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The income effects of minority co-ethnic employment: the case of Hungarians in central and Eastern Europe

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ABSTRACT

What is the effect of minority co-ethnic employment on income? While the business organizations literature argues diversity allows for knowledge accumulation, optimal labour allocation, and efficient interactions, absent is any consideration of language – e.g. language competency or language ideology. We argue when co-ethnic minorities work together, this shared language allows for bounded trust to develop; it also ensures there are preference similarities – factors that can increase firm productivity and individual wages. Using survey data of minority Hungarians in three Central and Eastern European countries (Romania, Slovakia, and Serbia), we find (1) diversity has no positive effect on income; and in fact, (2) co-ethnic employment increases wages in Southern Slovakia and Vojvodina. Additionally, we confirm that co-ethnic employment is not happening simply because of demographics. Instead, with one exception, the proportion of Hungarians in the workplace is significantly higher than in the areas where these jobs are located – suggesting a strategic behaviour by minority Hungarians. The implication is not that we endorse homogeneous workplaces per se, but that we remain cognizant of how asymmetric linguistic competencies and the underlying linguistic ideologies can shape power hierarchies – thereby limiting the benefits of diversity.

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1. Introduction

What are the effects of co-ethnic employment on income for ethnic minorities? While the literature on business organizations often emphasizes the benefits of diversity in production – whether it is because it allows for knowledge accumulation, better labour allocation, and efficient inter-organizational interactions (Page 2019) – absent is any consideration of language. It ignores language competency – i.e. everyone including

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minorities can speak the language of operation. It also overlooks language ideology – i.e. minorities may experience discrimination for not being native speakers. Yet we know from the economics of language literature that linguistic proficiency matters for wage differentials (see Grin, Sfreddo, and Vaillancourt 2011; Liu and Pizzi 2018).

In this paper, we build on these works by focusing on language – specifically a minority language. We are interested in how linguistic proficiency intersects with ethnicity in understanding labour market dynamics. We argue that when co-ethnic minorities work together, there is a shared language. This common language is what allows for bounded trust to develop. Employers are better positioned to evaluate employee work performance; employees are also more likely to believe in the integrity of a work contract. A common language also identifies group boundaries – i.e. who is in the group and who is not. This can be important as people in the same group tend to have congruent preferences, whether it is in how something is to be done versus what is to be done. Additionally, the presence of a shared language facilitates effective communication, reducing the likelihood of misinterpretation and lowering the costs associated with error correction. Given the benefits of having a common language, minority employers are more inclined to hire co-ethnics as employees; and likewise, minorities are more inclined to seek employment in workplaces with more co-ethnics. This behaviour in turn increases the productivity of the firm – as measured by reported incomes.

We test our argument in Central and Eastern Europe (CEE). This attention offers two empirical advantages over existing works (Aslund et al. 2014; den Butter et al. 2007; Möhlmann-Bakens 2015; Shinnar et al. 2011). First, most of the literature on workplace productivity looks at North America and Western Europe. Focusing only on the wealthiest countries in the Global North – where there is rule of law, efficient market coordination, and developed service and creative industries – ignores scope conditions. For example, are the empirical results generalizable to other regions in the world or are they specific to just North America and Western Europe? A focus on CEE allows us to push the spatial boundaries (Kahanec-Zimmerman 2011).

Second, the bulk of the attention in the literature is on immigrant minorities. This is not surprising given that North America and Western Europe account for large number of immigrants. However, focusing on immigrants raises questions about selection effects. For example *which* immigrants speaking *which* languages choose *which* workplace can bias our results on the link between co-ethnic employment and income. Instead, given that CEE is home to a number of autochthonous – i.e. indigenous – ethnic groups that have lived side-by-side in the region for several centuries – with variation in how conflictual their coexistence has been and how much cooperation they have experienced (Bottoni 2017) – we can better sidestep these methodological concerns.

We focus on ethnic Hungarians outside of Hungary – one of the largest ethnolinguistic minority groups in Europe (Pan et al. 2018). There are 1.2 million ethnic Hungarians living in north-western Romania (Transylvania); 460,000, in southern Slovakia; and 250,000, in northern Serbia (Vojvodina).¹ Studies on minority Hungarians have reported that in the last decade – despite the ongoing process of European integration – ethnic parallelism has become more pronounced in many areas of life in these regions (Kiss et al. 2018). In this paper we examine how this parallelism in the economy has impacted minority incomes.

To test, we employ a survey of minority Hungarians in Central Eastern Europe. The ‘Quality of Life and Wellbeing Survey’ (2018-2019) focuses on three areas outside of

Hungary with large ethnic Hungarian population: Transylvania (Romania), Southern Slovakia, and Vojvodina (Serbia). The survey – (1) coordinated out of Budapest; (2) administered in Hungarian; and (3) fielded face-to-face by local enumerators – is one of the largest of its kind ($N = 2610$).

The remainder of the paper is structured as follows. We begin by reviewing the literature on why ethnic heterogeneity is conducive for economic performance across a diversity of disciplines, noting that absent in these works is attention to the role of language. From this, we offer our theory of why co-ethnic employment increases income. Our argument, however, rests not on trust or preferences but on a third mechanism: common language. We then discuss the Hungarian minorities in Central and Eastern Europe (Section 4) and the survey design for testing our hypothesis (Section 5). The evidence in Section 6 corroborates our argument. Specifically, we find that the proportion of Hungarians at the workplace has a significant and positive effect on monthly net salaries. We also consider the endogenous nature of co-ethnic employment and identify how the proportion of Hungarians in a workplace far exceeds those for the municipalities and counties where these jobs are located. We conclude in the final section, noting (1) the scope conditions of this study – i.e. whether these effects are specific to the minority Hungarians in CEE; and (2) the policy implications – i.e. should we be advocating for more homogenous workplaces (preview: no).

2. The negative effects of co-Ethnic employment

In a broader context, issues related to co-ethnic employment fall into the highly interdisciplinary field of ‘diversity literature,’ wherein the connection between ethnocultural heterogeneity and economic performance is examined at different spatial levels.² For example, at the *micro*-level, rational choice theories and methodological individualism interpret ‘ethnic clustering’ as the result of preference-based or profit-maximizing ethnocentric decisions (Balliet et al. 2014; Hammond-Axelrod 2006).

At the *meso*-level, the terms ‘co-ethnic employment/hiring,’ ‘co-ethnic markets,’ and ‘co-ethnic clustering’ are common in labour economics and institutional economics (den Butter et al. 2007; Shinnar et al. 2011); in business organization studies, we learn of ethnic ‘homophily’ (Edo et al. 2019; Trimble 2013) and ‘homosocial reproduction’ (Rivera 2013). Business case strategists often make diversity a top business priority (Robinson-Dechant 1997: 22) while critical diversity management studies focus on the reproduction of inequality regimes, specifically in the context of diversity to try to uncover organizational practices that foster ethnic equality (Acker 2006; Janssens-Zanoni 2014; Noon 2007). In institutionalist economic sociology, topics such as ethnic parallelism, ethnic pillarization, ‘ethnic economy’ (Light 2005), ‘ethnic entrepreneurship’ (Aldrich-Waldinger 1990), and ‘embeddedness’ (Kloosterman-Rath 2001; Portes-Sensenbrenner 1993) try to explain the ethnic divide in market relations.

Finally, at the *macro*-level, concepts of ethnolinguistic ‘fragmentation,’ ‘fractionalization,’ or ‘polarization’ are prevalent in political economy (Collier 2001; Easterly and Levine 1997; Montalvo and Reynal-Querol 2005) and economic geography. We also see it in the highly interdisciplinary field of border studies (Bartz and Fuchs-Schundeln 2012).

When co-ethnics employ co-ethnics, this can have negative implications – whether it is at the micro, meso, or macro-level – for workplace cohesion and productivity. There are at least three reasons why. The first has to do with knowledge accumulation. With diversity, employees from different cultural and linguistic backgrounds can supplement each other's knowledge and competencies. This not only makes it easier to find solutions to existing problems, but it also allows for outside-the-box thinking to increase productivity. This relationship is especially pronounced in knowledge-intensive, higher-value added sectors (Page 2019).

Another reason why co-ethnic employment hurts income involves labour allocation. When minority groups are small, it is likely that the labour market provides a more limited range of options for employment. Therefore, co-ethnic employment leads to inefficiency – if not market failure – since labour allocation will be sub-optimal. And finally, a third reason why co-ethnic employment may in fact be detrimental for wages has to do with inter-organizational interactions. While interactions may be more efficient inside the organization, the organization must still engage with other firms outside. Here, an ethnically homogeneous workplace is less likely to have the requisite in-firm resources to engage in these transactions. In contrast, a diverse workplace would have created and retained positions – using its own workforce – to make out-firm interactions less costly.

One common denominator across these explanations is the omission of language. There is an assumption of *language competency* – i.e. everyone can speak the same language. Yet, we know that this is not always the case. Consider when the minorities are immigrants. Likewise, there is no guarantee that indigenous minorities can speak the titular majority language fluently. In a linguistically heterogeneous work environment, it is easier to misunderstand instructions; likewise, correcting mistakes is more costly – if not socially awkward. When the job is communication intensive, these risks are even higher.

Even in cases where minorities have studied the titular majority language and can speak it relatively well, the reality is that *language ideology* matters, especially through its impact on the relative status of languages – i.e. how languages are situated in a hierarchy. The recognition of the titular majority language as the only acceptable language of the workplace can induce power inequalities (Acker 2006; Janssens-Zanoni 2014). For example, Csata (2020) finds that in an ethnically mixed working environment, the need to communicate in a language that everyone understands means it is usually the titular majority language that is used. The dominance of the titular majority language requires more effort from minority employees – an effort that is neither reciprocal nor always rewarded. Moreover, minority employees may experience a 'rhetorical disadvantage' (Grin 2004: 199) and have to deal with the discomfort of 'linguistic bowing' (Van Parijs 2011: 141) – especially in situations when they must switch to the titular majority language because one single member of the titular majority ethnic group has entered the conversation. When 'parity of esteem' (Van Parijs 2011: 119) is challenged, there is resentment: Morale breaks down, decreasing the aggregate performance of staff. As a result, these difficulties may push multi-ethnic work organizations towards clustering and ethnic segregation. In the next section, we turn to a theoretical argument about why co-ethnic employment – specifically linguistic proficiencies – can increase income.

3. Linguistic proficiencies and co-Ethnic employment

While the political economy literature has repeatedly demonstrated the robust and negative effects of ethnic diversity on wealth (Easterly and Levine 1997; Banerjee 2005), the bulk of this attention has been at the government level as opposed to the workplace itself (c.f., Dale-Onsen and Finseraas 2020; Edo et al. 2019; Ozgen 2021; Parrotta et al. 2014). But we do know that that because ethnically heterogeneous firms tend to have higher transaction costs to manage, co-ethnic employment can not only reduce these costs but also encourage co-ethnic cooperation in the labour market (Åslund et al. 2014; den Butter et al. 2007; Shinnar et al. 2011).

This co-ethnic cooperation can manifest for two reasons. The first has to do with *bounded trust*. In labour economics, there is information asymmetry: Employee performance is difficult to gauge accurately because of principal-agent relations (den Butter et al. 2007). Additionally, employment contracts are imperfect and may not cover all the details of work-related tasks. Even if they do, their formal supervision and enforcement are not possible – let alone affordable. A more economical solution would be to create an atmosphere of bounded trust between employer and employees so that neither party behaves opportunistically but instead acts according to predetermined rules. One way to create this trusting atmosphere is for employers to hire co-ethnic employees.

This ‘bonding social capital’ (Putnam 2007) is strengthened through ethnic networks via ‘bounded solidarity’ – i.e. enforcing collective norms, offering community rewards for assent, and punishing for non-compliance (Portes 1998). In this sense, ethnic networks are trust-generating tools that strengthen the commitment between the employee and the employer (den Butter et al. 2007). The consequence is that co-ethnic firms tend to have lower employee turnover and higher productivity.

The second reason why co-ethnic employment can increase income is because of *preference homogeneity*. Within ethnic groups and networks, there is a greater degree of shared values and wants – whether in how something is to be done or what is to be had (Bates 1973; Miguel 2004). And we know from social psychology that individuals prefer to work with others like them (Trimble 2013: 375). This draw towards ‘similarity can be sufficient to induce in-group favouritism and out-group aversion in interpersonal interaction’ (Rivera 2013: 377). In contrast, imagine the challenges of a diverse workforce. For employers, meeting diverse demands can be costly. But where these costs are absent, co-ethnics are inclined to cooperate and work together.

Both of these explanations, however, rest on language as a marker of identity. Often times, ethnic groups and networks are able to build bonded trust and have shared preferences because of a common language. Languages demarcate ethnic boundaries (Laitin 1998; Liu 2015). They identify who is a member of the ingroup and who is not. Those in the group are more likely to be trusted than those outside. Language can also structure how we see the world – whether it is our propensity to take risks (Chen 2013) or our values towards gender equity (Liu et al. 2018). It also allows for a common vocabulary for interpreting events (Csata 2017). From a practical standpoint, we are more likely to observe effective communication – minimizing the likelihood of misinterpretations and decreasing the costs associated with correcting whatever errors that would have otherwise manifested. In sum, a shared language among co-ethnic minorities can increase workplace engagement and productivity.

While language plays an important role in identification formation – from the individual to the national (Davies and Dubinsky 2018) – language competence matters as well. From a practical standpoint, it allows for communication with those who share the competence. Language competences are mutable – i.e. languages can be learned or forgotten (Liu and Pizzi 2018). Languages can also be instrumental, allowing individuals to secure benefits generally or placement within a dominant group specifically (Laitin 1998). What this also suggests is that minorities – with the titular majority language competency – can bring knowledge accumulation, better labour allocation, and more efficient inter-organizational interactions to a workplace dominated by co-ethnics. The following hypothesis summarizes our argument:

Hypothesis: *Co-ethnic employment has a positive effect on income.*

4. The Hungarian minority in central and Eastern Europe

Following World War I, Hungary experienced significant territorial and demographic loss, surrendering two-thirds of its population to neighboring countries. Sizable Hungarian populations suddenly found themselves minorities in places such as Romania, Slovakia, and Serbia. At one point, the Hungarian population in Romania was the largest minority population in any European country (numbering about 1.7 million). Yet in the past century, the size of these communities has declined (Bárdi et al. 2011, Bitskey 2010). There are multiple reasons for the contraction. One is migration: The emigration of many Hungarians – especially those with higher education or from urban areas – after both World Wars persists to the present day. This has affected the intellectual and socio-economic potential of these communities. Another reason for the decline is poor demographic reproduction rates. And finally, mixed marriages – often correlated with social mobility – have led to a decrease in ethno-cultural reproduction, especially among those with a higher social status (Gyurgyik et al. 2010).

Throughout the region, education – especially higher education – has significantly influenced the social position of the Hungarian minorities. Previously, education served as a nation-building tool with systems in place to limit Hungarian participation (Papp 2012). While these restrictions have eased over the last few decades with university expansion, the Hungarians remain disadvantaged as the result of (the legacy of) past policies. Today, Hungarians are still under-represented in the tertiary sector, including roles in administration and the financial-economic sector; and in contrast, they are older, more concentrated rural areas, and over-represented in lower status occupations (Gyurgyik et al. 2010).

The plight of the Hungarians minorities is not strictly the result of demographics or socio-economics. There are political factors as well. After 1989, many countries in Central and Eastern Europe enacted legislative amendments – making commitments to safeguard the distinct ethnic and linguistic identities of individuals. As Romania and Slovakia sought European Union membership, the Council of Europe mandated protections for minority languages. This resulted in the formal recognition of minority languages in areas with areas with substantial minority populations. For example, in both Romania and Slovakia, Hungarian was recognized as an administrative language in areas where Hungarians constituted at least 20% of the population (Csata, Hlatky

and Liu 2023). Despite these legal advances, tensions persist between an individual's right to their mother tongue and a territory's obligation to accommodate it. This tension is especially pronounced in areas where the minority population falls short of the 20% threshold (Csata and Marác 2018). Moreover, in places where Hungarian is recognized, the bilingualism is mostly asymmetrical – i.e. it is the Hungarian minorities learning the titular majority language but not vice versa (Horváth-Toró 2018).

Another political factor that has affected the Hungarian minorities is what goes on with the kin state – i.e. Hungary. For example, starting in 2010, the government in Budapest made Hungarian citizenship accessible to co-ethnics outside Hungary's borders. Likewise, the Hungarian government has expanded its influence – politically, financially, and culturally – to the Hungarian communities in neighboring countries (Csata et al. 2023a). The implications of these developments are mixed. On the one hand, they offer the Hungarian minorities opportunities for more integration into the Hungarian kin-state political, economic and cultural space. On the other hand, they also carry the risk of diverting attention and resources away from Hungarian minority initiatives in their respective countries (Waterbury 2020).

In short, despite recent improvements in welfare indicators in the region, Hungarian minorities in Central and Eastern Europe continue to face challenges. Many of these issues are deeply rooted in systemic factors linked to their minority status – many of them related to language, e.g. political limitations in language recognition, financial constraints in education policies, and asymmetric bilingualism in social practice. Given this discussion, we predict the following:

Predictions: *Co-ethnic employment has a positive effect on income for the ethnic Hungarian minorities in Central and Eastern Europe.*

5. Research design

We test our argument using the 'Quality of Life and Wellbeing' Survey (2018-2019). The survey was coordinated by the National Strategic Research Institute in Budapest, Hungary and administered in Romania (Transylvania), Slovakia (Southern Slovakia), and Serbia (Vojvodina). Subjects were selected using a stratified, multi-stage, random sampling procedure.³ The regional subsamples are representative for individuals (but not households) by gender, age group, education level, and smaller historical region. In each country, the sample included adults (18+) who identified as Hungarian.

The questionnaire was administered in Hungarian. However, people who spoke Hungarian but identified as a different ethnicity were not included. Since the surveys were administered face-to-face in respondents' homes, local Hungarian-speaking survey enumerators aided with data collection efforts in all three regions. For this paper, we needed a sample of minority Hungarian employees. Here, we identified all respondents who were (1) employed at the time of the survey and (2) working in a workplace with at least one other person. In all, we had 396 respondents in Transylvania (out of $N=1,010$; measurement error: $\pm 3.1\%$), 399 in Southern Slovakia ($N=800$; measurement error: $\pm 3.5\%$), and 364 in Vojvodina ($N=800$; measurement error: $\pm 3.5\%$).

5.1. Dependent variable

Here, we are interested in income, specifically measured as the monthly net salary from primary job. This is a self-reported number and in Euros. Of the three regions, the Hungarians in Southern Slovakia report the highest level of income (744.1). The average monthly income for the minority Hungarians in Transylvania is 459.3. Those in Vojvodina have the lowest reported income (340.6). Given the right hand skew in distribution, we take the logarithmic transformation of the variable.

5.2. Independent variables

To measure co-ethnic employment, we create a measure from two questions. The first asks, 'How many people work (including yourself) in the establishment or institution where you work?' With this baseline number, we then look at the following question: 'About how many of them are [of the titular ethnicity, e.g. Romanians, Slovaks, or Serbs], how many are Hungarians, and how many are other nationalities?' In Transylvania, the average proportion of Hungarians in the workplace is 0.618. The number is similar in Southern Slovakia (0.686) but a bit lower in Vojvodina (0.489).

5.3. Control variables

To account for confounding factors, we control for three sets of independent variables. Table 1 lists the information for each variable and its descriptive statistics. The first set of

Table 1. The variables and descriptive statistics.

	Measure	Transylvania	Southern Slovakia	Vojvodina
Dependent Variable				
<i>log</i> Income (per month, €)	scale	459.3	744.1	340.6
Key Explanatory Variable				
% Hungarian at Workplace ⁷	scale	0.618	0.686	0.489
Municipality/Region Control				
<i>Urban</i>	binary	0.392	0.314	0.592
% Hungarian – LAU2	scale	0.671	0.751	0.624
% Hungarian – NUTS3	scale	0.453	0.471	0.374
Hungarian Population (10 K)	scale	1.298	0.351	1.032
Workplace				
<i>Small Enterprise</i>	binary	0.372	0.430	0.239
<i>Medium or Large Enterprise</i>	binary	0.272	0.201	0.303
<i>Type of Work: Intellectual</i>	binary	0.472	0.540	0.347
<i>Proprietorship: Private</i>	binary	0.716	0.646	0.691
<i>Business Sector: Services</i>	binary	0.636	0.287	0.417
Individual				
<i>Female</i>	binary	0.540	0.488	0.554
<i>Age: 35+ Years</i>	binary	0.608	0.701	0.650
<i>High School Degree</i>	binary	0.628	0.659	0.577
<i>University Degree</i>	binary	0.332	0.326	0.204
<i>Knows Titular Language</i> ⁸	binary	0.740	0.750	0.834
<i>Knows English</i>	binary	0.124	0.155	0.114
<i>Extent of Ego Network</i> ⁹	scale	4.228	4.183	4.070
% Ego Network: Titular	scale	0.084	0.093	0.098
Number of Observations		250	328	343

variables includes the geographic characteristics of the *settlement/region*. We would expect that the market will be broader and more differentiated in urban areas with more opportunities for specialization – including differentiation along ethnic lines. For example, a manager of a car repair shop can better afford to only hire Hungarians in a city than in a countryside.

Next, we consider the characteristics of the *workplace*. First, we expect workplaces with more employees will have lower proportions of Hungarians. There are several explanations for this. First, there is a selection bias: In smaller firms – from a mathematical standpoint – it matters more that the ethnicity of each respondent in the survey is Hungarian (recall, subjects who worked alone were not included in the sample). Second micro and small businesses are often intertwined with the household and thus reflect more the pronounced ethnic nature of family connections.⁴ Third, in larger companies, there are HR departments that manage recruitment (Elvira-Graham 2002). The formality of this process means less likelihood of an employee being hired due to the preferential and ethnically biased decision of a single person. Fourth, in larger organizations, as their activities diversify, it becomes necessary to have smooth communication in the official language of the state. Finally, as the organization grows beyond a certain point, it must simply reach out to a broader non-Hungarian clientele beyond the settlement or region. Here we consider whether the enterprise is micro (<10 employees), small (10–49 employees), or medium and large (50 + employees).

We also consider the sector and the task of the workplace. There is strong empirical evidence in the literature – especially on immigrant entrepreneurship – that ethnic groups tend to cluster in particular fields and submarkets (Light 2005). In CEE, there are also centuries-old traditions with respect to ethnic division of labour. The related rules nowadays are less about the cultural traditions of specialization and cooperation but rather more the byproduct of how much influence each ethnic group has in the state administration. The most recent, profound rearrangement was under socialism where its effects varied across countries and across regions. In Transylvania, for example, after a brief attempt at the de-ethnicization of social mobility trajectories, discrimination against minorities intensified in the 1970s and 1980s. Mandatory work placements and the transformation of the ethnic composition of towns (Boia 2015) resulted in increasing ethnic heterogeneity in the workplace. It became increasingly difficult for Hungarians to get hired in certain strategically important sectors; additionally, there were informal restrictions related to work promotion. We see evidence of these sectoral disparities and positional disadvantages even after 1989: Hungarians remain under-represented in higher-ranked managerial, legislative, intellectual, and technical positions (Csata 2017; Veres 2015: 101). Instead, Hungarians are more pronounced in industry (skilled machinists, and mechanics) and services (trade and hospitality). Given this discussion, we consider whether the type of work is intellectual (1) or physical (0); whether the proprietorship of the organization is private property (1) or state or mixed (0); and whether the business sector is in services (1) or agriculture and industry (0).

Finally, we look at the socio-demographic characteristics (gender, age, and education) – inclusive of resources (language skills and ethno-specific social capital) – of the *individual respondent*. While previous studies on economic ethnocentrism show that there are no significant differences between age or gender when making ethnocentric

decisions (Csata 2018), there is some evidence that education level could matter. Jobseekers might have fewer ethnic or linguistic choices in jobs with fewer customized work opportunities requiring a higher level of education. For example, an architect cannot afford to be as selective as a carpenter.

We also consider the respondent's linguistic proficiency. One language of importance is the titular language – i.e. *Romanian* in Romania, *Slovak* in Slovakia, and *Serbian* in Serbia. We consider these languages as 'titular' because they hold a formal position in the state – i.e. they are the exclusive official state language in each country⁵ – yet this position is not necessarily recognized or appreciated by the minority Hungarians given regional history (see Laitin 1998). Moreover, calling these languages 'national' languages requires minority Hungarians to acknowledge they are members of the Romanian, Slovakian, and Serbian state. Regardless of how we conceptualize the titular language, the reality is that people who cannot speak it are limited in the jobs they can hold. Simply put, they are only eligible for jobs where communication occurs mainly in Hungarian. In both Transylvania and Southern Slovakia, about a quarter of the respondents indicated they did not speak the titular language well. The number is lower in Vojvodina. Related, we also control for whether the respondent can speak English well. The intuition is that those who can speak English have access not only to more jobs but also better paying ones. In all three countries, about 10-15% of the respondents answered in the affirmative. Both of these linguistic proficiency variables are based on self-assessment. Respondents who said they spoke the language either 'perfectly' or 'fluently but with a notable accent' were considered to know the language well.

Finally, networks matter when it comes to job mobility – which matters for income. The type of network structure – whether it is 'local' or 'cosmopolitan', whether it is 'closed or open' – can make a substantial difference (Vacca et al. 2022). Furthermore, the nature of social support patterns within these networks can vary, ranging from ethnic solidarity and homophily to network specialization and 'networked individualism' (Martin et al. 2022). When looking for jobs, individuals in more segregated work-related networks are limited in their prospects. Their opportunities are confined to those within the network (Trimble 2013: 376). Conversely, persons situated in larger and more heterogeneous networks have a wider range of choices (Granovetter 1974). To measure the network, we used a 'name generator' method (see Marsden 2005; also see Csata 2017: 357–359 and Veres 2015). The question asks whether the respondent can rely on others in different situations and whether there are people with whom they socialize on different occasions. There were four situations: (1) '*Are there persons with whom you go out for entertainment (to the pub, theatre, sport events, hiking, etc.)?*' (2) '*Apart from family members living in the same household with you, are there persons with whom you regularly talk about confidential issues and problems?*' (3) '*Let us suppose you needed money immediately. Are there any people you could borrow from?*' (4) '*People often need legal counselling or advice and help with official matters. Is there anyone you could rely on if you needed to?*' For each situation, respondents answered in the affirmative or the negative; and if in the affirmative, they could name up to three individuals – meaning that the ties could vary between 0 and 12. From these 12, we also considered what proportion of them are from the titular ethnic group (i.e. Romanian, Slovak, or Serb).

6. Empirical evidence

To estimate the effects of co-ethnic employment on income levels, we estimate a model using ordinary least squares with White standard errors given that our errors are heteroskedastic. Results can be found in Table 2. Note that for robustness, we also estimate the model with regular standard errors (results not reported). Regarding the results in Table 2, it is somewhat unexpected that the number of statistically significant variables is the smallest in Vojvodina sample – for which the number of observations is the largest. Related to this, the model fit is also the weakest for Vojvodina ($R^2 = 0.198$), which suggests that the model appears to explain salary substantially worse in this region than the other two.

We observe some variables that are consistent across all three models. On the one hand, there are two variables that are not significant at any conventional level: the extent of the ego network and related, the percent of the network that is composed of individuals from the titular nationality. It seems who respondents know – inclusive of their ethnicity – has no effect on their reported income. On the other hand, there are four variables that are significant and robust: *size of enterprise* (i.e. people employed in a medium or large enterprise report higher wages); *type of work* (i.e. those doing work that is more intellectual nature have higher incomes); *gender* (i.e. women make less money than men); and *education* (i.e. people with either a high school or university

Table 2. Co-ethnic employment and income across three regions – OLS model.

	Transylvania (1)	Southern Slovakia (2)	Vojvodina (3)
% Hungarian at Workplace	-0.016 (0.077)	-0.029 (0.064)	0.079* (0.044)
Municipality/Region			
Urban ¹	-0.085* (0.049)	0.016 (0.038)	0.044 (0.036)
Workplace			
Small Enterprise ¹	0.143† (0.058)	0.054 (0.040)	-0.002 (0.048)
Medium or Large Enterprise ¹	0.154‡ (0.055)	0.147‡ (0.053)	0.111† (0.047)
Type of Work: Intellectual ¹	0.222‡ (0.059)	0.178‡ (0.047)	0.082* (0.049)
Proprietorship: Private ¹	-0.033 (0.060)	0.075† (0.037)	0.015 (0.049)
Business Sector: Services ¹	-0.079 (0.053)	0.078* (0.043)	0.098† (0.045)
Individual			
Female ¹	-0.224‡ (0.042)	-0.224‡ (0.037)	-0.194‡ (0.034)
Age: 35+ Years ¹	0.142‡ (0.046)	0.098† (0.039)	0.002 (0.041)
High School Degree ¹	0.255† (0.126)	0.244† (0.105)	0.149‡ (0.044)
University Degree ¹	0.438‡ (0.137)	0.330‡ (0.113)	0.335* (0.072)
Knows Titular Language ^{1,2}	-0.025 (0.056)	0.110† (0.041)	0.013 (0.051)
Knows English ¹	0.203† (0.100)	0.125† (0.055)	-0.010 (0.072)
Extent of Ego Network	0.008 (0.009)	0.012 (0.008)	0.001 (0.008)
% Ego Network: Titular	-0.019 (0.116)	0.084 (0.077)	-0.077 (0.075)
Constant	5.410‡ (0.173)	5.736‡ (0.144)	5.304‡ (0.091)
R ²	0.344	0.317	0.198
N	250	328	343

Notes. The dependent variable is '(logged) Monthly Income in Euros'. Models estimated using OLS with White standard errors. *, †, and ‡ denote significance at levels 0.100, 0.050, and 0.01, respectively. ¹ Reference categories: rural, micro-enterprise (1-9 employees), physical work, state or mixed property, agriculture and industry, male, 18-34 years old, primary and secondary education, does not know the titular language well, and does not know the English well. ² Titular language represents Romanian, Slovak, and Serbian in each of the three regions.

degree have higher salaries than those with only a primary or secondary education) – *ceteris paribus*. All of these estimates are consistent with theoretical expectations, suggesting that no significant variable has been omitted from the model that could cause omitted variable bias.

There are other variables that affect salary but only in one or two regions. For example, the *urban-rural* setting has no bearing in either Southern Slovakia or Vojvodina. And while the coefficient is significant in Transylvania, it is surprisingly negative. It seems minority Hungarian respondents in urban areas of Transylvania make less than their coethnics in rural areas. This may be contrary to our prior expectations, but we suspect this has to do with the distribution of Hungarian settlements in the area. We will return to this discussion below.

In terms of workplace characteristics, those who work at *small enterprises* (i.e. the number of employees is between 10 and 49) are likely to have higher salaries than those working in even smaller enterprises (micro: less than 10 employees) – but only for those in Transylvania. Comparing these estimates to those corresponding to medium and large sized enterprises, we can conclude that salaries are generally higher in larger workplaces. Respondents employed in the *private sector* make more money – but only in Southern Slovakia. And when it comes to the *business sector*, wages are generally higher for those in the services as opposed to agriculture and industry.

As for individual demographics and resources, *age* affects salary significantly in both Transylvania and Southern Slovakia (i.e. people over the age of 35 make more money than those under 35). As predicted, language proficiency matters to some extent, i.e. being proficient in a language can increase income. *Which* language matters, however, depends on *which* region: For Transylvania, only English is significant; for Southern Slovakia, both titular language and English; and for Vojvodina, neither.

What about the effects of *proportion of Hungarians in the workplace*? At first glance, we see that the coefficients in the Transylvania and Southern Slovakia regions are both negative. This would corroborate the arguments made for diversity in business organizations. However, as neither coefficient is significant, we cannot infer this is the case. And in fact, we see in the Vojvodina region, the variable is not only significant but positive. This is consistent with our hypothesis: When companies employ more co-ethnics, this increases wages because there is bounded trust, preference homogeneity, and a shared language.

6.1. Accounting for selection effects: modeling for the proportion of Hungarians in the workplace

While the results in Table 2 suggest co-ethnic employment *can* increase wages – or at a minimum, it does not depress income – this raises questions about the causes of co-ethnic employment in the first place. We can imagine demographics in an area affecting co-ethnic employment. For example, if an area has no minority Hungarians, there can be by definition no co-ethnic employment. Conversely in areas with a large number of minority Hungarians, there is a greater supply of Hungarian labour. In this manner, Hungarian managers can easily employ – if not over-employ – co-ethnics.

To consider this, we first run a series of OLS models to predict co-ethnic employment. We employ the same set of control variables, but this time we also consider the

Hungarian population for the municipality/region. Specifically, we consider the percent of Hungarians in the municipality (LAU2) and county (NUTS3) administrative units – as defined by the European Union (source: 2011 census). We also include a raw headcount control: the number of ethnic Hungarians in the municipality (LAU2) reported in the 10,000 unit.

The results are presented in Table 3. As expected, we see that the variables that measure the proportion of ethnic Hungarians in different administrative units – the ones that we had to control for in order to specify co-ethnicity – have an effect on the proportion of ethnic Hungarians at the workplace positively. Interestingly, which administrative unit matters depends on the region. In Transylvania, it is both at the municipal and county levels; in Southern Slovakia, at the municipal level; and in Vojvodina, at the county level. Note, however, that even when a unit has no significant effect, the estimated coefficient is still positive.

As co-ethnic employment may be endogenous given that the process itself may occur for profit-maximizing reasons (Åslund et al. 2014), we re-estimate the models from Table 2. But this time, we use the so-called control function approach. In the case of a single endogenous regressor, this is equivalent to instrumental variables estimation (e.g. Wooldridge 2010, Chapter 6). Specifically, the estimates obtained this way are numerically the same as the two-stage least squares estimates, but the control function

Table 3. Explaining proportion of hungarians in the workplace across three regions.

	Transylvania (1)	Southern Slovakia (2)	Vojvodina (3)
Municipality/Region			
% Hungarian – LAU2 ¹	0.360‡ (0.112)	0.500‡ (0.103)	0.213 (0.136)
% Hungarian – NUTS3 ¹	0.204† (0.093)	0.011 (0.087)	0.207* (0.107)
Hungarian Population (10 K) ¹	–0.015 (0.014)	0.031 (0.042)	–0.011 (0.016)
Urban ¹	0.073 (0.067)	0.113‡ (0.052)	0.086† (0.043)
Workplace			
Small Enterprise ¹	–0.159‡ (0.040)	–0.133‡ (0.031)	–0.200‡ (0.038)
Medium or Large Enterprise ¹	–0.279‡ (0.043)	–0.278‡ (0.048)	–0.354‡ (0.042)
Type of Work: Intellectual ¹	–0.014 (0.045)	0.053 (0.035)	0.068 (0.041)
Proprietorship: Private ¹	0.035 (0.046)	–0.028 (0.036)	–0.068 (0.073)
Business Sector: Services ¹	0.009 (0.037)	0.034 (0.036)	–0.012 (0.045)
Individual			
Female ¹	0.027 (0.035)	0.067† (0.033)	–0.050 (0.046)
Age: 35+ Years ¹	0.008 (0.033)	0.065† (0.032)	–0.026 (0.046)
High School Degree ¹	–0.042 (0.081)	–0.231‡ (0.056)	–0.069 (0.058)
University Degree ¹	0.070 (0.093)	–0.173‡ (0.062)	–0.142* (0.086)
Knows Titular Language ^{1,2}	–0.095† (0.038)	–0.123‡ (0.029)	–0.149† (0.065)
Knows English ¹	–0.140† (0.061)	–0.037 (0.044)	0.000 (0.046)
Extent of Ego Network	–0.014† (0.007)	–0.022‡ (0.006)	–0.017‡ (0.006)
% Ego Network: Titular	–0.098 (0.088)	–0.095 (0.070)	–0.206‡ (0.065)
Constant	0.625‡ (0.136)	0.844‡ (0.106)	0.858‡ (0.135)
R ²	0.479	0.326	0.301
N	250	328	343

Notes. The dependent variable is 'Proportion of Hungarians at the workplace'. Models estimated using OLS with White standard errors. *, †, and ‡ denote significance at levels 0.100, 0.050, and 0.01, respectively. ¹ Reference categories: rural, micro-enterprise (1-9 employees), physical work, state or mixed property, agriculture and industry, male, 18–34 years old, primary and secondary education, does not know the titular language well, and does not know the English well. ² Titular language represents Romanian, Slovak, and Serbian in each of the three regions.

approach has the advantage of being a straightforward means of testing for endogeneity and computing standard errors that are consistent under heteroskedasticity.

We regard the models presented in Table 2 as the reduced form equation in the simultaneous system for that region, in which the structural equation is the salary model described in Table 3. In the structural equation, co-ethnic employment is endogenous if a relevant explanatory variable is omitted from this equation. In this case, this omitted variable is captured in the error term of the reduced form equation. Along these lines, the control-function approach uses the residual of the reduced form equation as an explanatory variable in the structural equation. If the residual is statistically significant in the structural equation, this means that a relevant variable is omitted from the structural equation, and this can be regarded as evidence of endogeneity; otherwise, there is no evidence that co-ethnic employment is endogenous. The significance of the residual in the structural equation can be tested based on a t-statistic from a standard OLS estimation (e.g. Wooldridge 2010, Chapter 6).⁶

We present the control function approach in Table 4. We see that for both Transylvania and Vojvodina, the residual is not statistically significant. As such, we can conclude that the proportion of Hungarians in the workplace is not endogenous – i.e. we can interpret the results from the OLS models in Table 2 for these regions. However, for Southern

Table 4. Co-ethnic employment and income across three regions – control function approach.

	Transylvania (1)	Southern Slovakia (2)	Vojvodina (3)
<i>% Hungarian at Workplace</i>	0.083 (0.161)	0.313* (0.187)	0.240 (0.210)
Municipality/Region			
<i>Urban</i> ¹	-0.078 (0.050)	0.016 (0.038)	0.040 (0.037)
Workplace			
<i>Small Enterprise</i> ¹	0.161‡ (0.061)	0.100† (0.046)	0.032 (0.069)
<i>Medium or Large Enterprise</i> ¹	0.183‡ (0.067)	0.246‡ (0.078)	0.170* (0.094)
<i>Type of Work: Intellectual</i> ¹	0.225‡ (0.059)	0.155‡ (0.050)	0.071 (0.049)
<i>Proprietorship: Private</i> ¹	-0.035 (0.060)	0.075† (0.037)	0.026 (0.053)
<i>Business Sector: Services</i> ¹	-0.083 (0.053)	0.062 (0.043)	0.099† (0.045)
Individual			
<i>Female</i> ¹	-0.224‡ (0.042)	-0.249‡ (0.038)	-0.184‡ (0.037)
<i>Age: 35+ Years</i> ¹	0.142‡ (0.046)	0.069 (0.043)	0.006 (0.042)
<i>High School Degree</i> ¹	0.262† (0.125)	0.323‡ (0.112)	0.157‡ (0.044)
<i>University Degree</i> ¹	0.435‡ (0.135)	0.390‡ (0.116)	0.353‡ (0.072)
<i>Knows Titular Language</i> ^{1,2}	-0.003 (0.063)	0.164‡ (0.050)	0.050 (0.067)
<i>Knows English</i> ¹	0.219† (0.101)	0.126† (0.055)	-0.004 (0.072)
<i>Extent of Ego Network</i>	0.009 (0.009)	0.019† (0.009)	0.004 (0.009)
<i>% Ego Network: Titular</i>	0.007 (0.124)	0.121 (0.082)	-0.033 (0.097)
Residual	-0.126 (0.192)	-0.380* (0.194)	-0.171 (0.219)
Constant	5.301‡ (0.238)	5.323‡ (0.253)	5.120‡ (0.254)
R ²	0.345	0.324	0.200
N	250	328	343

Notes. The dependent variable is '(logged) Monthly Income in Euros'. Models estimated using OLS with White standard errors. *, †, and ‡ denote significance at levels 0.100, 0.050, and 0.01, respectively. ¹ Reference categories: rural, micro-enterprise (1-9 employees), physical work, state or mixed property, agriculture and industry, male, 18-34 years old, primary and secondary education, does not know the titular language well, and does not know the English well. ² Titular language represents Romanian, Slovak, and Serbian in each of the three regions.

Slovakia, the residual is significant. This suggests, the co-ethnic employment is endogenous – i.e. we need to interpret the results from Table 4, Model 2 for this region.

When it comes to co-ethnic employment, we see that the proportion of Hungarians at the workplace has a significant and positive effect on wages. In the case of Southern Slovakia, the OLS estimation was not able to capture the significance of co-ethnic employment since the OLS estimates had been biased downwards. But it seems the control function approach corrects for this bias – resulting in an estimate that is positive and significant. This is consistent with the empirical results from the OLS estimates for Vojvodina.

These results suggests that minority Hungarians who work at workplaces with greater proportions of ethnic Hungarians – i.e. places with more co-ethnic employment – are likely to earn higher salaries. This is consistent with our hypothesis. The benefits of bounded trust, preference similarities, and a common language seem to outweigh the advantages of diversity – e.g. knowledge accumulation, labour allocation, and inter-organizational interactions – when it comes to higher salaries.

There is, however, an important caveat. This is not universal for minority Hungarians in all three regions. Surprisingly, the proportion of ethnic Hungarians in the workplace has no positive effect on salaries in Transylvania. This is the case regardless of model specification. However, one interpretation of this finding is that neither more diversity nor more pronounced co-ethnic hiring influence salaries significantly.

6.2. Identifying co-Ethnic clustering: measuring differences in proportions of Hungarians in community versus workforce

From Tables 2 and 4, we can conclude that co-ethnic employment has a positive effect on income. Additionally, from Table 3, we see that the proportion of Hungarians in an administrative unit has a positive effect on co-ethnic employment. This raises the question of whether co-ethnic employment is happening because there are *simply* more minority Hungarians around to employ or because employees are *strategically* seeking out workplaces with (more) Hungarians. Put differently, is there co-ethnic clustering at play?

If there were no co-ethnic clustering, we should observe ethnic proportions across different social fields – including the workplace – congruent to those in a territorial unit. If, for example, 85% of Harghita Country, Transylvania is ethnic Hungarian, then all workplaces (and subunits) should have roughly the same proportion of ethnic Hungarians. Yet, our data tells a different story – i.e. Hungarians are on average over-represented in their workplaces. As we see in Table 5, in Transylvania, Hungarians are over-clustering by 6.7% at the municipal level (LAU2). The differences are even larger for Southern Slovakia (9.2%) and Vojvodina (11.8%).

The evidence is even more pronounced when we shift our focus to a higher administrative level. Across all counties (NUTS3) – without exception – we see co-ethnic clustering: 24% in Transylvania, 29.2% in Southern Slovakia, and 23.2% in Vojvodina. The extent of over-representation, however, depends on the proportion of Hungarians in the territorial unit. In areas where Hungarian communities are dispersed (i.e. less than 20% of the population), co-ethnic clustering is almost 33%. In contrast, in counties where Hungarians are the dominant majority (i.e. more than 75% of

Table 5. Co-ethnic clustering – difference in proportions of hungarians in community versus workforce.

	Transylvania (N = 396)	Southern Slovakia (N = 399)	Vojvodina (N = 394)
Settlement Category			
LAU2 Level (Local)	6.7	9.2	11.8
NUTS3 Level (County)	24.0	29.2	23.2
Proportion of Hungarian in County			
<20%: Dispersed communities	31.3	32.7	32.1
20-35%: Hungarian minority	22.9	26.1	34.3
35-50%: Hungarian parity	11.6	24.7	15.5
50-75%: Hungarian majority	3.1	10.7	8.9
>75%: Hungarian dominant	-6.2	-2.9	-8.2

the population) – e.g. Harghita and Covasna in Transylvania – we actually observe an *under*-representation.

These results partially refute our expectations that co-ethnic clustering would be greater in regions with more Hungarians. While this could be the result of methodological challenges that often plague minority samples (Kapitány 2010) – e.g. it is always easier to find Hungarians who work in Hungarian institutions – we argue this is not the case.

In areas where Hungarians are the dominant majority, there are two explanations for their relative under-representation. The first has do with institutions: There are informal quotas for Romanian/Slovak/Serb employees in the public sector. This practice is even more pronounced in towns and strategically important sectors. For example, there is evidence that Romanians are strikingly over-represented in the military, police, and other deconcentrated government institutions in Szeklerland – a region inclusive of Harghita, Covasna, and part of the Mureş counties where the Hungarians are dominant (SZKI 2019).

The second explanation has to do with the individual, specifically their linguistic proficiencies. In areas where Romanians/Slovaks/Serbs are a minority, these minorities are more likely to know (or at least understand) some Hungarian. Accordingly, there are fewer misunderstandings and less language-related tension. At the same time, Romanian/Slovak/Serb employees are likely to be more lenient towards Hungarian employees with poor knowledge of Romanian/Slovak/Serbian – therefore, this dampens pressure for clustering. From the perspective of critical diversity management (Janssens-Zanoni 2014; Noon 2007), it is also plausible that in these regions the differences in Romanian/Slovak/Serbian proficiency results in less power imbalance between employees – regardless of ethnicity.

In contrast, in areas with dispersed Hungarian communities, we see an economic story, particularly one related to the inelastic demand for Hungarian-language services. A good example is Hungarian education in the diaspora, where legislation allows for the operation of smaller-sized classes in the Hungarian language. Since the number of Hungarian teachers is not linked to the number of children but to the number of classes, there are more teachers per child in the diaspora than in the ethnic block areas. The situation is similar with the church, NGOs and aid organizations, cultural institutions, and municipalities that take the enforcement of language rights seriously.

7. Conclusions, discussions, and outlooks

This paper examined the effects of co-ethnic employment on income. Using survey data from 2019, we explored the phenomenon from the perspective of minority Hungarian workers in Transylvania (Romania), Southern Slovakia, and Vojvodina (Serbia). Contrary to arguments that diversity is good for wages, we find that individuals employed in workplaces with greater proportions of Hungarians reported higher income levels. We subject these results to alternative model specifications; the results hold. We also examine whether co-ethnic employment is simply driven by demographic numbers; we find conclusively that the proportion of Hungarians in the workplace is significantly larger than in the municipalities and regions in which these jobs are located. This suggests co-ethnic employment is not just ‘better’ for incomes, but that it also happens for strategic reasons.

One of these reasons is because of language. In areas with dispersed Hungarian communities and in smaller organizations, the proportion of Hungarians in the workplace is larger than in the respective municipality/region. When the effects of these structural factors are filtered out, it appears that individual language skills play a prominent role. The ethnic clustering of Hungarians is less prevalent in workplaces where employees speak the titular language well.

One question these results raise is about scope conditions: Are the findings specific to either the ethnic minority Hungarians and/or CEE. As we note, much of the literature focuses on immigrant minorities in North American and Western Europe. It is possible that our results are not generalizable. On the one hand, there are two unique characteristics about our sample. The first is the extent of ethnic parallelism. CEE has declined considerably in its multiethnic character over the past century (Boia 2015; Léphaft et al. 2014; Péti et al. 2021). What is left is not simply less diversity (Kapitány 2015) but rather more ethnic cohabitation. In fact, Csata et al. (2021) argue that when it comes to talk about the ethnic makeup in these territories, it would be more accurate to use the words ‘fractionalization,’ ‘fragmentation’, or ‘polarization’ rather than ‘diversity’ per se.

The second is about the status of the Hungarian language. While there have been some positive changes after 1989 recognizing Hungarian language use in public spaces, the language regimes and the underlying regulations are still asymmetrical (Beretka 2016; Horváth–Toró 2018; Szerbhórváth 2015; Vass 2015). This leaves Hungarians – even if they can speak Romanian, Slovak, or Serbian – in under-privileged positions in the linguistic power hierarchy (Fenyvesi 2005). While these characteristics differ from the immigrant minorities of North America and Western Europe, there is no reason to believe the ethnic parallelism and the language regimes are specific to just minority Hungarians in CEE. We challenge – and welcome – future studies to examine the relationship between co-ethnic employment and economic performance among indigenous minorities in countries outside the wealthiest in the Global North.

The implication of our paper is not to endorse minority co-ethnic employment per se. Instead, it is a call to organizations to pay more attention to linguistic fault lines – both with an eye for linguistic competencies and linguistic ideologies. When workplaces successfully coordinate the activities of employees who speak different languages at different levels – and not necessarily through the singular use of a titular language, this can

improve organizational performance. For instance, it can diffuse tensions concerning the asymmetry of language use. And instead, it can create an environment for knowledge accumulation, labour allocation, and efficient inter-organizational interactions. Addressing these problems is important because workplace relationships – and strategic interactions in general – tend to be less homophilous and are crucial for fostering the prosociality (Baldassari-Abascal 2020, 369) that these societies need.

The welfare effects of co-ethnicity extend beyond labour-based organizations. At the state level, it is imperative for governments to break down the borders of communication, increase interethnic trust in these regions, widen the market, and open the field to more creativity and complementarity. To reap these benefits of diversity, language policies need to be more symmetrical. A solution would be giving titular and minority languages similar status – which would mean that cohabiting ethnic groups would learn each other's languages at least to the level of inter-comprehension (Fiorentino-Meulleman 2018). This would remove the barriers to two-way symmetrical communication, breaking down the power hierarchy between languages and reducing inter-ethnic mistrust. Another solution might be the introduction of a lingua franca (see Cousin, Bianchi, and Vitale 2021; Liu 2015). When there is immediate coordination on the same language, there is common understanding, language shortcuts, and cultural empathy. In this regard, we perceive positive signals from Transylvania: English proficiency contributes to reducing the wage advantage that stems from clustering.

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Notes

1. There are other smaller Hungarian communities varying in size in other neighboring countries of Hungary. See Kapitány (2015) for demography of ethnic Hungarians.
2. See Ozgen (2021) for a recent and comprehensive review of the literature. See Gazzola, Grin, and Wickström (2016) for a collective of studies specific to linguistic diversity.
3. See NSKI (2019) for a more detailed description of the research methodology and sampling. Since the opportunity to guarantee randomness in a minority sample is more limited (Kapitány 2010), we used a so-called corrected or systematic quota procedure in municipalities where Hungarians constituted less than 30% of the population.
4. Consider that in Transylvania 1992-2007, 18.1% of new marriages involving a Hungarian spouse had partner with a different ethnic origin (Kiss 2016: 61).
5. In Serbia, while Hungarian is an official language in Vojvodina, it is not official across the whole country. Likewise, in both Romania and Slovakia, there are legislation that allow for the public – i.e., official – use of Hungarian (or any other minority language) but only in municipalities where the Hungarian population is at least 20% of the population.
6. This regression-based version of this test of endogeneity originated with Hausman (1978).

7. Composed from two questions: (1) ‘How many people work (including yourself) in the establishment or institution where you work?’ and (2) ‘About how many of them are [titular nationalities], how many are Hungarians, and how many are of other nationalities?’
8. Respondents are asked to self-assess for language proficiency: (1) *I speak it perfectly*, (2) *I speak it fluently, but with a notable accent*, (3) *I do not speak well but I am able to make myself understood*, (4) *I understand almost everything, but I have difficulties when I try to make myself understood*, (5) *I know only a few words*, (6) *I do not speak it at all*. We code respondents who answered 1 or 2 as proficient.
9. Respondents are asked whether they can rely on others in different situations and whether there are persons with whom they socialize on different occasions. There were four situations: (1) ‘Are there persons with whom you go out for entertainment (to the pub, theatre, sport events, hiking, etc.)?’ (2) ‘Apart from family members living in the same household with you, are there persons with whom you regularly talk about confidential issues and problems?’ (3) ‘Let us suppose you needed money immediately. Are there any people you could borrow from?’ (4) ‘People often need legal counselling or advice and help with official matters. Is there anyone you could rely on if you needed to?’ For each situation, responded answered in the affirmative or the negative; and if in the affirmative, they could name up to three individuals – meaning that the ties could vary between 0 and 12. From these 12, we also considered what proportion of them are from the titular ethnic group (i.e., Romanian, Slovak, or Serb).

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