on total foreign population, per year and on average

Regions	2000	2001	2002	2003	2004	2005	2006	2007	on average
Brussels Region	20.92	18.33	16.62	15.94	15.61	15.24	15.42	15.59	16.71
Walloon Region	44.84	44.44	43.72	42.76	41.71	40.20	38.68	37.19	41.69
Flemish Region	27.51	29.31	30.06	30.58	30.98	30.87	31.03	30.66	30.13
Belgium	22.70	22.53	22.00	21.27	20.56	19.49	18.44	17.40	20.55

Share of the top ten nationalities on total foreign population, per year and on average

Regions	2000	2001	2002	2003	2004	2005	2006	2007	on average
Brussels Region	77.27	75.07	73.40	72.23	71.20	69.87	68.69	67.62	71.92
Walloon Region	87.70	86.94	86.29	85.61	85.10	83.77	82.59	81.68	84.96
Flemish Region	80.54	78.70	77.19	76.01	75.07	73.11	71.83	70.44	75.36
Belgium	82.03	80.35	79.05	78.02	77.16	75.35	74.17	72.97	77.39

Table 5. Migration rates

Immigration rate from abroad

Regions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Brussels Region	43.13	58.17	64.18	58.36	62.63	67.20	67.18	73.12	88.02	80.04
Wallon Region	20.80	26.54	29.80	32.12	35.02	36.74	39.56	43.40	42.40	42.50
Flemish Region	46.88	64.60	73.50	70.84	70.70	72.20	77.87	87.26	88.97	74.75
Belgium	36.13	48.61	54.66	53.04	55.52	58.25	61.46	68.24	73.50	66.16

Internal migration rate

Regions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Brussels Region	-3.63	-5.40	-5.95	-6.67	-8.82	-8.70	-10.06	-9.60	-9.71	-9.53
Wallon Region	1.04	1.22	1.14	1.92	2.15	2.95	2.59	1.83	.08	.77
Flemish Region	2.21	3.70	4.29	4.06	5.70	4.67	6.16	6.39	7.95	7.17
Belgium	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

Table 6. Model 1 OLS Estimation (Log Growth, independent variable)

Dependent Variable	All Municipalities	Brussels Region	Flemish Region	Walloon Region
Constant	5.035	3.483	4.488	5.697
	*(29.09)****	*-1.11*	*(16.971)****	*(18.67)****
LOG INCOME$_{00}$	-.584	-.515	-.478	-.650
	*(-19.78)****	*(-0.66)*	*(-10.89)****	*(-13.37)****
FRAC	-.417	-.406	-.343	-.230
	*(-14.29)****	*(-0.54)*	*(-7.98)****	*(-5.05)****
INT_MOB	-.058	-.699	-.042	-.015
	*(-1.98)**	*(-1.56)*	*(-0.96)*	*(-0.305)*
EXT_MOB	-.173	-.261	-.248	-.148
	*(-5.94)****	*(-0.71)*	*(-5.90)****	*(-3.19)****
Adj. R^2	**0.53**	**0.37**	**0.48**	**0.48**
OBS	**582**	**19**	**307**	**256**

Notes: 1) Robust t-statistics are reported in parentheses; 2)* denotes statistical significance at the 10% level, ** 5% level, *** the 1% level

Table 7. Regression Weights - Model 1A

			Estimate	S.E.	C.R.	P.	Standardized Estimate	Research hypothesis and expected signs
FRAC	←	INT_MOB2	0.000	0.000	0.661	0.509	**0.027**	(3)/?
FRAC	←	EXT_MOB2	0.000	0.000	5.581	***	**0.225**	(2)/+
LOG_GROWTH	←	LOG_INCOME_00	-0.846	0.042	-19.975	***	**-0.566**	+
LOG_GROWTH	←	FRAC	-1.108	0.077	-14.418	***	**-0.404**	(4)/-
LOG_GROWTH	←	INT_MOB2	0.000	0.000	-1.999	0.046	**-0.057**	?
LOG_GROWTH	←	EXT_MOB2	-0.001	0.000	-5.978	***	-0.167	(2)/-

Table 8. Regression Weights - Model 1B

			Estimate	S.E.	C.R.	P.	Standardized Estimate	Research hypothesis and expected signs
FRAC	←	EXT_MOB2	0.000	0.000	5.543	***	**0.224**	(2)/+
LOG_GROWTH	←	LOG_INCOME_00	-0.846	0.042	-19.975	***	**-0.567**	+
LOG_GROWTH	←	FRAC	-1.108	0.077	-14.424	***	**-0.405**	(4)/-
LOG_GROWTH	←	INT_MOB2	0.000	0.000	-2.000	0.046	**-0.057**	?
LOG_GROWTH	←	EXT_MOB2	-0.001	0.000	-5.980	***	-0.168	(2)/-

Table 9. Model 2 OLS Estimation (Log Growth, independent variable)

Dependent Variable	All Municipalities	Brussels Region	Flemish Region	Walloon Region
Constant	5.196	.622	4.426	5.807
	*(27.75)****	*-0.183*	*(16.76)****	*(19.16)****
LOG $INCOME_{I=00}$	-.609	.140	-.470	*-0.661*
	*(-19.34)****	*-0.171*	*(-10.76)****	*(-13.75)****
FRAC	-.427	.069	-.340	-.260
	*(-14.50)****	*-0.09*	*(-17.97)****	*(-5.65)****
INT_MOB	-.056	-.980	-0.031	-.019
	(-1.89)	*(-2.16)*	*(-0.709)*	*(-0.39)*
EXT_MOB	-.186	.054	-.236	-.148
	(-6.29)***	-.130	(-5.60)***	(-3.24)**
PARTICIPATION	-.069	.440	.095	-.132
	*(-2.21)**	*-1.69*	*(-2.26)**	*(-2.88)***
Adj. R^2	**0.53**	**0.44**	**0.48**	**O.50**
OBS	**582**	**19**	**307**	**73**

Notes: 1) Robust t-statistics are reported in parentheses; 2)* denotes statistical significance at the 10% level, ** at the 5% level, *** at the 1% level

Table 10. Regression weights (Model 2.A)

		Estimate	S.E.	C.R.	P.	Standardized Estimate	Research hypothesis and expected signs
FRAC	← EXT_MOB2	0.000	0.000	5.581	***	**0.225**	(2) /+
FRAC	← INT_MOB2	0.000	0.000	0.661	0.509	**0.027**	(3)/?
PARTICIPATION	← LOG_INCOME_00	-0.659	0.072	-9.210	***	**-0.357**	+
PARTICIPATION	← FRAC	-0.500	0.130	-3.850	***	**-0.148**	(4)/-
PARTICIPATION	← EXT_MOB2	-0.001	0.000	-4.899	***	**-0.188**	(2)/-
PARTICIPATION	← INT_MOB2	0.000	0.000	1.049	0.294	**0.041**	- (if a Tiebout framework is verified)
LOG_GROWTH	← LOG_INCOME_00	-0.882	0.045	-19.532	***	**-0.590**	+
LOG_GROWTH	← FRAC	-1.136	0.078	-14.649	***	**-0.414**	(1) /-
LOG_GROWTH	← EXT_MOB2	-0.001	0.000	-6.326	***	**-0.180**	(2)/-
LOG_GROWTH	← PARTICIPATION	-0.054	0.024	-2.225	0.026	**-0.067**	+
LOG_GROWTH	← INT_MOB2	0.000	0.000	-1.909	0.056	**-0.054**	?

Table 11. Regression weights (Model 2.B)

		Estimate	S.E.	C.R.	P.	Standardized Estimate	Research hypothesis and expected signs
FRAC	← EXT_MOB2	0.000	0.000	5.543	***	**0.224**	(2) /+
PARTICIPATION	← LOG_INCOME_00	-0.639	0.069	-9.259	***	**-0.346**	+
PARTICIPATION	← FRAC	-0.493	0.130	-3.791	***	**-0.145**	(4) -
PARTICIPATION	← EXT_MOB2	-0.001	0.000	-4.952	***	**-0.190**	-
LOG_GROWTH	← LOG_INCOME_00	-0.882	0.045	-19.611	***	**-0.592**	-
LOG_GROWTH	← FRAC	-1.136	0.077	-14.660	***	**-0.415**	-
LOG_GROWTH	← EXT_MOB2	-0.001	0.000	-6.325	***	**-0.181**	-
LOG_GROWTH	← PARTICIPATION	-0.054	0.024	-2.227	0.026	**-0.067**	+
LOG_GROWTH	← INT_MOB2	0.000	0.000	-1.911	0.056	**-0.054**	?