Journal of Economic Behavior and Organization 234 (2025) 106972

Contents lists available at ScienceDirect

Journal of Economic Behavior and Organization

journal homepage: www.elsevier.com/locate/jebo

Research paper

Motorways and railroads to trust☆

Despina Gavresi [a], Anastasia Litina [b,*], Georgios Tsiachtsiras [b]

[a] University of Luxembourg, Department of Economics and Management, Luxembourg
[b] University of Macedonia, Department of Economics, Greece

ARTICLE INFO

JEL classification:
Z10
P48
R10
R40

Keywords:
Motorways
Railroads
Infrastructure
Political trust
Interpersonal trust
Mobility

ABSTRACT

This paper examines how transportation infrastructure, specifically motorway and railroad length, impacts interpersonal and political trust. Using data from the European Social Survey (ESS), we observe higher trust levels in individuals from regions with more extensive infrastructure. Our analysis encompasses three layers: a cross-regional analysis, an international immigrant analysis where immigrants are linked to their origin country infrastructure, and an inter-regional immigrant analysis where immigrants are linked to their origin region's infrastructure, respectively. Consistent results across specifications suggest infrastructure enhances trust by promoting mobility and exposure to new people and ideas, as well as by elevating political trust as the government is perceived as more reliable and effective. Further analysis in a panel of Nuts 1 regions focuses on the mechanics of mobility. We investigate how trust in a region correlates with the road and rail travel time between regions as well as with the cost-effectiveness of its connections. The findings indicate that increased and more affordable mobility leads to higher trust, further supporting our hypothesis.

1. Introduction

Trust and infrastructure are two critical factors that significantly impact economic and societal development. As early as in 1972, the Nobel laureate Kenneth Arrow highlighted the fundamental role of trust in economic transactions, suggesting that a lack of mutual confidence could explain economic backwardness in many regions. Political and interpersonal trust have been extensively studied, with the literature investigating various determinants, yet the influence of infrastructure on trust remains relatively unexplored. This paper seeks to bridge this gap by examining how infrastructure can foster higher levels of trust, both in interpersonal relations and political institutions.

Infrastructure, in its various forms, has been a transformative force, shaping the world and economies in numerous ways. Its enduring economic effects are evident in facilitating the movement of goods and people within and across countries, promoting idea exchange, innovation, and the emergence of new economic activities like tourism and commuting. A wide range of infrastructural developments, from railways to airports and metropolitan stations, as well as continuous improvements such as electrified railways and high-speed trains, demonstrate infrastructure's ever-evolving nature as a crucial investment for sustainable progress and growth.

☆ We would like to thank Edward Glaeser, Luigi Guiso and Romain Wacziarg for valuable feedback and comments. Many thanks to the participants at the Association for the Study of Religion, Economics, and Culture Conference - ASREC Europe 2019, the 5th International Conference on Applied Theory, Macro and Empirical Finance (AMEF) and the 18th Conference on Research on Economic Theory and Econometrics (CRETE). The authors would acknowledge financial support from Agaur (FI-DGR): Doctoral Fellowship (Generalitat de Catalunya) Catalan Government and co-Financed with the European Social Fund, 2019-2022 Code: 2021FI-B2 00037.

* Corresponding author.
E-mail addresses: despina.gavresi@uni.lu (D. Gavresi), anastasia.litina@uom.edu.gr (A. Litina), gtsiach@gmail.com (G. Tsiachtsiras).

https://doi.org/10.1016/j.jebo.2025.106972
Received 13 April 2024; Received in revised form 4 March 2025; Accepted 5 March 2025

The interplay between trust and infrastructure is rather intricate, yet vital, as it can shed light on how these two elements mutually influence each other, ultimately contributing to the overall prosperity and development of societies. By uncovering this relationship, we can gain valuable insight into fostering trust and leveraging infrastructure to enhance social and economic well-being.

On the one hand, we anticipate a positive relation between infrastructure and trust, as improved infrastructure reduces physical distance across regions and nations, thereby strengthening social ties and fostering various aspects of trust. This enhanced connectivity can facilitate interactions, promote understanding, and build trust among individuals and communities. On the other hand, the same connectivity could lead to increased population diversity as regions become more accessible, attracting people from different backgrounds. This rising diversity, while enriching, may also present challenges to social cohesion and, as a result, could potentially erode trust, as suggested by studies like Dinesen et al. (2020) and Putnam (2007).

Our research aspires to address this ambiguity. We investigate the relation between transportation infrastructure and interpersonal and political trust utilizing data spanning the years 2002 to 2018. We analyze various measures of infrastructure (such as motorway and railroad lengths, as well as road travel time between Nuts 1 regions) in various settings. By combining data on infrastructure with individual-level data on trust derived from nine rounds of the European Social Survey (ESS), we find that individuals residing in regions with higher stock of infrastructure exhibit higher levels of trust both in people and political institutions. To address identification concerns, we undertake our analysis in three different settings: (i) a cross-regional analysis (Nuts 1 regions); (ii) a sample of international immigrants associated with the level of infrastructure at the origin country; and (iii) a sample of inter-regional immigrants associated with the level of infrastructure at the origin region. We also implement an IV analysis, where we instrument for the stock of railways and motorways with the pre-existing stock of Roman roads.

In our cross-regional analysis, where we observe 133 Nuts 1 regions across 32 European countries, we effectively account for country fixed effects and incorporate a wide range of regional controls. Furthermore, as we conduct a multilevel analysis we further control for individual controls such as age, age squared, a gender indicator, place of residence, education, individual's income and interest in politics, all important determinants of both political and interpersonal trust.

To further nail down our results we implement an epidemiological analysis following the rational of Fernández (2011) which allows us to isolate the role of past exposure to infrastructure in shaping individual attitudes from other socio-economic determinants of trust prevalent at the origin country or region. In doing so, we exploit two distinct samples one of international immigrants and one of inter- regional immigrants. The former is less refined in terms of geographic coverage (i.e., we associate immigrants with the stock of infrastructure of their origin country as a whole), however, we have longer time series for the origin infrastructure. In the latter we gain in geographic precision as we associate immigrants with the level of the origin infrastructure at the regional level. Last, we attempt an additional test, i.e., we instrument for the current level of road and railroad infrastructure using as an instrument the stock of Roman roads. Roman roads are considered by the literature as strong predictors of modern day transportation infrastructure density (stocks of infrastructure) (Bottasso et al., 2022; Garcia-Lopez, 2019; Dalgaard et al., 2018; Garcia-Lopez, 2012; Percoco, 2016). The results are qualitatively aligned across specifications. However, the IV results are very similar in magnitude with the OLS findings, thus suggesting a potential lack of endogeneity.

Using all three samples, our findings suggest a strong and economically meaningful relation between various aspects of infrastructure and trust of individuals towards the institutions and other people. To give some order of magnitude, in our cross section sample, an 1 standard deviation increase in the stock of motorways (approximately 727 additional km of motorways) is associated with approximately a 0.01 standard deviations in the rise of trust. The latter corresponds to a rise in the index of trust by 0.024 and in the index of institutional trust (e.g., legal system) by 0.1 (on a scale 1–10). The effect for railroads for an 1 standard deviation increase in railroads (corresponding to approximately 2200 km) is associated with a 0.08 rise in interpersonal trust and 0.1 in institutional trust.

In trying to understand what drives our results, i.e., to figure out the associated mechanism, we hypothesize various potential mechanisms. A first potential mechanism is the exposure of individuals to new people and new ideas achieved via higher mobility. The aspect of mobility is advanced in the seminal work by Fogel (2004) where it is highlighted how improvements in transportation infrastructure have led to increased mobility, migration, and urbanization. This mobility has been instrumental in spreading ideas, knowledge, and cultural norms across regions and nations. It has facilitated the exchange of information and fostered social and economic interactions among diverse communities, ultimately influencing and reshaping cultural norms and social behaviors. Another aspect of trust, particularly akin to political trust can be directly determined by the quality of public good provision in light of the fact that transportation infrastructure is an important public good (e.g., Li and Mayraz, 2017). As the authors suggest, visible improvements in infrastructure, such as roads, bridges, and public facilities, enhance perceptions of government competence and responsiveness, leading to higher levels of trust. Therefore, this line of research highlights another mechanism that is relevant for our findings, i.e., the positive effects on trust are particularly pronounced in regions where infrastructure improvements are most noticeable and directly benefit the local population.

To further nail down our identification strategy and delve into the aspect of mobility we undertake two additional tests. We test the same hypothesis in a panel of Nuts 1 regions using as our explanatory variable the road travel time between regions. Notably, this specification better captures changes in mobility as our measure varies over time.

Analytically, in our first approach, we test the same hypothesis in a panel of 94 Nuts 1 regions and four periods of time ranging from 2002–2018 using as our explanatory variable the road travel time across Nuts 1 regions. Using this measure we have a more accurate measure of mobility across regions and we can control for more unobservables via including Nuts 1 fixed effects exploiting the panel dimension of our measure and country x year fixed effects.

In our second approach, we modify the market access framework introduced by Donaldson and Hornbeck (2016) to study how the level of trust of a given region is affected by less costly connections, due to improvements in transportation networks to other regions. Faster access to those regions operates both directly in cultural attitudes, i.e., via the direct interactions and spillover effects, as well as indirectly.[1]

Both specifications hint to the fact that higher and less costly mobility is associated with higher levels of trust. Quantifying our results we find that an 1 standard deviation decrease in the transfer time via motorways (which corresponds to 533 min) is associated with a 0.42 standard deviation increase in institutional trust. This practically corresponds to a 1 unit increase on a scale 1–10. The corresponding magnitude for railways is that for 573 min shorter transfer time, institutional trust (e.g., the legal system) increases by 1.5 units on a scale 1–10.

Anecdotal evidence from European railroads lends credence to the hypothesis that the extension of motorways and railroads has played a pivotal role in both the economic development of countries and the enhancement of social ties between people and political institutions. Railroads have significantly reduced distances between nations, breaking down regional isolation, physical and social barriers across European regions. This has resulted in strengthened social ties and bridging political, economic, and social gaps among European nations (Anastasiadou, 2004). Studies from other fields have centered on the political and financial aspects of the Balkan railway network expansion. Topics that have been explored are political struggles and their economic consequences for railways (Palairet, 1997; Lampe, 1982), lack of cooperation between Balkan states in infrastructure development (Nikova et al., 2007), and social and economic issues related to railway construction in Balkan countries (Turnock, 1979). These studies have been instrumental in understanding the economic integration of the Balkans and its connection to the region's political and economic dependence on the outside world.

A profound example of the importance of infrastructure nowadays, is considered the "Egnatia" motorway in Greece. It is referred that "this motorway is considered as one of the most important and ambitious projects of the Trans-European Transport Networks program funded by the European Commission" (Panebianco and Schürmann, 2002). It was aimed to have a prominent role as a development axis mainly in Northern Greece and it was anticipated to increased investments in several economic sectors such as transportation, industry and tourism. An additional significant element that made this motorway a great source for development in Greece was that it would operate as a collector route for the Balkan and south-eastern European transport system by mitigating the territorial and social isolation between the regions and the individuals, respectively (Nikolakopoulou and Karampekou, 2013). Specifically, the "Egnatia" motorway brought isolated regions, such as Epirus and Western Macedonia, closer to the rest of Macedonia and Thrace. As a result, this facilitated trade across regions, tourism and social life, while halting and reversing the trend of rural depopulation, a major problem causing isolation of certain areas and overpopulation of urban places in Greece. Many citizens now commute across regions to their workplace rather easily and there is also a continuous interaction with other people from different regions, fostering friendly relations and unhindered communication between neighboring populations (Egnatia, 2022).

Based on the aforementioned evidence we view our paper as relevant for policy making as it highlights the extend of the importance of infrastructure for societies in aspects other than the economy per se. Quite frequently policy makers are concerned about openness of the societies and discuss various ways to achieve it. Our study highlights the fact that infrastructure, as a means of mobility, is an additional means to achieve societal openness. We hint to the fact that the proper allocation of infrastructure funds is necessary in order to be efficient in achieving regional interpersonal and institutional trust development (Flyvbjerg, 2009). As to the importance of social capital for regional development the evidence is abundant. Too little social proximity may be harmful for interactive learning and innovation due to a lack of trust and commitment (Boschma, 2005).

The paper is organized as follows. Section 2 presents the existing literature. Section 3 illustrates the data and the various layers of empirical strategy while Section 4 presents the main results. Section 5 discusses the mechanics of mobility whereas Section 6 presents and discusses the robustness. Finally, the last part concludes.

2. Literature review

Recently, there is a growing literature in economics that explores the interplay between infrastructure, economic outcomes and social attitudes. Consequently, our paper aims to contribute to the existing literature by quantifying the social implications of contemporary expansions of infrastructure. In particular, in this paper, we try to uncover the relation between infrastructure and trust. As such, we highlight the contribution of infrastructure, not only to the economy but also to the formation of social attitudes. This approach sheds further light on our understanding of the contribution of infrastructure in shaping societies in multiple ways.

Our first contribution is that we suggest an additional novel determinant of trust. To date there is an extensive literature that analyzes the determinants of trust (Becker et al., 2016; Dohmen et al., 2012; Nunn and Wantchekon, 2011) and highlights it as an inseparable element of the modern economic systems (Zak and Knack, 2001). By showing that infrastructure affects trust, we establish an additional channel via which infrastructure affects growth, as the link between trust and growth is already known. Spolaore and Wacziarg (2013) not only document all the determinants that have been transmitted across generations

[1] As to the indirect effect, there is abundant evidence highlighting the effect of infrastructure on several different aspects of the economy. For instance, Perlman (2017) and Andersson et al. (2021) show that a reduction in communication and transportation costs has an effect on local innovative activity. Railroads also changed the character of the regions, increasing urbanization (Atack et al., 2009) and leading to higher economic development (Atack et al., 2014).

over the very long run and may affect the economic development, but also, they discuss the different channels through which intergenerationally transmitted characteristics may impact economic development, biologically and culturally.[2]

Second, our paper contributes to the literature that studies the overall impact of transportation technologies on past and current outcomes. Railroads have a positive impact on innovation and economic growth, leading to broader applications of inventors' ideas and fosters inventiveness (Bottasso et al., 2022; Andersson et al., 2021; Tsiachtsiras, 2020; Gao and Zheng, 2018; Hiroyasu et al., 2017; Agrawal et al., 2017). Highways also contribute to patenting and knowledge diffusion in the US (Agrawal et al., 2017). Railroads boost the growth of cities in the US and China (Nagy, 2023; Banerjee et al., 2020) and play a meaningful role in agricultural sector development (Donaldson, 2018; Donaldson and Hornbeck, 2016). Studies show rail services in France, Portugal, and Spain intensified urbanization depopulating rural areas (Mojica and Martí-Henneberg, 2011). In Sweden, railroad expansion shows limited evidence of city population convergence, while being connected to the railway network increases a municipality's population growth rate (Büchel and Kyburz, 2018; Berger and Enflo, 2017). Railroads impact fertility and human capital (Katz, 2018), while transportation linkages affect health in the rural US (Zimran, 2019). They also boost manufacturing productivity (Pontarollo and Ricciuti, 2020; Hornbeck and Rotemberg, 2019) and enhance employment in interactive occupations (Michaels et al., 2019). Steam railways led to the first large-scale separation of workplace and residence (Heblich et al., 2020) and highway construction promotes residential decentralization within cities (Baum-Snow, 2020, 2010). High-speed railways in China foster innovation collaboration, contributing to a balanced development (Hanley et al., 2022; Dinlersoz and Fu, 2022). Bullet trains improve research collaboration and commuting (Dong et al., 2020; Heuermann and Schmieder, 2019). Public road investments reduce travel times, benefiting trade, employment, and wages (Coşar et al., 2022).

Closer to the scope of our research is the paper by Melander (2020) exploring the relation between the social movements and infrastructure, highlighting the role played by interaction costs in shaping social phenomena. It is established that reductions in interaction costs shaped the diffusion of social movements, during the period 1881–1910 in Sweden. It is also found that mobilization in these social movements shaped participation and voting outcomes in Sweden's first election with universal male suffrage. As a mechanism it is employed a market access framework and it is found that the social movements of a given parish i is affected by the least-cost path weighted average of movement memberships in all other parishes.

Beyond economics, Graham and Marvin (2001) highlight the role of public infrastructures and new technologies in facilitating the mobility of people, goods, and utilities when old forms decay. The ongoing life of these structures and networks itself is argued to have created new social collectivities (Larkin, 2008). Ethnographic research sheds light on the formation of citizenship through infrastructure (Anand, 2011).

Overall, the empirical literature emphasizing the social implications of an expanding infrastructure is very limited; we thus aspire that our research will bring new insights into the field and propose novel mechanisms associated with it.

3. Data and empirical strategy

3.1. The data

To explore the interplay between the level of infrastructure and trust, we employ data from the nine consecutive rounds of the European Social Survey (2002–2018), a repeated cross section survey that quantifies the attitudes, beliefs and behavioral patterns of citizens in 34 European countries.[3] The ESS contains a rich set of questions that capture demographic and social characteristics.

In our analysis we employ six proxies of trust. These are trust in (i) political parties; (ii) country's parliament (iii) politicians, (iv) police, (v) legal system and last, (vi) the degree of trust on people, all measured on a scale between 0 (no trust) and 10 (full trust). In our benchmark analysis we report a composite political trust index using principal component analysis of the three distinct variables (trust parties, politicians and parliament).

Our key explanatory variable is the mean level of infrastructure stock measured in kilometers (km) including two types of infrastructure, i.e., (i) motorways and (ii) railroads similar to Agrawal et al. (2017) and Garcia-Lopez (2019). We extract data from the Eurostat for the stocks of infrastructure during the years 2000–2016. Eurostat provides us with a panel of regional transport data and more specifically, data related to the extent of the railroads and motorways network in Nuts 1 European regions (Eurostat, 2009).

Beyond our main explanatory variables our analysis controls for a wide range of individual characteristics derived from the ESS that have been argued to affect both interpersonal and political trust such as age, gender, the highest level of education achieved, the place of residence i.e., live in big city, suburbs or outskirts of big city, town or small city, country village and farm or home in countryside, the individual's income and the interest of having an active role regarding politics. We include the place of residence to capture the degree of urbanization which is directly related to the stock of infrastructure (Gonzalez-Navarro and Turner, 2018; Rauch, 2018) and possible positive attitudes towards trust for the people living in more international environments such as the big cities. Furthermore, individuals who are more educated, are less prone to trust the political institutions. We further control for

[2] In general, trust can affect economic development (Butler et al., 2016; Francois and Zabojnik, 2005; Knack and Keefer, 1997), individual performance (Jeffrey et al., 2014), financial development, participation in the stock market, and trade (Guiso et al., 2009; Guiso et al., 2008, 2004), innovation (Szabo et al., 2013), and firm productivity (Bloom et al., 2012; La Porta et al., 1997).

[3] The sample comprises individuals from Albania, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Germany, Finland, France, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kosovo, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Russia, Sweden, Slovenia, Slovakia, Spain, Switzerland, Turkey, United Kingdom and Ukraine.

(a) Motorways **(b)** Railroads

Fig. 1. Spatial distribution of infrastructure stock.
Notes: These figures present the average value of infrastructure stock across regions in Europe for the period 2002–2016. The measurement unit is kilometers.

gender and the individual's age; older individuals are shown to display a lower interpersonal and political trust, something that can be explained more in the literature on collective memories (Fouka and Voth, 2016) and individual's level of income that can affect trust. Last, we control for regional GDP per capita in PPP, also derived by Eurostat, as a critical determinant of the overall stage of socio-economic development of the region.

We end up with a sample of 133 Nuts 1 regions for which we test the impact of infrastructure on trust for the period 2002 to 2018. In this specification we exploit the spatial dimension of our data, i.e., the network variation across Nuts 1 regions. Fig. 1 illustrates the mean levels of infrastructure across Nuts 1 regions. In particular, it presents the average value of motorways and railroads across regions in Europe from 2002 to 2016. Summary statistics are reported in Tables B.1 to B.9 of Appendix.

3.2. Empirical strategy

3.2.1. Reduced form model

We start our analysis by applying an OLS regression model to estimate the relation between the level of infrastructure in an individual's Nuts 1 region and the individual's current level of interpersonal and political trust. Our baseline estimating equation is:

$$T_{ijt} = \alpha_0 + \alpha_1 I_j + \alpha_2 X_{it} + \alpha_3 G_j + \alpha_4 C_v + \alpha_5 R_t + \epsilon_i \tag{1}$$

Here, T_{ijt} denotes the interpersonal and political trust of individual i, residing in region j, participating at ESS round t. The vector T_{ijt} denotes each of our trust variables: trust in other people, police, legal system and the composite index of political trust created using a principal component analysis. Vector I_j represents the level of infrastructure including (i) stocks of motorways and (ii) railroads at the Nuts 1 region j. The vector X_{it} includes a set of individual-level covariates that may also affect the level of trust: age, age squared, a gender indicator, place of residence (big city, suburbs, small city, village or countryside), education and income fixed effects as well as the interest of the respondent i to have an active role regarding the politics.[4] G_j represents the GDP per capita in PPP at the Nuts 1 region j as a proxy for regional development. Finally, the C_v denotes country fixed effects that control for all time invariant unobserved heterogeneity at the country level and the R_t denotes fixed effects for each ESS round aimed to capture round specific shocks that could affect individual responses. ϵ_{ijt} is the error term. Since the source of variation is across regions j, we estimate robust standard errors, clustered at the Nuts 1 regions.

3.2.2. Identification 1: International immigrant analysis

Despite the multilevel nature of our analysis that mitigates reverse causality we cannot eliminate simultaneity concerns. In order to address these concerns, we rely on the epidemiological analysis (Fernández, 2011).

To implement this analysis, we employ data from the same nine waves of the European Social Survey (2002–2018), however we now focus on the sample of immigrants. The ESS provides us with an immigrant identifier that allows us to trace immigrants up to the second generation, as well as concrete information about the mother and father's country of origin. This element is crucial as we can exploit the event of immigration in order to explore the evolution of cultural traits. The identifying assumption is that when immigrants move to a host country their current attitudes are no longer directly affected by the economic or the

[4] Due to the fact that not all the individuals of the ESS respond to this question, there are fewer observations thus diminishing our sample. To compensate for this we followed a standard approach in the literature (Allison, 2002). Specifically, we are using the income variable as a categorical variables and we are treating the missing observations as an additional category. Results though are robust to another approach also used in the literature, i.e., the mean imputation approach where we replaced the missing values with the mean value of the non-missing observations in the income variable using the constant sample of every regression. In the Appendix, Table C.1 replicates the benchmark specification using the mean imputation approach with similar results.

institutional environment at the country of origin. Thus, any effect of the origin country on immigrants' attitudes operates indirectly via culture (Fernández and Fogli, 2009).

In particular, our analysis relies on a sub-sample of approximately N=9246 first generation immigrants (the accurate number changes for each regression, depending on the type of infrastructure examined), who are coming from 151 European and non-European countries and currently reside in 34 European countries. First generation immigrants are defined as those individuals who were born in a different country and eventually moved to the host country. To identify the immigrants' country of origin, the analysis employs the individuals' country of origin. In our analysis, we use the first generation immigrants rather than the second generation immigrants in order to be able to control for origin country fixed effects which eliminates most of unobserved heterogeneity at the origin level.

As far as the key explanatory variables are concerned, they remain the same as in our benchmark analysis, however now the source of the data for the level of infrastructure is different. Analytically, we link each immigrant with the average level of infrastructure that she has experienced in the past. Eurostat data is not any longer useful as it is rather recent data. We thus resort to the World Infrastructure Stocks dataset from 1950 to 2005 (Canning, 1998; World Bank, 2006). This provides us with historical data on the stocks of railroads and motorways. We associate each immigrant with the mean value of each type of infrastructure stock for the three years proceeding an individuals' departure from the country of origin. We consider this as a proxy of the quality of infrastructure during the time of individuals' departure, while the 3-year average eliminates any outliers due to year-specific conditions, e.g., a potential damage or large-scale replacement.

In order to explore the effect of *origin* infrastructure on immigrants' trust towards people in the host country and towards *host* political institutions we adopt the following specification:

$$T_{ihot} = \alpha_0 + \alpha_1 I_o + \boldsymbol{\alpha}_2' \mathbf{X}_i + \alpha_3 G_o + \boldsymbol{\alpha}_4' \boldsymbol{\Phi}_h + \boldsymbol{\alpha}_5' \boldsymbol{\Pi}_o + \boldsymbol{\alpha}_6' \mathbf{R}_t + \varepsilon_{ihot} \tag{2}$$

Here, T_{ihot} denotes the interpersonal and political trust including trust in other people, police, legal system and the composite index of political trust created using principal component analysis of individual i, residing in the host country h, coming from the origin country o, participating at the ESS round t. Vector I_o represents the level of infrastructure stocks including (i) railroads and (ii) motorways for the three years proceeding individuals' departure from the country of origin. The vector X_i includes a set of individual-level covariates that may also affect the level of trust: age, age squared, gender, place of residence and education and income fixed effects. We control also for the interest of the respondent *i* in having an active role regarding the politics. G_o is the GDP per capita in PPP indicator at the origin country used as a proxy for socio-economic development. $\boldsymbol{\Phi}_h$ is a vector of host country fixed effects that captures all time invariant unobserved heterogeneity at the host country level. $\boldsymbol{\Pi}_o$ is a vector of origin country fixed effects that captures all time invariant unobserved heterogeneity at the origin country level. R_t is a vector of ESS round fixed effects aimed to capture round specific shocks that could affect individual responses at the host country. ε_{ihot} is the error term. The standard errors are corrected for double clustering at the dimension of the host and origin country.

3.2.3. Identification 2: Inter-regional immigrant analysis

In this section we conduct an inter-regional immigrant analysis in order to exploit variation in the trust levels of immigrants living at the same region, coming from regions with different levels of infrastructure.

Our analysis in this section employs data from the European Values Survey (EVS). We use the EVS rather than the European Social Survey (ESS) as we do in our benchmark analysis. The reason is that the EVS gives to us information about the region in which individuals lived since they were aged 14. This information is available at the last wave of the EVS from 2008 to 2010. We also know the region where the individual migrated and lives at the timing when the EVS interviews are taking place.

More analytically, we use the same infrastructure stock variables as in our baseline specification, derived from Eurostat. We associate each individual with the average level of stock of railroads and motorways of the region in which the individual lived since the age of 14. As we know the exact age of each individual, we can associate this person with the level of infrastructure as it existed when the person was aged 14. Our sample includes only inter-regional immigrants, i.e., people that on the day of the EVS interview reside in a different region than the one reported when they were 14 years old.

In order to explore the effect of *origin* infrastructure on immigrants' trust towards other people in the host region and towards *host* institutions at the regional level, we adopt the following specification:

$$C_{ihot} = \alpha_0 + \alpha_1 I_o + \boldsymbol{\alpha}_2' \mathbf{X}_i + \alpha_3 G_o + \boldsymbol{\alpha}_4' \boldsymbol{\Pi}_o + \boldsymbol{\alpha}_5' \mathbf{R}_t + \varepsilon_{ihot} \tag{3}$$

Here, C_{ihot} denotes the interpersonal and political trust of individual i, residing in the region h, coming from the region o, participating at the EVS wave t. The vector T denotes one of our trust variables: trust on other people, police, legal system and the composite index of political trust i.e., trust in politicians, political parties and country's national parliament. Vector I_o represents the average level of infrastructure stocks including (i) railroads and (ii) motorways at the region the year when the individual was 14 years old. The vector X_i includes a set of individual-level covariates that may also affect the level of trust: age, age squared, gender, place of residence as well as education and income fixed effects. We control also for the interest of the respondent *i* on having an active role regarding politics. G_o is the regional GDP per capita in PPP (the average value for the years since individual was 14 years old). $\boldsymbol{\Pi}_v$ is a vector of the country fixed effects that captures all time invariant unobserved heterogeneity.[5] ε_{iot} is the error term. The standard errors are robust and clustered at the Nuts 1 regions.

[5] There is no vector to capture the EVS wave fixed effects as the information on where individuals lived at the age of 14 can be found only in one wave i.e.,2008–2010.

3.2.4. Identification 3: Instrumenting for the infrastructure stock

To complement the analysis conducted in the main body of the paper, we pursue an instrumental variable approach, where we use the pre-existing Roman network (McCormick et al., 2013) as our instrument for the modern level of infrastructure. Since the Romans introduced the first program of planned road-building in the year 43 AD, roads have enabled the transport of goods and people, facilitated industrialization and inspired adventure and brought people closer. The rational behind using this instrument lies into the idea advanced by Baum-Snow et al. (2017). According to them, it is feasible the construction of a modern and low cost infrastructure network whether it is planned upon or next to an older network. The authors argue that the effect of the instrument should be on the location and configuration of the modern transportation network. They use the infrastructure network of 1962 to cause exogenous variation. More recent papers follow this identification strategy and build on this intuition. Zheng and Kahn (2013), Baum-Snow et al. (2018) and Dong et al. (2020) rely their empirical strategies on the same argument. Likewise, Zheng and Kahn (2013) and Dong et al. (2020) use the railway network of 1961 to instrument for the high speed rail network in China. Close to this identification strategy adopted by us are several papers which use Roman road network as an instrument such as the paper by Garcia-Lopez (2012) instrumenting for the nearest highway ramp and the distance to the nearest railroad station in the case of Barcelona, Percoco (2016) and Bottasso et al. (2022) instrumenting for highways in the case of Italy and Garcia-Lopez (2019) in the case of other European cities.

4. Empirical findings

4.1. Benchmark specification

To assess the magnitude of our results we report throughout all specifications the standardized beta coefficients. Table 1, Panel A, documents the effect of stocks of motorways on several aspects of trust i.e., interpersonal and political trust. In all columns (1–4) we include the full set of individual and regional controls as well as ESS round and country fixed effects. Our findings suggest that a higher length of motorways can significantly facilitate the exposure of people to new cultures which are able to shape the individuals' level of trust. More analytically, the results of the Table 1, Panel A, suggest that individuals who live in regions with an extended motorways network tend to trust more other people, the legal system, the police as well as the political institutions. An 1 standard deviation increase in the stock of motorways measured in km is associated with 0.01 standard deviations increase in trust on other people, 0.04 standard deviations increase in trust the legal system, 0.03 standard deviations rise in trust the police and an increase in trust the political institutions (i.e., politicians, country's parliament and political parties) by 0.03 standard deviations. The results are significant at the 5% confidence level except for trust the legal system which is significant at the 1% level. Practically, this implies that an increase in the total length of motorways of approximately 727 km is associated with approximately an 0.024 units rise in the indices of trust measured on a scale 1–10.

Similarly, Panel B, illustrates the effect the stocks of railroads on trust. As in the case of motorways a rise in the length of the railroads can lead to an rise on interpersonal and political trust. The magnitude is weaker as it suggests that a 2200 km rise in railways extent can lead to a 0.1 units rise in trust.

4.2. International immigrant analysis

Table 2 reports the results from the international immigrant analysis. In order to eliminate the concern of omitted variables which is considered as a source of endogeneity, we exploit variations in the trust levels of immigrants living in the same host country, coming from countries with different levels of infrastructure. We follow the baseline specification, thus all columns (1–4) control for the full set of individual controls as well as host country, origin country and ESS round fixed effects. They also control for the average level of GDP per capita in PPP at the origin country.

Table 2, Panel A, mostly aligns with the findings of the benchmark analysis (with the exception of trust on people and the legal system), using as a key explanatory variable the stocks of motorways. An 1 standard deviation increase in the length of motorways is associated with 0.06 standard deviations increase in trust in the police and last, 0.08 standard deviations increase in political trust. Although Table 2 confirms the findings of the benchmark analysis for the sample of first generation immigrants; we lose significance in the variables of trust on other people (column 1) and trust in the legal system (column 2). Thus, the main results that go through are the results associated with political trust and trust in police which are significant at the 5% confidence level.

Whereas, Panel B represents the results of the baseline specification having now as a key explanatory variable the stocks of railroads. The findings suggest that they are in accordance with the benchmark results as reported in Table 1 whereas now trust on people and trust in the legal system are significant at the 1% confidence level.

4.3. Inter-regional immigrant analysis

Table 3 reports the results from the inter-regional immigrant analysis. To eliminate further identification concerns, we exploit variations in the trust levels of immigrants living in the region, coming from regions with different levels of infrastructure. We follow the baseline specification, thus all columns (1–4) control for the full set of individual controls as well as country fixed effects. They also control for the average regional level of the GDP per capita in PPP.

Panel A confirms the findings of benchmark analysis, using as a key explanatory variable the stocks of motorways experienced when the individuals since they were 14 years old. An 1 standard deviation increase in the stocks of motorways is associated with a

Table 1
Motorways, railroads and trust - OLS results.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01**	0.04***	0.03**	0.03**
	[0.01]	[0.01]	[0.01]	[0.01]
Age of Respondent	−0.24***	−0.42***	−0.30***	−0.56***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.38***	0.34***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.06***	0.05***	0.02	0.05***
	[0.02]	[0.01]	[0.01]	[0.02]
R-squared	0.18	0.22	0.17	0.25
Sample Size	285 294	279 827	283 283	257312
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.03**	0.04**	0.05***	0.03*
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	−0.24***	−0.41***	−0.29***	−0.54***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.37***	0.33***	0.52***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.07***	0.06***	0.03*	0.06***
	[0.02]	[0.01]	[0.01]	[0.02]
R-squared	0.18	0.23	0.18	0.26
Sample Size	271 590	266 338	269 630	244 011
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, age squared and the regional GDP per capita in PPP. Country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

0.01 standard deviations decrease in trust on other people, 0.04 standard deviations increase in trust the legal system, 0.07 standard deviations increase in trust the police and last, 0.06 standard deviations increase in trust the political institutions. However, the main results that go through are the results associated with political trust and trust the police which are significant at the 1% confidence level whereas trust the legal system is significant at the 10%.

On the other hand, in Panel B we use now as our explanatory variable the stocks of railroads when the individuals were 14 years old. An 1 standard deviation increase in the stocks of railroads is associated with a 0.01 standard deviations decrease in trust on people, 0.05 standard deviations increase in trust the legal system, 0.10 standard deviations rise in trust the police and 0.08 standard deviations increase in trust the political system. The results associated with political trust are significant at the 5% confidence level, trust the police is significant at the 1% and trust the legal system at the 10% level.

So far, the measure that we use is the aggregate measure of railroads and motorways. This captures the broader effect of infrastructure on a society irrespective of the number of people that have access to this infrastructure. One can argue that another relevant measure is an infrastructure density measure, that also factors in the number of people that have access to this infrastructure. Both approaches are relevant and capture different aspects of the topic. To this end, Tables C.2–C.4 in the Appendix use this alternative measure. The results are qualitatively similar for both cases though somewhat weaker in magnitude.

4.4. Instrumenting for infrastructure stock

In order to further nail down our identification strategy we implement an IV approach. As it can be seen, Fig. 2 illustrates the Roman network for all the European regions included in our sample. We construct the infrastructure stock of Roman roads at the Nuts 1 regional level using only the major roads since we are interested to instrument for motorways and railroads as we are able to compute the length of the line for each Nuts 1 region.

Table 2
Motorways, railroads and trust - International immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01	0.06	0.06**	0.08**
	[0.03]	[0.05]	[0.02]	[0.03]
Age of Respondent	0.01	−0.15***	−0.04	−0.19***
	[0.09]	[0.05]	[0.06]	[0.06]
Age of Respondent^2	0.03	0.18***	0.11*	0.24***
	[0.09]	[0.04]	[0.06]	[0.06]
GDP per Capita	−0.01	0.05**	0.08***	0.10***
	[0.03]	[0.03]	[0.03]	[0.03]
R-squared	0.11	0.14	0.16	0.22
Sample Size	7514	7295	7441	6910
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.04***	0.08***	0.01**	0.01**
	[0.01]	[0.02]	[0.01]	[0.01]
Age of Respondent	0.00	−0.09*	−0.02	−0.07
	[0.07]	[0.05]	[0.04]	[0.06]
Age of Respondent^2	0.00	0.11***	0.09***	0.10**
	[0.07]	[0.04]	[0.03]	[0.05]
GDP per Capita	0.03	0.08***	0.07***	0.12***
	[0.03]	[0.03]	[0.02]	[0.03]
R-squared	0.12	0.12	0.13	0.20
Sample Size	9246	8958	9177	8403
Host Country FE	Yes	Yes	Yes	Yes
Origin Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our international immigrant sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, gender, place of residence, if the respondent is interesting in politics, respondent's income, age of the respondent, age squared and the GDP per capita in PPP at the origin country. Origin country, host country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, double clustered at the host country and country of origin, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Testing for the exclusion restriction

Overall, in order for our instrument to be a valid one, we must be sure that Roman network components predict recent levels of trust only via their influences on the location and configuration of the modern transportation network, conditional on control variables (Baum-Snow et al., 2017). In addition, they cannot be correlated with unobserved variables that affect modern transportation networks and the recent evolution of interpersonal and political trust. The vast time difference between our recent proxy of trust and the pre-existing Roman roads networks, is our first argument to defend our instrumental variable approach. To further mitigate concerns regarding our identification strategy we follow the same approach as in Baum-Snow et al. (2017). Baum-Snow et al. (2017) use several control variables from 1982, since it is the earliest year with county-level census data, to block potential channels between their instrument and the dependent variables. In line with this approach, we include in our regressions as an additional control the past level of trust (average based on the years 1981, 1990 and 1999) extracted from the European Values Survey (EVS) dataset.

IV estimation results

In Table 4, we illustrate the first stage results of our IV analysis. The stock of Major Roman Roads is positively correlated with both the Stock of Motorways and the Stock of Railroads, thereby suggesting the relevance of our instrument. Table 5 represents the effect of stocks of motorways in Panel A and railroads (Panel B) on interpersonal and political trust using the pre-existing Roman network as an instrument for the current level of infrastructure. In Panel A, the results remain significant and robust using the motorways as the key explanatory variable. The results are significant at the 5% and 10% confidence level except for trust the political system. In Panel B, the results are similar.

Tables 6 and 7 present the effect of stocks of motorways and railroads on interpersonal and political trust using the pre-existing Roman network as an instrument for the current level of infrastructure and controlling for the past levels of trust taking the average values of trust based on the years 1981, 1990 and 1999, coming from the EVS in order to explore whether our initial IV results remain robust. We find that the results remain quantitatively and qualitatively the same.

Table 3
Motorways, railroads and trust - Inter-regional immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	−0.01	0.04*	0.07***	0.06***
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	0.08*	−0.14	−0.12	−0.20
	[0.05]	[0.10]	[0.09]	[0.12]
Age of Respondent^2	−0.09*	0.18*	0.19**	0.24**
	[0.05]	[0.10]	[0.09]	[0.12]
GDP per Capita	−0.00	0.04**	0.02	0.03
	[0.01]	[0.02]	[0.02]	[0.02]
R-squared	0.21	0.17	0.13	0.20
Sample Size	4348	4370	4456	4244
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	−0.01	0.05*	0.10***	0.08**
	[0.01]	[0.03]	[0.03]	[0.03]
Age of Respondent	0.04	−0.11	−0.14	−0.17
	[0.05]	[0.10]	[0.09]	[0.13]
Age of Respondent^2	−0.05	0.15	0.20**	0.22*
	[0.05]	[0.10]	[0.09]	[0.12]
GDP per Capita	−0.01	0.04**	0.01	0.03
	[0.02]	[0.02]	[0.02]	[0.02]
R-squared	0.23	0.18	0.15	0.20
Sample Size	4086	4094	4180	3977
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our inter-regional immigrant sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, the gender, place of residence, if the respondent is interesting in politics, respondent's income, age of the respondent, age squared and GDP per capita in PPP. Country fixed effects are used.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

5. The mechanics of mobility

The benchmark analysis established a relation between transportation infrastructure and interpersonal and political trust. Motivated by Fogel (2004) whose seminal work underscores the significant relation between infrastructure and norms in shaping historical development and economic progress, we try to nail down the mechanics of mobility.

We argue that infrastructure stock provides a higher connectivity to people by allowing them to travel, commute and become exposed to new cultures. Therefore, we hypothesize that infrastructure stock is meaningful as it facilitates connectivity to other regions. We present evidence suggesting that infrastructure stock improves the position of a given region within a broader network of regions. In doing so, we employ two additional specifications. We first test the same hypothesis in a panel of Nuts 1 regions using as our explanatory variable the road travel time across Nuts 1 regions. Using this measure we have a more accurate measure of mobility across regions and we can control for more unobservables exploiting the panel dimension of our measure.

Second, we exploit the market access framework proposed by Donaldson and Hornbeck (2016), and used widely in the empirical literature (see Aggarwal et al., 2018, Jedwab and Storeygard, 2022, Melander, 2020, Coşar et al., 2022 and Perlman, 2017 among others) to introduce as a mechanism the access to differential levels of trust. Our aim is to associate the average level of trust of a given Nuts 1 region with the level of trust of all the other regions, weighted by the transportation cost to reach to them. Our mechanism lies in the prospect that by lowering the restrictions related to traveling, people can freely move among regions and to become exposed to different cultures. The movement of people to a given region can be thought of as a travel cost-weighted function. Once people become connected to regions with different levels of trust, they can learn to be more open minded than before and to establish beneficial relations and collaborations for the economy as a whole.

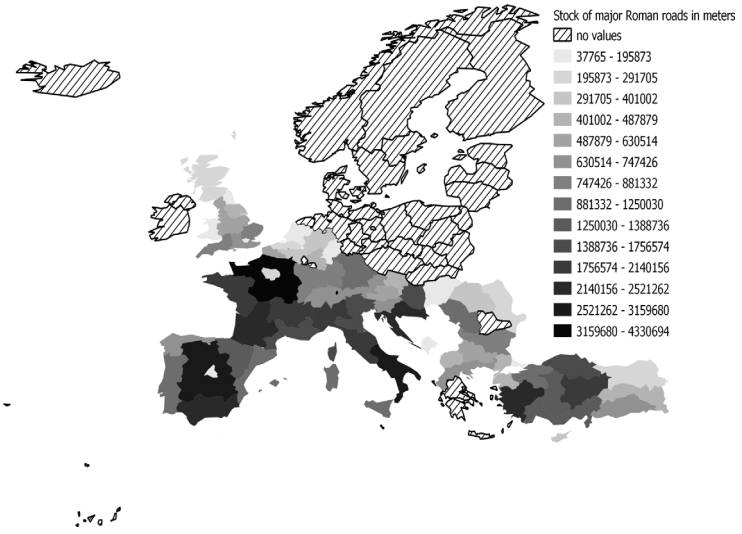

Fig. 2. Stock of major roman road network.
Notes: This Figure presents the stock in meters of the major Roman road network for the Nuts 1 regions. Authors' computations.
Source: (McCormick et al., 2013).

Table 4
First stage results - Major roman roads and stock of infrastructure.

	Stock of motorways	Stock of railroads
	(1)	(2)
Stock of Major Roman Roads	0.72***	0.46***
	[0.10]	[0.09]
Age of Respondent	−0.01	−0.01**
	[0.00]	[0.00]
Age of Respondent^2	0.00	0.01
	[0.00]	[0.00]
GDP per Capita	0.15	−0.06
	[0.11]	[0.11]
Sample Size	285 294	271 590
Country FE	Yes	Yes
Gender FE	Yes	Yes
Education FE	Yes	Yes
ESS round FE	Yes	Yes
Location FE	Yes	Yes
Politics FE	Yes	Yes
Income FE	Yes	Yes

Summary: This table presents the first stage results of the Table 5. Stock of Major Roman Roads is the infrastructure length of major Roman roads during Roman Empire. We control for the educational background of the respondent, the gender, place of residence, age, age squared, if the respondent is interesting in politics, respondent's income and the regional GDP per capita in PPP. In addition, we apply country and ESS round fixed effects.
Notes: (i) First stage results with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

5.1. Panel of Nuts 1 regions

To implement our panel analysis, we estimate the following equation:

$$T_{ijt} = \alpha_0 + \alpha_1 I_{jt-n} + \alpha_2 X_{it} + \alpha_3 G_{it-n} + \alpha_4 N_v + \alpha_5 Y_{ct} + \epsilon_{it} \quad (4)$$

where T_{ijt} is an outcome of trust, I_{jt-n} is the transportation cost either for the motorways or for the rail network. n denotes the time lag between our main independent variable and the dependent variable based on the date of the interview for every respondent the year of transportation infrastructure when it is being matched. X_{it} is a vector of individual controls and G_{it-n} the GDP per capita in PPP. Finally, we include N_v Nuts 1 fixed effects to take into account unobservables at the Nuts 1 level and Y_{ct} country-year fixed effects to deal with unobservables that vary by country and year. We cluster the standard errors at the Nuts 1 level.

Table 5
Motorways, railroads and trust - IV results.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.02*	0.04**	0.03*	0.02
	[0.01]	[0.02]	[0.01]	[0.02]
Age of Respondent	−0.24***	−0.42***	−0.30***	−0.56***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.38***	0.34***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.06***	0.05***	0.02	0.05***
	[0.02]	[0.01]	[0.01]	[0.02]
F-First Stage	52.83	54.04	53.34	57.75
Sample Size	285 294	279 827	283 283	257312

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.03*	0.06*	0.05*	0.03
	[0.02]	[0.03]	[0.03]	[0.03]
Age of Respondent	−0.24***	−0.41***	−0.29***	−0.54***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.37***	0.33***	0.52***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.07***	0.06***	0.03*	0.06***
	[0.02]	[0.02]	[0.01]	[0.02]
F-First Stage	25.79	26.35	26.03	27.56
Sample Size	271 590	266 338	269 630	244 011
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, age, age squared, the gender, place of residence, if the respondent is interesting in politics, respondent's income and regional GDP per capita in PPP. Country and ESS round fixed effects are used.
Notes: (i) IV model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Our time varying measures of transportation cost are derived from the (ESPON Database, 2023). We use as indicators of motorways and railroads the travel time between centroids of Nuts 3 regions. The data are available for the years 2001, 2006, 2011 and 2014 and their structure is a gravity format indicating the transportation cost between Nuts 3 regions based on travel time.

We then collapse our data to get indices of transportation connectivity for motorways and railroads at the Nuts 1 regions, aligned with the regions in the ESS data. These indices reflect how well connected is a Nuts 1 region to all the other Nuts 1 regions for every transportation mode.[6] Finally, we adjust the ESS years to fit with the ones from the ESPON dataset and we end up with a panel of 93 Nuts 1 regions with time-varying connectivity across years. We follow the baseline specification, thus in Table 8 all columns control for the full set of individual controls as well as Nuts 1 and ESS round fixed effects. They also account for country-year fixed effects and control for the average level of GDP per capita in PPP.[7]

Table 8, Panel A, documents the effect of the average motorways transportation cost measured in minutes on both political and interpersonal trust. In all columns we include the full set of individual controls and GDP per capita in PPP, however, we account for

[6] We make sure that we remove duplicates of transportation connections within the Nuts 1 regions before we collapse the data. For instance, given the gravity nature of the dataset, we observe at the Nuts 3 level transportation connections from x to y but also from y to x within the same Nuts 1 region. We take into account only once these connections where both regions belong in the same Nuts 1 region.

[7] The years from the ESS dataset are based on the start year for the interview of every respondent. More specifically, we merge the year of 2001 from the ESPON Database (2023) (accessed in June of 2023) with the years from 2002 to 2006 from the ESS dataset. Then, the year 2006 with the years from 2007 to 2011, the year 2011 with the years from 2012 to 2014 and last, the year 2014 with the years from 2015 to 2018. As far as the GDP per capita in PPP is concerned, it is also constructed in a similar way. The only minor comment that needs to be made is that for the initial year in our analysis, we used the GDP per capita in PPP data from 1961 and 1962, aligning it with the period from 1950 to 1962. This approach was necessary because, unlike the dataset of Canning and Bennathan (1999) that begins in 1950, the GDP per capita in PPP data coming from the World Bank Indicators begins in 1960.

Table 6
Motorways and trust past level of trust - IV results robustness.

	Trust on people	Trust in the legal system	Trust in the police	PCA of political trust
	(1)	(2)	(3)	(4)
Stock of Motorways	0.03***	0.04**	0.03**	0.03
	[0.01]	[0.02]	[0.01]	[0.02]
Age of Respondent	−0.23***	−0.38***	−0.26***	−0.54***
	[0.05]	[0.04]	[0.04]	[0.03]
Age of Respondent^2	0.21***	0.34***	0.30***	0.52***
	[0.04]	[0.04]	[0.03]	[0.03]
GDP per Capita	0.05***	0.05**	0.02	0.04**
	[0.02]	[0.02]	[0.02]	[0.02]
Past Level of Trust	−0.05**	0.00	−0.00	−0.01
	[0.02]	[0.03]	[0.03]	[0.03]
F-First Stage	91.18	91.29	91.21	93.14
Sample Size	176 931	173 883	175 900	159 679
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways on trust for our sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, age, age squared, the gender, place of residence, if the respondent is interesting in politics, respondent's income and the regional GDP per capita in PPP. We also control for the past levels of trust at the Nuts 1 regions. In addition, we apply country and ESS round fixed effects.
Notes: (i) IV model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table 7
Railroads and trust past level of trust - IV results robustness.

	Trust on people	Trust in the legal system	Trust in the police	PCA of political trust
	(1)	(2)	(3)	(4)
Stock of Railroads	0.04**	0.06*	0.05*	0.04
	[0.02]	[0.03]	[0.03]	[0.03]
Age of Respondent	−0.22***	−0.37***	−0.25***	−0.53***
	[0.05]	[0.04]	[0.04]	[0.03]
Age of Respondent^2	0.20***	0.33***	0.29***	0.51***
	[0.04]	[0.04]	[0.04]	[0.03]
GDP per Capita	0.06***	0.05**	0.03	0.04*
	[0.02]	[0.02]	[0.02]	[0.02]
Past Level of Trust	−0.03	−0.00	−0.00	0.00
	[0.02]	[0.03]	[0.03]	[0.03]
F-First Stage	55.46	55.56	55.49	56.98
Sample Size	166 586	163 668	165 576	149 567
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of railroads on trust for our sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, age, age squared, the gender, place of residence, if the respondent is interesting in politics, respondent's income and the regional GDP per capita in PPP. We also control for the past levels of trust at the Nuts 1 regions. In addition, we apply country and ESS round fixed effects.
Notes: (i) IV model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Nuts 1 and ESS round fixed effects and now we are also allowed to further account for country-year fixed effects. Our findings suggest that a lower transportation cost in motorways and a shorter transfer across regions can greatly enhance individuals' exposure to new people and cultures influencing their level of trust. More analytically, Panel A, suggests that individuals who live in regions with a well established motorway network that shortens the distance between regions, tend to trust more their country's legal system, the police as well as the political institutions. Specifically, an 1 standard deviation increase in the average motorways transportation cost (which corresponds to 533 min) is associated with 0.42 standard deviations decrease in trust the legal system, 0.64 standard

Table 8
Motorways, railroads and trust - Panel model.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Average Motorways Transportation Cost	0.05	−0.42***	−0.64***	−0.57***
	[0.14]	[0.15]	[0.12]	[0.16]
Age of Respondent	−0.27***	−0.43***	−0.33***	−0.56***
	[0.03]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.25***	0.40***	0.37***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	−0.10*	0.06	−0.00	0.16
	[0.06]	[0.11]	[0.07]	[0.12]
R-squared	0.18	0.23	0.18	0.27
Sample Size	261 490	256 492	259 626	238712
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Average Railroads Transportation Cost	−0.11	−0.60***	−0.55**	−0.63***
	[0.11]	[0.20]	[0.26]	[0.17]
Age of Respondent	−0.27***	−0.43***	−0.33***	−0.56***
	[0.03]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.25***	0.40***	0.37***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	−0.09	0.05	−0.02	0.15
	[0.06]	[0.11]	[0.08]	[0.12]
R-squared	0.18	0.23	0.18	0.27
Sample Size	261 490	256 492	259 626	238 712
Nuts1 FE	Yes	Yes	Yes	Yes
Country X Year FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of average motorways transportation cost (Panel A) and average railroads transportation cost (Panel B) on trust for our sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. The average motorways and railroads transportation cost is measured in minutes. We control for the educational background of the respondent, age, age squared, the gender, place of residence, if the respondent is interested in politics, respondent's income and GDP per capita in PPP. Nuts 1, ESS round fixed effects as well as country-year fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

deviations decline in trust the police and a decrease in trust the political institutions (i.e., politicians, country's parliament and political parties) by 0.57 standard deviations. The results are significant at the 1% level. Practically, this means that a decrease in the transportation cost via motorways by 553 min corresponds to an increase in institutional trust by 1.5 units on a scale 1–10.

Panel B, suggests that individuals who live in regions which are shortly connected to other regions using the rail network, trust more the legal system, the police and the political institutions i.e., parliament, political parties and politicians. In particular, an 1 standard deviation increase in the average railroads transportation cost in minutes leads to a 0.60 standard deviations decrease in trust the legal system, 0.55 standard deviations decrease in trust the police and 0.63 standard deviations decline in trust the political system. The results remain quantitatively and qualitatively similar. The corresponding magnitude for railways is that for 573 min shorter transfer time, institutional trust (e.g., the legal system) increases by 1.5 units on a scale 1–10.

5.2. Market access framework

Following the existing literature we define access to trust as the fraction:

$$AT_i = \sum_{j \neq i} Cost_{ij}^{-\theta} \times T_j$$

in which the denominator is a cost function and the numerator is a variable of interest. Our measure of access to trust relates very closely to the peer effects literature. Essentially, every region is a "peer" of every other region, where the strength of the connection is determined by the transportation infrastructure linking them. The term $Cost_{ijt} \times T_j$ captures the access to and the effect from the average level of trust in region j on region i. The lower the cost or the higher the average level of trust in j, a greater peer effect is

Table 9
Mechanism.

	Trust on people	Trust in the legal system	Trust in the police	PCA of political trust
	(1)	(2)	(3)	(4)
Panel A: Trade Elasticity=1				
Access to Interpersonal Trust	0.05**			
	[0.02]			
Access to Legal Trust		0.01		
		[0.01]		
Access to Police Trust			0.03**	
			[0.01]	
Access to Political Trust				0.04***
				[0.01]
R-squared	0.13	0.17	0.12	0.23
Panel B: Trade Elasticity=8.22				
Access to Interpersonal Trust	0.06***			
	[0.01]			
Access to Legal Trust		0.01**		
		[0.00]		
Access to Police Trust			0.03***	
			[0.00]	
Access to Political Trust				0.04***
				[0.01]
R-squared	0.13	0.17	0.12	0.23
Sample Size	155 718	153 107	154 799	140 188
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: Panel A presents the transportation measures with a trade elasticity of 1 while Panel B has the trade elasticity of 8.22 proposed by Donaldson and Hornbeck (2016).
This table presents the effect of access to different measures of trust on trust for our sample. More specifically, (i) the trust of citizens to: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We define our four measures of access to trust for a given region i as a fraction which has as a numerator the trust of all the other regions except i divided by the cost to reach these regions from region i using the road network. We control for the educational background of the respondent, the gender, place of residence, age of the respondent, age squared and GDP per capita in PPP, if the respondent is interested in politics and respondent's income. Country and ESS round fixed effects are used.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

expected on i by j, thereby increasing the probability of contagion. Our mechanism is close to the mechanism proposed by Melander (2020) about the spatial contagion of social movements, where the author uses the average of movement memberships in all the other municipalities.

For our paper, we extract data about the cost from Weiss et al. (2018) for the year 2015 which is a raster file that provides us with information about the travel time to the big urban centers. However, we hypothesize the travel time as the cost to move from one region to the other. Fig. C.1 presents the raster file we use for the cost data. The travel time was computed based on the major and minor road network. In order to construct our least cost paths, we divide Europe into $0.02^o \times 0.02^o$ grids. Then we fill in these grids with the average time from the raster file. Next, we create a new raster file which we use to compute the least cost paths. Fig. C.2 represents the least cost paths for eastern Austria (AT1) region. Finally, we compute the matrix cost for the rest Nuts 1 regions. We are ending up with a sample of 113 Nuts 1 regions. This means 12769 combinations for the cost matrix.

$$C_t = \begin{vmatrix} Cost_{11}^{-\theta} & Cost_{12}^{-\theta} & \cdots & Cost_{1n}^{-\theta} \\ Cost_{21}^{-\theta} & Cost_{22}^{-\theta} & \cdots & Cost_{2n}^{-\theta} \\ \vdots & \vdots & \ddots & \vdots \\ Cost_{n1}^{-\theta} & Cost_{n2}^{-\theta} & \cdots & Cost_{nn}^{-\theta} \end{vmatrix}$$

The estimating equation is:

$$T_{ij} = \alpha_0 + \alpha_1 AT_j + \alpha_2 X_i + \alpha_3 G_i + \alpha_4 E_i + \alpha_5 P_i + \alpha_6 C_v + \alpha_7 R_t + \epsilon_i \quad (5)$$

where, T is an index of the level of trust of individual i, residing in region j, who participated in the tth ESS round. The vector T denotes one of our trust variables: trust in other people, police, legal system and the composite index of political trust. Our main independent variable is the access to trust, AT_j. We take into account the individual characteristics by applying the appropriate controls X_i such as age, age squared and gender. G_j is regional GDP per capita in PPP as a measure of development. E_i is a vector

Table 10
Mechanism - Stock of motorways.

	Trust on people	Trust in the legal system	Trust in the police	PCA of political trust
	(1)	(2)	(3)	(4)
Access to Interpersonal Trust	0.05**			
	[0.02]			
Access to Legal Trust		0.01		
		[0.01]		
Access to Police Trust			0.03***	
			[0.01]	
Access to Political Trust				0.05***
				[0.01]
R-squared	0.13	0.17	0.12	0.22
Sample Size	153 545	150 947	152 635	138 033
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes
Stock of Motorways	Yes	Yes	Yes	Yes

Summary: This table presents the effect of access to different measures of trust on trust for our sample. More specifically, (i) the trust of citizens to: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We define our four measures of access to trust for a given region i as a fraction which has as a numerator the trust of all the other regions except i divided by the cost to reach to these regions from i using the road network. We control for the educational background of the respondent, the gender, place of residence, age of the respondent, age squared and GDP per capita in PPP, if the respondent is interested in politics and respondent's income. In addition, we control for the stock of motorways. Country and ESS round fixed effects are used.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

of place of residence and education and individual's income fixed effects for the respondent i. P_i is a vector of fixed effects regarding the willingness of the respondent i to have an active role for the politics. C_v is a vector of country fixed effects that controls for all time invariant unobserved heterogeneity at the country level. R_t is a vector of ESS round fixed effects aimed to capture round specific shocks that could affect individual responses. ϵ_i is the error term. We estimate robust standard errors, clustered at the Nuts 1 level.

Table 9 reports the results using the access to trust as a mechanism using the specification as described above. Panel A presents the results using a trade elasticity equal to 1 while in Panel B the trade elasticity was set to 8.22 the value proposed by Donaldson and Hornbeck (2016). The findings suggest that an 1 standard deviation increase in the access to several aspects of trust (i.e., interpersonal trust, legal trust, police trust and political trust) is associated with 0.05 standard deviations increase in trust on other people significant at the 5%, 0.03 standard deviations rise in trust the police, significant at the 1% and 0.04 standard deviations rise in trust the political institutions i.e., politicians, political parties and country's parliament, significant at the 1% confidence level.

Following the existing literature and the paper of Donaldson and Hornbeck (2016), we explore if access to trust is determined solely by that region's own stock of motorways. Thus, we can examine changes in regions' access to trust that are orthogonal to changes in region's own stock of motorways. We report these estimates in Table 10 where we add as a control variable for every region its own stock of motorways. The estimating impact of access to trust on our different dependent variables remains the same showing evidence that it is independent of the local stock of motorways.

6. Discussion and robustness checks

6.1. Social interactions and institutional satisfaction

In discussing the underlying forces that are potentially driving our results, there are two forces that stand out. The fact that infrastructure fosters social and economic interactions among diverse communities ultimately reshaping social behaviors. Second, reinforcing the satisfaction of individuals to the government, given the importance of infrastructure as a public good.

In this section, we attempt to approach these two forces given the availability of the ESS data at the benchmark specification and the international immigrant analysis. Specifically, the data provides the following two questions which capture to some extent the above mentioned mechanisms. At first, the frequency of social interactions where individuals correspond to the question "How often do you meet socially with friends, family, relatives or work colleagues? Meet socially implies meet by choice rather than for reasons of either work or pure duty". It is a categorical variable taking values on a scale 1 to 7 where 1 means never and 7 means every day meeting socially with friends, family, relatives or work colleagues. Second, we attempt to proxy also for another mechanism, i.e., the political satisfaction mechanism which reflects the satisfaction of individuals to the government, given the importance of infrastructure as a public good. To capture this, we use two additional measures, i.e., (i) *Satisfaction with government.*

Table 11
Motorways, railroads and social interactions.

	Social interactions	Social interactions (International immigrant analysis)
	(1)	(2)
Panel A.		
Stock of Motorways	0.03**	0.03*
	[0.01]	[0.02]
Age of Respondent	−0.91***	−0.99***
	[0.05]	[0.09]
Age of Respondent^2	0.67***	0.79***
	[0.04]	[0.11]
GDP per Capita	0.00	−0.09
	[0.01]	[0.05]
R-squared	0.19	0.13
Sample Size	285 116	7492
	(1)	(2)
Panel B.		
Stock of Railroads	0.03*	0.02***
	[0.02]	[0.01]
Age of Respondent	−0.91***	−0.88***
	[0.05]	[0.07]
Age of Respondent^2	0.66***	0.69***
	[0.04]	[0.07]
GDP per Capita	0.01	−0.07**
	[0.01]	[0.04]
R-squared	0.20	0.10
Sample Size	271 402	9223
Country FE	Yes	No
Host Country FE	No	Yes
Origin Country FE	No	Yes
Gender FE	Yes	Yes
Education FE	Yes	Yes
ESS round FE	Yes	Yes
Location FE	Yes	Yes
Politics FE	Yes	Yes
Income FE	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on individuals' social interactions for our sample and in Panel C and Panel D for the international immigrants. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent and GDP per capita in PPP.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Individuals correspond to the question "Now thinking about the [country] government, how satisfied are you with the way it is doing its job?" where 0 means extremely dissatisfied and 10 means extremely satisfied. (iii) *Politicians take care of people.* Individuals correspond to the statement "Politicians care what people think" where 0 means not at all and 10 means completely. However, at the inter-regional immigrant analysis we use as an explanatory variable the (iii) *Rate of the political system for governing the country*.[8] Individuals correspond to the question "How would you rate the political system for governing the country" where 1 which means very bad and 10 means very good governing.

We then replicate each layer of our analysis with all these measures as outcome variables. Our findings suggest that a more extensive stock of motorways and railroads is associated with: (i) A larger number of social interactions; (ii) more satisfaction with the government and a stronger conviction that politicians take care of the people, and (iii) perceptions in favor of political system's governing the country.

Reassuringly, these findings are aligned with our hypothesized underline mechanisms through Tables 11 and 12 and in the Appendix, Tables C.6–C.9.

[8] The EVS used as the main source of data at this layer of analysis does not include any proxy for measuring the institutional satisfaction and other perceptions about politicians as described above and used in our benchmark and international immigrant analysis.

Table 12
Motorways, railroads and social interactions - Panel model.

	Social Interactions
	(1)
Panel A.	
Average Motorways Transportation Cost	0.26
	[0.16]
Age of Respondent	−0.93***
	[0.04]
Age of Respondent^2	0.69***
	[0.04]
GDP per Capita	−0.01
	[0.06]
R-squared	0.20
Sample Size	261316
	Social Interactions
	(2)
Panel B.	
Average Railroads Transportation Cost	0.43*
	[0.23]
Age of Respondent	−0.93***
	[0.04]
Age of Respondent^2	0.69***
	[0.04]
GDP per Capita	−0.01
	[0.06]
R-squared	0.20
Sample Size	261 316
Nuts1 FE	Yes
Country X Year FE	Yes
ESS round FE	Yes
Gender FE	Yes
Education FE	Yes
Location FE	Yes
Politics FE	Yes
Income FE	Yes

Summary:: This table presents the effect of average motorways transportation cost (Panel A) and average railroads transportation cost (Panel B) on social interactions for our sample. We control for the educational background of the respondent, the gender, place of residence, if the respondent is interested in politics, respondent's income, age of the respondent and GDP per capita in PPP. Nuts 1, ESS round fixed effects as well as country-year fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

6.2. Accounting for institutional quality

In the light of discussing the role of infrastructure on shaping interpersonal and institutional trust, it is very important to control for the quality of institutions. As regional data on institutional quality are rather limited at the Nuts 1 level, we have followed various approaches to capture institutional quality. First, we have resorted to the Integrated Values Survey (IVS) to construct measures about institutional quality. Specifically, the IVS provides four alternative measures that can capture the extent of corruption in a country and thus implicitly the quality of institutions. These are the following:

(i) *"Please tell me whether you think that political violence can always be justified, never be justified, or something in between, using this card"*. (ii) *"Please tell me whether you think that not paying a fare in transport can always be justified, never be justified, or something in between, using this card"*. (iii) *"Please tell me whether you think that cheating on taxes if you have a chance can always be justified, never be justified, or something in between, using this card"*. (iv) *"Please tell me whether you think that accepting a bribe in the course of your duties can always be justified, never be justified, or something in between, using this card"*.

All variables are measured on a scale between 1 which means never justified and 10 means always justified. We collapsed these variables at the Nuts 1 regions, which are available at the IVS, to construct a regional proxy for the quality of institutions. We then replicate our benchmark specification using each of these measures as a control variable. Results can be found in the Appendix, Tables C.10–C.13. Our findings remain robust controlling for all these alternative measures of corruption. We have employed the same regional measures also at the inter-regional immigrant analysis, again obtaining robust results (see Appendix,

Tables C.14–C.17). Interestingly, the coefficients of institutions in all these specifications are insignificant throughout, except for the case of interpersonal trust where their effect is positive.[9]

For the international immigrant analysis we have access to a wider range of data. Analytically, we have resorted to measures of institutional quality derived from the Varieties of Democracy (V-DEM), a comprehensive dataset and research project that provides detailed, multidimensional measures of democracy, capturing various aspects of democratic governance across countries and over time.

We resort to V-DEM as it provides a political corruption index starting as early as in 1789 (it is critical that we can have long series of data given the methodology used to construct the variable). We use four alternative measures of corruption; (i) political corruption; (ii) public corruption; (iii) judicial corruption and, (iv) a broader democracy index. The political and public corruption variables we use are measured on a scale 0–1 where 0 means no corruption and 1 indicates a high level of corruption. Concerning the judicial corruption, it takes values between 1 that means high corruption and 4 which indicates no corruption at all. The democracy index we use in our analysis is taking values between 0 (no democracy) and 10 (full democracy).

Tables C.18–C.21 illustrate the results of the international immigrant analysis specification when we are controlling for each of the three measures of institutional corruption and democracy. All our findings suggest two things. First, our benchmark results e.g., the effect of stock of motorways and railroads on interpersonal and institutional trust remain robust and unchanged. Second, in most cases (with the exception of the justice corruption index) the effects are non-significant.

6.3. Alternative years of infrastructure

A potential concern may be associated with the fact that while the outcome variables (interpersonal and political trust) vary over time and span the period 2002–2018, the infrastructure stock over the period 2000–2018 is time invariant. As such, it may be the case that the level of infrastructure in 2018 explains the level of trust in 2002. The reason for implementing this approach is that from year to year, changes in infrastructure stock are not as pronounced. The mean value of infrastructure throughout this period is not dramatically different from what would have been had we taken the dates prior to 2002. This specification also gives us the largest number of observations. However, we have replicated our baseline results using as our main explanatory variable the infrastructure level in the years prior to the year 2002 where our trust data starts. We report these results in Tables C.22, C.23 and C.24 in the robustness section. There, we present the results for all our basic specifications when using as our measure of infrastructure the mean value of infrastructure for the period 1990–2002. Reassuringly, our findings remain quantitatively the same and qualitatively quite similar although in some specifications (IV) somewhat weaker partly due to a slight increase in standard errors as the date goes even further back in time.

7. Conclusions

In conclusion, this study delved into the intricate relation between transportation infrastructure and trust. By focusing on motorway and railroad lengths as key measures of infrastructure, we explored the potential of enhanced infrastructure to nurture and strengthen both interpersonal and political trust. Our analysis, drawing on data from nine rounds of the European Social Survey (2002–2018), unveiled a notable correlation: individuals residing in regions with more extensive infrastructure tend to exhibit elevated levels of trust in both people and political institutions. Our investigation employed various analytical angles to ensure robustness such as a cross-regional analysis in Nuts 1 regions, assessment of international and inter-regional immigrants' trust levels associated with infrastructure at their origin country/region, and a panel analysis incorporating road travel time as an explanatory variable.

The consistency of results across these settings bolsters our findings. In accordance with the existing literature, we posit that infrastructure's impact on trust unfolds primarily through its role in enhancing mobility, thereby facilitating exposure to novel ideas and cultures. It can as well reinforce the trust of people to the government as transportation infrastructure is rather critical for their well-being. To further fortify our identification strategy and explore the mobility aspect, we conducted additional tests. These tests involved a panel analysis using road travel time between regions as the explanatory variable, as well as an examination of the influence of less costly connections on a region's trust level. Notably, our findings underscore that increased and more accessible mobility corresponds to higher levels of trust. The implications of our findings hold significant weight, underscoring that even in a landscape with already extensive infrastructure, its influence on individual attitudes remains substantial. Often integral to political decisions aimed at bolstering economic conditions, creating employment opportunities, and alleviating societal disparities, infrastructure takes on a new dimension. Our study unveils a fresh role for further infrastructure expansion, one intimately tied to interpersonal and political trust levels. This expanded infrastructure nurtures greater trust among individuals, not only towards one another and political institutions but also towards new ideas, achieved by bridging "physical" distances and enhancing social proximity and face-to-face interactions (Boschma, 2005).

[9] It is interesting to note that in some cases accepting bribes or cheating on your taxes predicts greater interpersonal trust. Though one would need to interpret carefully this finding due to potential endogeneity, yet we could speculate as to source of the sign. In environments where corruption is normalized or viewed as a practical means of overcoming bureaucratic inefficiencies, individuals may develop stronger interpersonal trust within close-knit networks as a way of securing mutual benefits or protection. Trust in personal relationships can act as a substitute for trust in formal institutions, fostering reliance on informal agreements and social reciprocity. Thus, justifying corruption might coexist with higher interpersonal trust as people rely on relationships and social bonds to ensure survival in a corrupt system.

In light of these insights, policymakers possess a potent tool at their disposal. By recognizing the social benefits inherent in both infrastructure and trust, they can wield this synergy to promote knowledge dissemination and reduce regional inequalities which is a pivotal topic on the research agenda. Thus, fostering investment in infrastructure and trustworthiness not only addresses pressing socio-economic challenges but also cultivates an environment conducive to knowledge spillovers and regional cohesion.

Declaration of competing interest

The authors declare no conflict of interest.

Appendix A. Definition of variables

A.1. ESS variables

Trust in other people. It corresponds to the question "Using this card, generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Please tell me on a score of 0 to 10, where 0 means you can't be too careful and 10 means that most people can be trusted". 0 means you do not trust other people at all, and 10 means you have complete trust.

Trust in the legal system. It corresponds to the question "Using this card, please tell me on a score of 0–10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly...the legal system?". 0 means you do not trust police at all, and 10 means you have complete trust.

Trust in the police. It corresponds to the question "Using this card, please tell me on a score of 0–10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly...the police?". 0 means you do not trust police at all, and 10 means you have complete trust.

Trust in Parties. "Trust in Political Parties" corresponds to the question "Using this card, please tell me on a score of 0–10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly [country]'s political parties?".

Trust in Politicians. "Trust in Politicians" corresponds to the question "Using this card, please tell me on a score of 0–10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly [country]'s politicians?".

Trust in Parliament. "Trust in Parliament" corresponds to the question "Using this card, please tell me on a score of 0–10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly [country]'s parliament?".

Age. The age of the respondent.

Age Squared. The age of the respondent.

Gender. The gender of the respondent.

Educational background. Individuals correspond to the question "What is the highest level of education you have achieved?". 1 means less than lower secondary education and 7 means tertiary education completed.

Domicile. Individuals describe where they live; 1 is associated with living in a big city, 2 live in the suburbs or outskirts of big city, 3 live in a town or small city, 4 live in a country village and 5 live in a farm or home in the countryside.

Interested in Politics. Individuals correspond to the question "How interested in politics are you?". 1 means very interested and 4 means not at all interested.

Income Scale. Individuals correspond to the question "Please tell me which letter (number) describes your household's total (annual) income, after tax and compulsory deductions, from all sources?". 1 means annual income lower than 1.800 euros and 12 means annual income higher than 120.000 euros.

Social Interactions. Individuals correspond to the question "How often do you meet socially with friends, family, relatives or work colleagues? Meet socially implies meet by choice rather than for reasons of either work or pure duty". 1 means never and 7 means every day.

Satisfaction with Government. Individuals correspond to the question "Now thinking about the [country] government, how satisfied are you with the way it is doing its job?". 0 means extremely dissatisfied and 10 means extremely satisfied.

Politicians Take Care of People. Individuals correspond to the statement "Politicians care what people think ". 0 means not at all and 10 means completely.

A.2. Eurostat variables

Stock of Motorways. Stock of motorways divided by 1000 is the infrastructure length of motorways over the period 2000–2016, measured in kilometers.

Stock of Railroads. Stock of railroads divided by 1000 is the infrastructure length of railroads over the period 2000–2016, measured in kilometers.

GDP per capita in PPP. Gross domestic product converted to international dollars using purchasing power parity rates and divided by total population.

A.3. EVS variables

Trust in other people. It corresponds to the question "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?". 1 means that most people can be trusted, and 2 means you need to be very careful.

Trust in the legal system. It corresponds to the question "How much confidence you have in the legal system?" 1 means no trust and 4 means full trust.

Trust in the police. It corresponds to the question "How much confidence you have in the police?" 1 means no trust and 4 means full trust.

Trust in Parties. It corresponds to the question "How much confidence you have in political parties?" 1 means no trust and 4 means full trust.

Trust in Politicians. It corresponds to the question "How much confidence you have in politicians?" 1 means no trust and 4 means full trust.

Trust in Parliament. It corresponds to the question "How much confidence you have in Parliament?" 1 means no trust and 4 means full trust.

Age. The age of the respondent.

Age Squared. The age of the respondent.

Gender. The gender of the respondent.

Education. Individuals correspond to the question "What is the highest educational level that you have attained?". 0 means no education attained and 6 means tertiary education attained.

Size of the town. Individuals respond about the size of the town they live. 1 is associated with a town's size below 2000 and 8 is associated with a town's size above 500.000 inhabitants.

Interested in Politics. Individuals correspond to the question "Do you belong to political parties/groups?". 0 means no and 1 means yes.

Income Scale. Individuals correspond to the question "On this card is an income scale on which 1 indicates the lowest income group and 10 the highest income group in your country. We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions and other incomes that come in". 1 indicates the lowest income group and 10 indicates the highest income group.

Rate the Political System. Individuals correspond to the question "How would you rate the political system for governing the country" 1 means very bad and 10 means very good.

A.4. IVS corruption variables

Justifiable Political Violence. Individuals correspond to the question "Please tell me whether you think that political violence can always be justified, never be justified, or something in between, using this card". 1 means never and 10 means always.

Justifiable Not Paying a Fare in Transport. Individuals correspond to the question "Please tell me whether you think that not paying a fare in transport can always be justified, never be justified, or something in between, using this card". 1 means never and 10 means always.

Justifiable Cheating on Taxes. Individuals correspond to the question "Please tell me whether you think that cheating on taxes if you have a chance can always be justified, never be justified, or something in between, using this card". 1 means never and 10 means always.

Justifiable Accepting a Bribe. Individuals correspond to the question "Please tell me whether you think that accepting a bribe in the course of your duties can always be justified, never be justified, or something in between, using this card". 1 means never and 10 means always.

A.5. V-DEM institutional variables

Political Corruption Index. "How pervasive is political corruption?" The directionality of the V-Dem corruption index runs from less corrupt to more corrupt. The corruption index includes measures of six distinct types of corruption that cover both different areas and levels of the polity realm, distinguishing between executive, legislative and judicial corruption. Within the executive realm, the measures also distinguish between corruption mostly pertaining to bribery and corruption due to embezzlement. Finally, they differentiate between corruption in the highest echelons of the executive at the level of the rulers/cabinet on the one hand, and in the public sector at large on the other. The measures thus tap into several distinguished types of corruption: both 'petty' and 'grand'; both bribery and theft; both corruption aimed and influencing law making and that affecting implementation. It takes values between 0 (no corruption) and 1 (full corruption).

Public Corruption Index. "To what extent do public sector employees grant favors in exchange for bribes, kickbacks, or other material inducements, and how often do they steal, embezzle, or misappropriate public funds or other state resources for personal or family use?" The point estimates for this index have been reversed such that the directionality is opposite to the input variables. It takes values between 0 (no corruption) and 1 (full corruption).

Judicial Corruption Index. "How often do individuals or businesses make undocumented extra payments or bribes in order to speed up or delay the process or to obtain a favorable judicial decision?" It takes values between 0 (always) and 4 (never).

Democracy Index. Democracy is conceived as three essential, interdependent elements. One is the presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders. Second is the existence of institutionalized constraints on the exercise of power by the executive. Third is the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation. The operational indicator of democracy is derived from codings of the competitiveness of political participation, the openness and competitiveness of executive recruitment and constraints on the chief executive. It takes values between 0 (no democracy) and 10 (full democracy).

Appendix B. Summary statistics

See Tables B.1–B.9.

Table B.1
Summary statistics for the OLS - Panel A.

Variable	Obs	Mean	Std. Dev.	Min	Max
Most people can be trusted or you can't be too careful	285 294	5.04	2.43	0	10
Trust in the legal system	279 827	5.06	2.65	0	10
Trust in the police	283 283	6.05	2.5	0	10
PCA of Political Trust	257 312	.05	1.58	−2.57	4.46
Stock of Motorways	285 983	817.87	727.3	0	3865.65
Age of the respondent	285 983	48.76	18.72	14	110
Age of the respondent^2	285 983	2727.96	1880.38	196	12 100
GDP per Capita	285 983	24 831.82	9576.58	7941.18	63 282.35
ESS round	285 983	5.46	2.45	1	9
Domicile, respondent's description	285 983	2.97	1.2	1	5
Men	285 983	.47	.5	0	1
Highest level of education, ES - ISCED	285 983	3.73	1.79	1	7
How interested in politics	285 983	2.63	.9	1	4
Income scale	285 983	4.24	3.37	0	12

Table B.2
Summary statistics for the OLS - Panel B.

Variable	Obs	Mean	Std. Dev.	Min	Max
Most people can be trusted or you can't be too careful	271 590	5.03	2.44	0	10
Trust in the legal system	266 338	5.01	2.65	0	10
Trust in the police	269 630	6.01	2.51	0	10
PCA of Political Trust	244 011	.03	1.59	−2.57	4.46
Stock of Railroads	272 262	3201.85	2233.57	0	9570.82
Age of the respondent	272 262	48.6	18.72	14	110
Age of the respondent^2	272 262	2712.81	1876.61	196	12 100
GDP per Capita	272 262	24 633.4	9715.82	7941.18	63 282.35
ESS round	272 262	5.36	2.44	1	9
Domicile, respondent's description	272 262	2.97	1.21	1	5
Men	272 262	.47	.5	0	1
Highest level of education, ES - ISCED	272 262	3.73	1.79	1	7
How interested in politics	272 262	2.63	.89	1	4
Income scale	272 262	4.25	3.38	0	12

Table B.3
Summary statistics for the international immigrant analysis - Panel A.

Variable	Obs	Mean	Std. Dev.	Min	Max
Most people can be trusted or you can't be too careful	7514	5.25	2.33	0	10
Trust in the legal system	7295	5.77	2.59	0	10
Trust in the police	7441	6.25	2.58	0	10
PCA of Political Trust	6910	.27	1.54	−2.66	4.18
Stock of Motorways	7545	245 928.3	503 408.2	76.33	3799246
Age of the respondent	7545	44.11	15.09	15	96
Age of the respondent^2	7545	2173.5	1451.82	225	9216
GDP per Capita	7545	10 875.72	12 754.35	161.36	85 233.59
ESS round	7545	5.85	2.08	2	9
Domicile, respondent's description	7545	2.49	1.23	1	5
Men	7545	.46	.5	0	1
Highest level of education, ES - ISCED	7545	4.16	1.95	1	7
How interested in politics	7545	2.63	.96	1	4
Income scale	7545	4.21	3.24	0	12

Table B.4
Summary statistics for international immigrant analysis - Panel B.

Variable	Obs	Mean	Std. Dev.	Min	Max
Most people can be trusted or you can't be too careful	9246	5.2	2.33	0	10
Trust in the legal system	8958	5.9	2.54	0	10
Trust in the police	9177	6.42	2.49	0	10
PCA of Political Trust	8403	.35	1.51	−2.66	4.18
Stock of Railroads	9282	17 189.99	33 801.21	0	332 428.8
Age of the respondent	9282	45.54	15.49	15	97
Age of the respondent^2	9282	2313.62	1541.81	225	9409
GDP per Capita	9282	12 229	12 952.81	134.57	85 233.59
ESS round	9282	5.78	2.13	2	9
Domicile, respondent's description	9282	2.55	1.23	1	5
Men	9282	.47	.5	0	1
Highest level of education, ES - ISCED	9282	3.95	1.99	1	7
How interested in politics	9282	2.63	.97	1	4
Income scale	9282	4.27	3.27	0	12

Table B.5
Summary statistics for inter-regional immigrant analysis - Panel A.

Variable	Obs	Mean	Std. Dev.	Min	Max
People can be trusted	4348	1.45	.5	1	2
Trust in the legal system	4372	2.55	.82	1	4
Trust in the police	4456	2.81	.76	1	4
PCA of Political Trust	4244	.06	1.47	−2.43	4.22
Stock of Motorways	4509	943.6	781.21	0	3865.65
Age of the respondent	4509	52.81	17.3	18	100
Age of the respondent^2	4509	3088.45	1853.22	324	10 000
GDP per Capita	4509	26 719.11	9555.39	7941.18	56 178.57
Size of town where interview was conducted	4509	4.77	2.27	1	8
Men	4509	.44	.5	0	1
Educational level respondent: ISCED code three digits	4509	348.62	145.3	0	600
Do you belong to: political parties/groups	4509	.05	.22	0	1
Income scale	4509	5.45	3.37	0	12

Table B.6
Summary statistics for the inter-regional immigrant analysis - Panel B.

Variable	Obs	Mean	Std. Dev.	Min	Max
People can be trusted	4086	1.43	.5	1	2
Trust in the legal system	4101	2.52	.83	1	4
Trust in the police	4180	2.78	.78	1	4
PCA of Political Trust	3977	.08	1.49	−2.43	4.22
Stock of Railroads	4231	3313.8	2218.98	0	9570.82
Age of the respondent	4231	52.68	17.34	18	100
Age of the respondent^2	4231	3075.59	1853.75	324	10 000
GDP per Capita	4231	25 918.59	9724.3	7941.18	56 178.57
Size of town where interview was conducted	4231	4.81	2.26	1	8
Men	4231	.44	.5	0	1
Educational level respondent: ISCED code three digits	4231	346.06	148.5	0	600
Do you belong to: political parties/groups	4231	.05	.22	0	1
Income scale	4231	5.4	3.34	0	12

Table B.7
Summary statistics for the panel model - Panel A.

Variable	Obs	Mean	Std. Dev.	Min	Max
Most people can be trusted or you can't be too careful	261 490	4.97	2.44	0	10
Trust in the legal system	256 492	4.98	2.66	0	10
Trust in the police	259 626	5.98	2.53	0	10
PCA of Political Trust	238 712	0	1.59	−2.57	4.46
Average Road Transportation Cost	262 141	1635.25	533.89	1016.65	4614.11
Age of the respondent	262 141	48.94	18.72	14	110
Age of the respondent^2	262 141	2746.08	1882.61	196	12 100
GDP per Capita	262 141	23 703.99	14 294.27	1600	67 600
Domicile, respondent's description	262 141	2.95	1.2	1	5
Men	262 141	.47	.5	0	1
Highest level of education, ES - ISCED	262 141	3.71	1.8	1	7
How interested in politics	262 141	2.64	.9	1	4
Income scale	262 141	4.09	3.32	0	12

Table B.8
Summary statistics for the panel model - Panel B.

Variable	Obs	Mean	Std. Dev.	Min	Max
Most people can be trusted or you can't be too careful	261 490	4.97	2.44	0	10
Trust in the legal system	256 492	4.98	2.66	0	10
Trust in the police	259 626	5.98	2.53	0	10
PCA of Political Trust	238 712	0	1.59	−2.57	4.46
Average Rail Transportation Cos	262 141	1163.83	573.32	722.52	5931.43
Age of the respondent	262 141	48.94	18.72	14	110
Age of the respondent^2	262 141	2746.08	1882.61	196	12 100
GDP per Capita	262 141	23 703.99	14 294.27	1600	67 600
Domicile, respondent's description	262 141	2.95	1.2	1	5
Men	262 141	.47	.5	0	1
Highest level of education, ES - ISCED	262 141	3.71	1.8	1	7
How interested in politics	262 141	2.64	.9	1	4
Income scale	262 141	4.09	3.32	0	12

Table B.9
Summary statistics for mechanism.

Variable	Obs	Mean	Std. Dev.	Min	Max
Most people can be trusted or you can't be too careful	155 718	4.91	2.35	0	10
Access to Interpersonal Trust	156 007	.18	.32	0	1.43
Trust in the legal system	153 107	4.98	2.56	0	10
Access to Legal Trust	156 007	.21	.36	0	1.48
Trust in the police	154 799	6.04	2.41	0	10
Access to Police Trust	156 007	.23	.39	0	1.67
PCA of Political Trust	140 188	−.02	1.55	−2.57	4.46
Access to Political Trust	156 007	.19	.37	0	1.58
Age of the respondent	156 007	49.12	18.73	14	105
Age of the respondent^2	156 007	2764.07	1893.67	196	11 025
GDP per Capita	156 007	25 175.39	8736.7	7941.18	56 178.57
ESS round	156 007	5.66	2.45	1	9
Domicile, respondent's description	156 007	2.98	1.18	1	5
Men	156 007	.47	.5	0	1
Highest level of education, ES - ISCED	156 007	3.66	1.84	1	7
How interested in politics	156 007	2.58	.92	1	4
Income scale	156 007	4.28	3.29	0	12

Appendix C. Supplementary tables and figures

See Figs. C.1 and C.2 and Tables C.1–C.24.

Table C.1
Motorways, railroads and trust - OLS results using the mean imputation approach.

	Trust on people	Trust in the legal system	Trust in the police	PCA of political trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01**	0.04***	0.03**	0.03**
	[0.01]	[0.01]	[0.01]	[0.01]
Age of Respondent	−0.24***	−0.42***	−0.30***	−0.56***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.38***	0.34***	0.53***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.06***	0.05***	0.02	0.06***
	[0.02]	[0.01]	[0.01]	[0.02]
Income Scale	0.03***	0.03***	0.03***	0.02***
	[0.00]	[0.00]	[0.00]	[0.00]
Dummy Adjustment Variable for Missing Values	0.10***	0.12***	0.09***	0.11 ***
	[0.01]	[0.01]	[0.01]	[0.02]
R-squared	0.18	0.22	0.17	0.25
Sample Size	285 294	279 827	283 283	257312
Panel B.				
Stock of Railroads	0.03**	0.04**	0.05***	0.03*
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	−0.24***	−0.41***	−0.29***	−0.54***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.21***	0.37***	0.33***	0.52***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.07***	0.06***	0.03*	0.06***
	[0.02]	[0.01]	[0.01]	[0.02]
Income Scale	0.03***	0.03***	0.03***	0.03***
	[0.00]	[0.00]	[0.00]	[0.00]
Dummy Adjustment Variable for Missing Values	0.11***	0.12***	0.10***	0.11***
	[0.01]	[0.01]	[0.01]	[0.02]
R-squared	0.18	0.23	0.18	0.26
Sample Size	271 590	266 338	269 630	244 011
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, respondent's income using now the mean imputation approach where we replaced the missing values with the mean value of the non-missing observations, the dummy adjustment variable for the missing values, the gender, place of residence, if the respondent is interested in politics, age of the respondent and GDP per capita in PPP. Country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

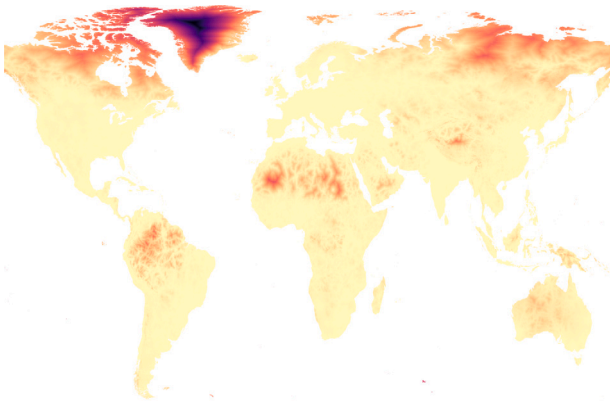

Fig. C.1. Global accessibility in 2015. **Notes:** This Figure presents the raster file of global accessibility to cities based on the road network for the year 2015. *Source:* (Nelson, 2008).

Table C.2
Motorways and railroads density and trust - OLS results.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Motor Density	0.02***	0.00	0.01**	0.01***
	[0.00]	[0.00]	[0.00]	[0.00]
Age of Respondent	−0.24***	−0.42***	−0.30***	−0.56***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.38***	0.34***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.08***	0.05***	0.02	0.07***
	[0.02]	[0.02]	[0.02]	[0.02]
R-squared	0.18	0.22	0.17	0.25
Sample Size	285 294	279 827	283 283	257312
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Rail Density	0.02***	0.00	0.01**	0.01***
	[0.01]	[0.00]	[0.00]	[0.00]
Age of Respondent	−0.24***	−0.42***	−0.30***	−0.54***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.37***	0.33***	0.52***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.08***	0.05***	0.03	0.06***
	[0.02]	[0.02]	[0.02]	[0.02]
R-squared	0.18	0.23	0.18	0.26
Sample Size	271 590	266 338	269 630	244 011
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways density on trust for our sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, the gender, place of residence, if the respondent is interested in politics and respondent's income. Country and ESS round fixed effects are used.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.3
Motorways and railroads density and trust - International immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Motor Density	0.02***	0.04***	0.03***	0.04***
	[0.01]	[0.01]	[0.01]	[0.00]
Age of Respondent	0.01	−0.15***	−0.04	−0.18***
	[0.09]	[0.05]	[0.06]	[0.06]
Age of Respondent^2	0.03	0.18***	0.11*	0.24***
	[0.09]	[0.04]	[0.06]	[0.06]
GDP per Capita	−0.01	0.06**	0.09***	0.11***
	[0.03]	[0.03]	[0.03]	[0.03]
R-squared	0.11	0.15	0.16	0.22
Sample Size	7514	7295	7441	6910
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Rail Density	0.02***	0.02***	0.01	0.03**
	[0.01]	[0.01]	[0.01]	[0.01]
Age of Respondent	0.01	−0.09*	−0.02	−0.07
	[0.07]	[0.05]	[0.04]	[0.06]
Age of Respondent^2	0.00	0.11***	0.09***	0.10**
	[0.07]	[0.04]	[0.03]	[0.05]
GDP per Capita	0.02	0.06*	0.07**	0.12***
	[0.03]	[0.04]	[0.03]	[0.03]
R-squared	0.12	0.12	0.13	0.20
Sample Size	9246	8958	9177	8403
Host Country FE	Yes	Yes	Yes	Yes
Origin Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways density (Panel A) and railroads density (Panel B) on trust for our international immigrant sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, gender, place of residence, if the respondent is interesting in politics, respondent's income, age of the respondent, age squared and the GDP per capita in PPP at the origin country. Origin country, host country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, double clustered at the host country and country of origin, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.4
Motorways and railroads density - Inter-regional immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Motor Density	0.03***	0.02	0.02	−0.01
	[0.01]	[0.01]	[0.02]	[0.01]
Age of Respondent	0.09*	−0.14	−0.12	−0.20
	[0.04]	[0.10]	[0.09]	[0.12]
Age of Respondent^2	−0.09**	0.17*	0.18**	0.24**
	[0.05]	[0.10]	[0.09]	[0.12]
GDP per Capita	0.02	0.05**	0.02	0.01
	[0.01]	[0.02]	[0.04]	[0.03]
R-squared	0.22	0.17	0.13	0.20
Sample Size	4348	4370	4456	4244
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Rail Density	0.03***	0.02	0.01	−0.01
	[0.01]	[0.01]	[0.02]	[0.02]
Age of Respondent	0.04	−0.11	−0.14	−0.17
	[0.05]	[0.10]	[0.09]	[0.13]
Age of Respondent^2	−0.05	0.15	0.20**	0.22*
	[0.05]	[0.10]	[0.09]	[0.12]
GDP per Capita	0.02	0.04	−0.01	0.01
	[0.02]	[0.03]	[0.04]	[0.03]
R-squared	0.24	0.18	0.15	0.20
Sample Size	4086	4094	4180	3977
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways density (Panel A) and railroads density (Panel B) on trust for our inter-regional immigrant sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, the gender, place of residence, if the respondent is interesting in politics, respondent's income, age of the respondent, age squared and GDP per capita in PPP. Country fixed effects are used.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.5
Mechanism within country.

	Trust on people	Trust in the legal system	Trust in the police	PCA of political trust
	(1)	(2)	(3)	(4)
Access to Interpersonal Trust	0.04**			
	[0.02]			
Access to Legal Trust		0.00		
		[0.01]		
Access to Police Trust			0.02*	
			[0.01]	
Access to Political Trust				0.04***
				[0.01]
R-squared	0.13	0.17	0.12	0.23
Sample Size	155 718	153 107	154 799	140 188
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of access to different measures of trust on trust for our sample within country. More specifically, (i) the trust of citizens to: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. We control for the educational background of the respondent, the gender, place of residence, age of the respondent, age squared and GDP per capita in PPP and if the respondent is interested in politics and the respondent's income. In addition, we apply country and ESS round fixed effects.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.6
Motorways, railroads and institutional satisfaction - OLS results.

	Satisfaction with Government	Politicians Take Care of What People Think
	(1)	(2)
Panel A.		
Stock of Motorways	0.02**	0.04***
	[0.01]	[0.01]
Age of Respondent	−0.50***	−0.38***
	[0.03]	[0.04]
Age of Respondent^2	0.52***	0.28***
	[0.02]	[0.04]
GDP per Capita	0.04***	0.05***
	[0.01]	[0.02]
R-squared	0.13	0.25
Sample Size	278 138	33082
	Satisfaction with Government	Politicians Take Care of What People Think
	(1)	(2)
Panel B.		
Stock of Railroads	0.02*	0.05***
	[0.01]	[0.02]
Age of Respondent	−0.49***	−0.36***
	[0.03]	[0.05]
Age of Respondent^2	0.52***	0.26***
	[0.03]	[0.04]
GDP per Capita	0.04**	0.05***
	[0.01]	[0.02]
R-squared	0.15	0.26
Sample Size	264 770	30 001
Country FE	Yes	Yes
Gender FE	Yes	Yes
Education FE	Yes	Yes
ESS round FE	Yes	Yes
Location FE	Yes	Yes
Politics FE	Yes	Yes
Income FE	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on individuals' satisfaction with government and views about how much politicians take care of the respondents for our sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent and GDP per capita in PPP. Country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.7
Motorways, railroads and institutional satisfaction - International immigrant analysis.

	Satisfaction with Government	Politicians Take Care of What People Think
	(1)	(2)
Panel A.		
Stock of Motorways	0.14***	0.07*
	[0.03]	[0.04]
Age of Respondent	−0.13	0.05
	[0.08]	[0.16]
Age of Respondent^2	0.24***	−0.07
	[0.07]	[0.16]
GDP per Capita	0.09**	0.02
	[0.03]	[0.10]
R-squared	0.19	0.31
Sample Size	7168	1082
	Satisfaction with Government	Politicians Take Care of What People Think
	(1)	(2)
Panel B.		
Stock of Railroads	0.01***	0.04
	[0.00]	[0.03]
Age of Respondent	−0.10	0.02
	[0.07]	[0.13]
Age of Respondent^2	0.17**	−0.04
	[0.07]	[0.13]
GDP per Capita	0.13***	0.08
	[0.02]	[0.07]
R-squared	0.19	0.23
Sample Size	8774	1295
Host Country FE	Yes	Yes
Origin Country FE	Yes	Yes
Gender FE	Yes	Yes
Education FE	Yes	Yes
ESS round FE	Yes	Yes
Location FE	Yes	Yes
Politics FE	Yes	Yes
Income FE	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on individuals' satisfaction with government and views about how much politicians take care of the respondents for our international immigrant sample. We control for the educational background of the respondent, the gender, place of residence, if the respondent is interesting in politics, respondent's income, age of the respondent and GDP per capita in PPP. Origin country, host country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.8
Motorways, railroads and institutional satisfaction - Inter-regional immigrant analysis.

	Political System Good for Governing the Country
	(1)
Panel A.	
Stock of Motorways	0.09***
	[0.03]
Age of Respondent	−0.29***
	[0.09]
Age of Respondent^2	0.33***
	[0.09]
GDP per Capita	0.08***
	[0.03]
R-squared	0.20
Sample Size	4426

	Political System Good for Governing the Country
	(1)
Panel B.	
Stock of Railroads	0.10**
	[0.04]
Age of Respondent	−0.31***
	[0.09]
Age of Respondent^2	0.35***
	[0.09]
GDP per Capita	0.10***
	[0.03]
R-squared	0.21
Sample Size	4152
Country FE	Yes
Gender FE	Yes
Education FE	Yes
ESS round FE	Yes
Location FE	Yes
Politics FE	Yes
Income FE	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on individual's views about government for our inter-regional immigrant sample. We control for the educational background of the respondent, the gender, place of residence, if the respondent is interesting in politics, respondent's income, age of the respondent and GDP per capita in PPP. Country fixed effects are used.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.9
Motorways, railroads and institutional satisfaction - Panel model.

	Satisfaction with Government	Politicians Take Care of What People Think
	(1)	(2)
Panel A.		
Average Road Transportation Cost	−0.85***	−5.17***
	[0.16]	[0.50]
Age of Respondent	−0.49***	−0.37***
	[0.03]	[0.05]
Age of Respondent^2	0.53***	0.28***
	[0.03]	[0.04]
GDP per Capita	0.08	1.01***
	[0.10]	[0.30]
R-squared	0.17	0.25
Sample Size	254 764	31168
	Satisfaction with Government	Politicians Take Care of What People Think
	(1)	(2)
Panel B.		
Average Rail Transportation Cost	−0.79***	4.58
	[0.19]	[2.88]
Age of Respondent	−0.49***	−0.37***
	[0.03]	[0.05]
Age of Respondent^2	0.53***	0.28***
	[0.03]	[0.04]
GDP per Capita	0.05	0.64
	[0.10]	[0.46]
R-squared	0.17	0.25
Sample Size	254 764	31 168
Nuts1 FE	Yes	Yes
Country X Year FE	Yes	Yes
ESS round FE	Yes	Yes
Gender FE	Yes	Yes
Education FE	Yes	Yes
Location FE	Yes	Yes
Politics FE	Yes	Yes
Income FE	Yes	Yes

Summary:: This table presents the effect of average motorways transportation cost (Panel A) and average railroads transportation cost (Panel B) on individuals' satisfaction with government and views about how much politicians take care of the respondents for our sample. We control for the educational background of the respondent, the gender, place of residence, if the respondent is interested in politics, respondent's income, age of the respondent and GDP per capita in PPP. Nuts 1, ESS round fixed effects as well as country-year fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.10
Motorways, railroads and trust accounting for institutional quality: Justifiable accepting a bribe (IVS) - OLS results.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01**	0.04***	0.03**	0.03**
	[0.01]	[0.01]	[0.01]	[0.01]
Age of Respondent	−0.24***	−0.42***	−0.30***	−0.56***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.38***	0.34***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.06***	0.05***	0.02	0.05***
	[0.02]	[0.01]	[0.01]	[0.02]
Justifiable Accepting a Bribe	0.03**	−0.00	0.01	0.02
	[0.01]	[0.02]	[0.02]	[0.02]
R-squared	0.18	0.22	0.17	0.25
Sample Size	284 938	279 479	282 928	256964
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.03**	0.04**	0.05***	0.03*
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	−0.24***	−0.41***	−0.29***	−0.54***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.37***	0.33***	0.52***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.07***	0.06***	0.03*	0.06***
	[0.02]	[0.01]	[0.01]	[0.02]
Justifiable Accepting a Bribe	0.04**	−0.00	0.01	0.02
	[0.01]	[0.02]	[0.02]	[0.02]
R-squared	0.18	0.23	0.18	0.27
Sample Size	271 277	266 033	269 318	243 706
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and the fact that individuals find justifiable accepting a bribe derived from the IVS. Country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.11
Motorways, railroads and trust accounting for institutional quality: Justifiable cheating on taxes (IVS) - OLS results.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01*	0.04***	0.03**	0.03**
	[0.01]	[0.01]	[0.01]	[0.01]
Age of Respondent	−0.24***	−0.42***	−0.30***	−0.56***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.38***	0.34***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.06***	0.05***	0.02	0.06***
	[0.02]	[0.01]	[0.01]	[0.02]
Justifiable Cheating on Taxes	0.05***	0.01	0.03*	0.02
	[0.02]	[0.02]	[0.02]	[0.02]
R-squared	0.18	0.22	0.17	0.25
Sample Size	284 938	279 479	282 928	256964
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.03**	0.04**	0.05***	0.03*
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	−0.24***	−0.41***	−0.29***	−0.54***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.37***	0.33***	0.52***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.07***	0.06***	0.03*	0.06***
	[0.02]	[0.01]	[0.01]	[0.02]
Justifiable Cheating on Taxes	0.05***	0.01	0.03	0.02
	[0.02]	[0.02]	[0.02]	[0.02]
R-squared	0.18	0.23	0.18	0.27
Sample Size	271 277	266 033	269 318	243 706
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and fact that individuals find justifiable cheating on taxes derived from the IVS. Country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.12
Motorways, railroads and trust accounting for institutional quality: justifiable avoiding to pay a fare (IVS) - OLS results.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01	0.03***	0.03**	0.03**
	[0.01]	[0.01]	[0.01]	[0.01]
Age of Respondent	−0.24***	−0.42***	−0.30***	−0.56***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.38***	0.34***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.05**	0.05***	0.01	0.05***
	[0.02]	[0.01]	[0.01]	[0.01]
Justifiable Not to Pay a Fare	0.03**	0.01	0.02	0.03**
	[0.01]	[0.02]	[0.01]	[0.01]
R-squared	0.18	0.22	0.17	0.25
Sample Size	284 938	279 479	282 928	256964
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.03**	0.05***	0.05***	0.03*
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	−0.24***	−0.41***	−0.29***	−0.54***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.22***	0.37***	0.33***	0.52***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.06***	0.05***	0.02	0.05***
	[0.02]	[0.01]	[0.01]	[0.02]
Justifiable Not to Pay a Fare	0.03**	0.02	0.02	0.03*
	[0.01]	[0.02]	[0.01]	[0.01]
R-squared	0.18	0.23	0.18	0.27
Sample Size	271 277	266 033	269 318	243 706
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and the fact that individuals find justifiable avoiding a fare derived from the IVS. Country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.13
Motorways, railroads and trust accounting for institutional quality: Justifiable political violence (IVS) - OLS results.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of motorways	0.02***	0.05***	0.04**	0.04***
	[0.01]	[0.01]	[0.02]	[0.01]
Age of Respondent	−0.23***	−0.39***	−0.29***	−0.54***
	[0.04]	[0.04]	[0.03]	[0.03]
Age of Respondent^2	0.21***	0.35***	0.32***	0.52***
	[0.04]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.06***	0.05***	0.01	0.05***
	[0.01]	[0.02]	[0.02]	[0.02]
Justifiable Political Violence	0.02***	0.02	0.02	0.03
	[0.01]	[0.03]	[0.02]	[0.02]
R-squared	0.19	0.25	0.19	0.26
Sample Size	234 839	230 243	233 166	211461
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.04***	0.06***	0.07***	0.04*
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	−0.22***	−0.37***	−0.27***	−0.52***
	[0.04]	[0.04]	[0.04]	[0.03]
Age of Respondent^2	0.20***	0.33***	0.31***	0.49***
	[0.04]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.07***	0.07***	0.03	0.06***
	[0.01]	[0.02]	[0.02]	[0.02]
Justifiable Political Violence	0.02**	0.01	0.01	0.01
	[0.01]	[0.03]	[0.02]	[0.02]
R-squared	0.20	0.25	0.19	0.28
Sample Size	223 860	219 427	222 207	200 767
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and the fact that individuals find justifiable political violence derived from the IVS. Country and ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.14
Motorways, railroads and trust accounting for institutional quality: Justifiable accepting a bribe (IVS) - Inter-regional immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	−0.01	0.04*	0.07***	0.06**
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	0.08*	−0.14	−0.12	−0.19
	[0.05]	[0.10]	[0.09]	[0.12]
Age of Respondent^2	−0.09*	0.17*	0.18**	0.24**
	[0.05]	[0.10]	[0.09]	[0.12]
GDP per Capita	−0.00	0.04**	0.02	0.03
	[0.01]	[0.02]	[0.02]	[0.02]
Justifiable Accepting a Bribe	0.01	0.00	0.01	0.01
	[0.02]	[0.02]	[0.04]	[0.03]
R-squared	0.21	0.17	0.13	0.20
Sample Size	4338	4360	4447	4234
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	−0.01	0.06*	0.10***	0.08**
	[0.01]	[0.03]	[0.03]	[0.03]
Age of Respondent	0.04	−0.11	−0.14	−0.16
	[0.05]	[0.10]	[0.09]	[0.13]
Age of Respondent^2	−0.05	0.15	0.20**	0.21*
	[0.05]	[0.10]	[0.09]	[0.12]
GDP per Capita	−0.01	0.04*	0.01	0.03
	[0.02]	[0.02]	[0.03]	[0.02]
Justifiable Accepting a Bribe	0.01	−0.02	−0.01	−0.00
	[0.02]	[0.03]	[0.04]	[0.03]
R-squared	0.23	0.18	0.16	0.21
Sample Size	4079	4087	4174	3970
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our inter-regional immigrants sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and the fact that individuals find justifiable accepting a bribe derived from the IVS. Country fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.15
Motorways, railroads and trust accounting for institutional quality: Justifiable cheating on taxes (IVS) - Inter-regional immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	−0.01	0.04*	0.06***	0.06***
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	0.08*	−0.14	−0.12	−0.19
	[0.05]	[0.10]	[0.09]	[0.12]
Age of Respondent^2	−0.09*	0.17*	0.18**	0.24**
	[0.05]	[0.10]	[0.09]	[0.12]
GDP per Capita	0.00	0.04**	0.03	0.02
	[0.01]	[0.02]	[0.03]	[0.02]
Justifiable Cheating on Taxes	0.03*	−0.01	0.04	−0.03
	[0.02]	[0.02]	[0.03]	[0.02]
R-squared	0.22	0.17	0.13	0.20
Sample Size	4338	4360	4447	4234
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	−0.01	0.06**	0.10***	0.08**
	[0.01]	[0.03]	[0.03]	[0.03]
Age of Respondent	0.04	−0.11	−0.14	−0.16
	[0.05]	[0.10]	[0.09]	[0.13]
Age of Respondent^2	−0.05	0.15	0.20**	0.21*
	[0.05]	[0.10]	[0.09]	[0.12]
GDP per Capita	0.00	0.03	0.02	0.02
	[0.01]	[0.02]	[0.03]	[0.03]
Justifiable Cheating on Taxes	0.03**	−0.04	0.01	−0.06*
	[0.01]	[0.03]	[0.03]	[0.03]
R-squared	0.24	0.18	0.16	0.21
Sample Size	4079	4087	4174	3970
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our inter-regional immigrants sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and the fact that individuals find justifiable cheating on taxes derived from the IVS. Country fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.16
Motorways, railroads and trust accounting for institutional quality: Justifiable avoiding to pay a fare (IVS) - Inter-regional immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	−0.01	0.04*	0.06***	0.06***
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	0.08*	−0.14	−0.12	−0.19
	[0.05]	[0.10]	[0.09]	[0.12]
Age of Respondent^2	−0.09*	0.17*	0.18**	0.24**
	[0.05]	[0.10]	[0.09]	[0.12]
GDP per Capita	−0.01	0.04**	0.01	0.03*
	[0.01]	[0.02]	[0.03]	[0.02]
Justifiable Not Pay a Fare	0.01	−0.00	0.02	−0.04
	[0.02]	[0.03]	[0.03]	[0.03]
R-squared	0.21	0.17	0.13	0.20
Sample Size	4338	4360	4447	4234
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	−0.01	0.06**	0.10***	0.08**
	[0.01]	[0.03]	[0.03]	[0.03]
Age of Respondent	0.03	−0.11	−0.14	−0.16
	[0.05]	[0.10]	[0.09]	[0.13]
Age of Respondent^2	−0.05	0.15	0.20**	0.21*
	[0.05]	[0.11]	[0.09]	[0.12]
GDP per Capita	−0.01	0.04**	0.01	0.04*
	[0.01]	[0.02]	[0.02]	[0.02]
Justifiable Not Pay a Fare	0.03*	−0.02	0.02	−0.05
	[0.01]	[0.04]	[0.03]	[0.04]
R-squared	0.24	0.18	0.16	0.21
Sample Size	4079	4087	4174	3970
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our inter-regional immigrants sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and the fact that individuals find justifiable avoiding a fare derived from the IVS. Country fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.17
Motorways, railroads and trust accounting for institutional quality: Justifiable political violence (IVS) - Inter-regional immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	−0.01	0.07**	0.07**	0.09***
	[0.01]	[0.03]	[0.03]	[0.03]
Age of Respondent	0.07	−0.22**	−0.15	−0.27**
	[0.05]	[0.11]	[0.11]	[0.13]
Age of Respondent^2	−0.09*	0.25**	0.22**	0.32**
	[0.05]	[0.11]	[0.10]	[0.13]
GDP per Capita	0.00	0.05*	0.05	0.03
	[0.02]	[0.03]	[0.04]	[0.03]
Justifiable Political Violence	0.01	0.04	−0.00	0.05*
	[0.02]	[0.03]	[0.05]	[0.03]
R-squared	0.23	0.19	0.15	0.22
Sample Size	3727	3753	3829	3633
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	−0.00	0.11***	0.15***	0.11**
	[0.02]	[0.04]	[0.04]	[0.04]
Age of Respondent	0.01	−0.19	−0.19*	−0.24*
	[0.05]	[0.12]	[0.11]	[0.14]
Age of Respondent^2	−0.03	0.23*	0.25**	0.29**
	[0.05]	[0.12]	[0.11]	[0.13]
GDP per Capita	−0.00	0.08**	0.05	0.06
	[0.02]	[0.03]	[0.04]	[0.04]
Justifiable Political Violence	0.01	0.04	−0.01	0.04
	[0.01]	[0.03]	[0.04]	[0.03]
R-squared	0.26	0.20	0.18	0.22
Sample Size	3468	3480	3556	3369
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our inter-regional immigrants sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and the fact that individuals find justifiable accepting a bribe derived from the IVS. Country fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.18
Motorways, railroads and trust accounting for political corruption (V-DEM) - International immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01	0.06	0.06**	0.08**
	[0.03]	[0.05]	[0.02]	[0.03]
Political Corruption Index	0.14	−0.03	0.08	0.22
	[0.20]	[0.23]	[0.12]	[0.41]
Age of Respondent	0.01	−0.15***	−0.04	−0.19***
	[0.09]	[0.05]	[0.06]	[0.06]
Age of Respondent^2	0.03	0.18***	0.11*	0.24***
	[0.09]	[0.04]	[0.06]	[0.06]
GDP per Capita	−0.01	0.05**	0.08***	0.10***
	[0.03]	[0.03]	[0.03]	[0.03]
R-squared	0.11	0.14	0.16	0.22
Sample Size	7514	7295	7441	6910
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.04***	0.08***	0.01**	0.01**
	[0.01]	[0.02]	[0.01]	[0.01]
Political Corruption Index	0.18	0.00	−0.04	−0.09
	[0.22]	[0.18]	[0.13]	[0.34]
Age of Respondent	0.00	−0.09*	−0.02	−0.07
	[0.07]	[0.05]	[0.04]	[0.06]
Age of Respondent^2	0.00	0.11***	0.09***	0.10*
	[0.07]	[0.04]	[0.03]	[0.05]
GDP per Capita	0.03	0.08***	0.07***	0.12***
	[0.03]	[0.03]	[0.02]	[0.03]
R-squared	0.12	0.12	0.13	0.20
Sample Size	9246	8958	9177	8403
Host Country FE	Yes	Yes	Yes	Yes
Origin Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our international immigrant sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and political corruption index derived from the V-DEM. Origin and host country as well as ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.19
Motorways, railroads and trust accounting for public corruption (V-DEM) - International immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01	0.06	0.06**	0.08**
	[0.03]	[0.05]	[0.02]	[0.03]
Public Corruption Index	0.11	0.25	0.20	0.89***
	[0.26]	[0.34]	[0.36]	[0.33]
Age of Respondent	0.01	−0.15***	−0.04	−0.19***
	[0.09]	[0.05]	[0.06]	[0.06]
Age of Respondent^2	0.03	0.18***	0.11*	0.24***
	[0.09]	[0.04]	[0.06]	[0.06]
GDP per Capita	−0.01	0.05**	0.08***	0.10***
	[0.03]	[0.02]	[0.03]	[0.03]
R-squared	0.11	0.14	0.16	0.22
Sample Size	7514	7295	7441	6910
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.04***	0.08***	0.01**	0.01**
	[0.01]	[0.02]	[0.01]	[0.01]
Public Corruption Index	0.29	0.20	0.08	0.53*
	[0.33]	[0.36]	[0.37]	[0.32]
Age of Respondent	0.00	−0.09*	−0.02	−0.07
	[0.07]	[0.05]	[0.04]	[0.06]
Age of Respondent^2	0.00	0.11***	0.09***	0.10**
	[0.07]	[0.04]	[0.03]	[0.05]
GDP per Capita	0.03	0.08***	0.07***	0.12***
	[0.03]	[0.03]	[0.02]	[0.03]
R-squared	0.12	0.12	0.13	0.20
Sample Size	9246	8958	9177	8403
Host Country FE	Yes	Yes	Yes	Yes
Origin Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our international immigrant sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and public corruption index derived from the V-DEM. Origin and host country as well as ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.20
Motorways, railroads and trust accounting for justice corruption (V-DEM) - International immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01	0.06	0.06**	0.08**
	[0.03]	[0.05]	[0.02]	[0.03]
Justice Corruption Index	0.21***	0.25**	0.29***	0.13
	[0.07]	[0.11]	[0.10]	[0.09]
Age of Respondent	0.00	−0.15***	−0.04	−0.19***
	[0.09]	[0.05]	[0.06]	[0.06]
Age of Respondent^2	0.03	0.18***	0.11*	0.24***
	[0.09]	[0.04]	[0.06]	[0.06]
GDP per Capita	−0.01	0.05**	0.08***	0.10***
	[0.03]	[0.03]	[0.03]	[0.03]
R-squared	0.11	0.15	0.16	0.22
Sample Size	7514	7295	7441	6910
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.04***	0.08***	0.02**	0.01**
	[0.01]	[0.02]	[0.01]	[0.01]
Justice Corruption Index	0.05	0.18**	0.22	0.16**
	[0.09]	[0.09]	[0.14]	[0.07]
Age of Respondent	0.00	−0.09**	−0.02	−0.07
	[0.07]	[0.05]	[0.04]	[0.06]
Age of Respondent^2	0.00	0.11***	0.09***	0.10**
	[0.07]	[0.04]	[0.03]	[0.05]
GDP per Capita	0.03	0.08***	0.07***	0.12***
	[0.03]	[0.03]	[0.03]	[0.03]
R-squared	0.12	0.12	0.13	0.20
Sample Size	9246	8958	9177	8403
Host Country FE	Yes	Yes	Yes	Yes
Origin Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our international immigrant sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and judicial corruption index derived from the V-DEM. Origin and host country as well as ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.21
Motorways, railroads and trust accounting for democracy (V-DEM) - International immigrant analysis.

	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel A.				
Stock of Motorways	0.01	0.06	0.06**	0.08**
	[0.03]	[0.05]	[0.03]	[0.03]
Democracy Index	−0.22***	0.01	0.07**	−0.00
	[0.03]	[0.09]	[0.03]	[0.03]
Age of Respondent	0.00	−0.15***	−0.04	−0.18***
	[0.09]	[0.05]	[0.06]	[0.06]
Age of Respondent^2	0.03	0.18***	0.11*	0.24***
	[0.09]	[0.04]	[0.06]	[0.06]
GDP per Capita	−0.01	0.05**	0.08***	0.10***
	[0.03]	[0.02]	[0.03]	[0.03]
R-squared	0.11	0.14	0.16	0.22
Sample Size	7484	7266	7411	6882
	Trust on People	Trust in the Legal System	Trust in the Police	PCA of Political Trust
	(1)	(2)	(3)	(4)
Panel B.				
Stock of Railroads	0.04***	0.08***	0.01**	0.02**
	[0.01]	[0.02]	[0.01]	[0.01]
Democracy Index	−0.07***	0.02	0.05	0.04
	[0.02]	[0.07]	[0.04]	[0.04]
Age of Respondent	0.00	−0.09*	−0.02	−0.07
	[0.07]	[0.05]	[0.04]	[0.06]
Age of Respondent^2	0.01	0.11***	0.09***	0.10*
	[0.07]	[0.04]	[0.03]	[0.05]
GDP per Capita	0.03	0.08***	0.07***	0.12***
	[0.03]	[0.03]	[0.03]	[0.03]
R-squared	0.12	0.12	0.13	0.20
Sample Size	9215	8928	9146	8373
Host Country FE	Yes	Yes	Yes	Yes
Origin Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary:: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our international immigrant sample. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, GDP per capita in PPP and democracy index derived from the V-DEM. Origin and host country as well as ESS round fixed effects are introduced.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.22
Motorways, railroads and trust - OLS results.

Dep. var. =	Trust on people	Trust in the l* em	Trust in the police	PCA of political trust
	(1)	(2)	(3)	(4)
Stock of Motorways 90–02	0.01*	0.03**	0.02**	0.02*
	[0.01]	[0.01]	[0.01]	[0.01]
Age of Respondent	−0.26***	−0.44***	−0.30***	−0.57***
	[0.03]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.23***	0.40***	0.34***	0.55***
	[0.03]	[0.03]	[0.03]	[0.02]
GDP per Capita	0.06***	0.05***	0.02	0.05***
	[0.02]	[0.01]	[0.01]	[0.02]
R-squared	0.16	0.20	0.16	0.24
Sample Size	267 565	262 447	265 687	241 887
Stock of Railroads 90–02	0.03**	0.03**	0.04**	0.02
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	−0.26***	−0.44***	−0.30***	−0.55***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.23***	0.39***	0.35***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.07***	0.06***	0.03**	0.06***
	[0.03]	[0.02]	[0.02]	[0.02]
R-squared	0.15	0.20	0.16	0.23
Sample Size	234 957	230 271	233 198	212 103
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. Stock of motorways and railroads is the infrastructure length of motorways over the period 1990–2002. We control for the educational background of the respondent, respondent's income, the gender, place of residence, if the respondent is interested in politics, age of the respondent, age squared and the regional GDP per capita in PPP. Country and ESS round fixed effects are introduced.

Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.23
Motorways, railroads and trust - IV results.

Dep. var. =	Trust on people	Trust in the legal system	Trust in the police	PCA of political trust
	(1)	(2)	(3)	(4)
Stock of Motorways 90–02	0.02	0.04**	0.03	0.02
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	−0.26***	−0.44***	−0.30***	−0.57***
	[0.03]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.23***	0.40***	0.34***	0.55***
	[0.03]	[0.03]	[0.03]	[0.02]
GDP per Capita	0.06***	0.05***	0.02	0.05***
	[0.02]	[0.01]	[0.01]	[0.02]
F-First Stage	39.78	40.38	40.03	42.94
Sample Size	267 565	262 447	265 687	241 887
Stock of Railroads 90–02	0.03	0.05*	0.04	0.03
	[0.02]	[0.03]	[0.03]	[0.03]
Age of Respondent	−0.26***	−0.44***	−0.30***	−0.55***
	[0.04]	[0.03]	[0.03]	[0.03]
Age of Respondent^2	0.23***	0.39***	0.35***	0.54***
	[0.03]	[0.03]	[0.03]	[0.03]
GDP per Capita	0.07***	0.07***	0.03**	0.06***
	[0.03]	[0.02]	[0.02]	[0.02]
F-First Stage	19.86	20.22	20.02	21.03
Sample Size	234 957	230 271	233 198	212 103
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
ESS round FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes
Income FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. Stock of motorways is the infrastructure length of motorways over the period 1990–2002. We control for the educational background of the respondent, age, age squared, the gender, place of residence, if the respondent is interesting in politics, respondent's income and regional GDP per capita in PPP. Country and ESS round fixed effects are used.
Notes: (i) IV model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table C.24
Motorways, railroads and trust - Inter-regional immigrant analysis.

Dep. var. =	Trust on people	Trust in the legal system	Trust in the police	PCA of political trust
	(1)	(2)	(3)	(4)
Stock of Motorways 90–02	−0.00	0.03*	0.06***	0.05**
	[0.01]	[0.02]	[0.02]	[0.02]
Age of Respondent	0.07	−0.15	−0.07	−0.18
	[0.05]	[0.10]	[0.10]	[0.12]
Age of Respondent^2	−0.08*	0.20*	0.14	0.24**
	[0.05]	[0.10]	[0.09]	[0.11]
GDP per Capita	−0.00	0.04**	0.01	0.02
	[0.01]	[0.02]	[0.02]	[0.02]
R-squared	0.21	0.15	0.12	0.18
Sample Size	4469	4498	4588	4376
Stock of Railroads 90–02	−0.01	0.03	0.07**	0.05*
	[0.01]	[0.03]	[0.03]	[0.03]
Age of Respondent	0.04	−0.19*	−0.04	−0.21
	[0.05]	[0.11]	[0.10]	[0.14]
Age of Respondent^2	−0.05	0.24**	0.11	0.28**
	[0.06]	[0.12]	[0.10]	[0.13]
GDP per Capita	−0.01	0.03	−0.00	0.02
	[0.02]	[0.02]	[0.03]	[0.03]
R-squared	0.20	0.16	0.14	0.18
Sample Size	3650	3658	3743	3555
Country FE	Yes	Yes	Yes	Yes
Gender FE	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes
Location FE	Yes	Yes	Yes	Yes
Politics FE	Yes	Yes	Yes	Yes

Summary: This table presents the effect of motorways (Panel A) and railroads (Panel B) on trust for our inter-regional immigrant sample. More specifically, (i) the trust of citizens in: (a) other people, (b) the legal system, (c) the police and (d) the principal component analysis of political trust. Stock of motorways and railroads is the infrastructure length of motorways and railroads over the period 1990–2002. We control for the educational background of the respondent, the gender, place of residence, if the respondent is interesting in politics, respondent's income, age of the respondent, age squared and GDP per capita in PPP. Country fixed effects are used.
Notes: (i) OLS model with robust standard errors, clustered at the Nuts 1 level, are reported in parenthesis. (ii) *** denotes statistical significance at 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

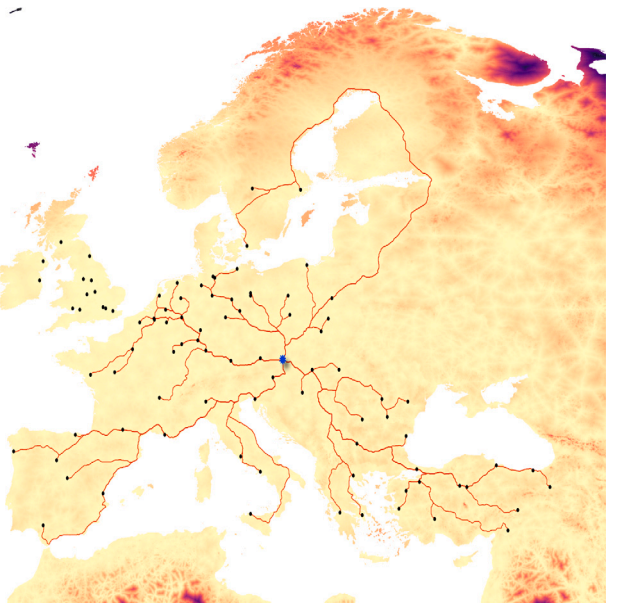

Fig. C.2. Least Cost Path for AT1 region.
Notes: We illustrate the least cost path from AT1 region to all the other regions in our sample. Authors' computations.

Data availability

Data will be made available on request.

References

Aggarwal, Shilpa, Giera, Brian, Jeong, Dahyeon, Robinson, Jonathan, Spearot, Alan, 2018. Market Access, Trade Costs, and Technology Adoption: Evidence from Northern Tanzania.

Agrawal, Ajay, Galasso, Alberto, Oettl, Alexander, 2017. Roads and Innovation. Rev. Econ. Stat. 99 (3), 417–434.

Allison, Paul D., 2002. Missing data. Quantitative Applications in the Social Sciences, vol. 136, Sage Publications, Thousand Oaks, CA.

Anand, Nikhil, 2011. PRESSURE: The PoliTechnics of Water Supply in Mumbai. Cult. Anthr. 26 (4), 542–564.

Anastasiadou, Irene, 2004. Building Europe on the rails (Ph.D. thesis). Ph. D. research design.'Eindhoven: unpublished report.

Andersson, David, Berger, Thor, Prawitz, Erik, 2021. Making a Market: Infrastructure, Integration, and the Rise of Innovation. Rev. Econ. Stat. 1–44.

Atack, Jeremy, Bateman, Fred, Haines, Michael, Margo, Robert, 2009. Did Railroads Induce or Follow Economic Growth? Urbanization and Population Growth in the American Midwest, 1850-60. Soc. Sci. Hist. 34 (2), 171–197.

Atack, Jeremy, Jaremski, Matthew, Rousseau, Peter, 2014. Did Railroads Make Antebellum U.S. Banks More Sound? In: Enterprising America: Businesses, Banks, and Credit Markets in Historical Perspective. National Bureau of Economic Research, Cambridge, MA, pp. 149–178.

Banerjee, Abhijit, Duflo, Esther, Qian, Nancy, 2020. On the road: Access to transportation infrastructure and economic growth in China. J. Dev. Econ. 145, 102442.

Baum-Snow, Nathaniel, 2010. Changes in transportation infrastructure and commuting patterns in US metropolitan areas, 1960–2000. Am. Econ. Rev. 100, 378–382.

Baum-Snow, Nathaniel, 2020. Urban transport expansions and changes in the spatial structure of U.S. cities: Implications for productivity and welfare. Rev. Econ. Stat. 102, 929–945.

Baum-Snow, Nathaniel, Brandt, Loren, Henderson, J. Vernon, Turner, Matthew A., Zhang, Qinghua, 2017. Roads, railroads, and decentralization of Chinese cities. Rev. Econ. Stat. 99 (3), 435–448.

Baum-Snow, Nathaniel, Henderson, J. Vernon, Turner, Matthew A., Zhang, Qinghua, Brandt, Loren, 2018. Does investment in national highways help or hurt hinterland city growth? J. Urban Econ..

Becker, Sascha O., Boeckh, Katrin, Hainz, Christa, Woessmann, Ludger, 2016. The Empire is Dead, Long Live the Empire! Long-Run Persistence of Trust and Corruption in the Bureaucracy. Econ. J. 126 (590), 40–74.

Berger, Thor, Enflo, Kerstin, 2017. Locomotives of local growth: The short- and long-term impact of railroads in Sweden. J. Urban Econ. 98, 124–138.

Bloom, Nicholas, Sadun, Raffaella, Van Reenen, John, 2012. Americans do IT better: US multinationals and the productivity miracle. Am. Econ. Rev. 102 (1), 167–201.

Boschma, Ron, 2005. Proximity and Innovation: A Critical Assessment. Reg. Stud. 39 (1), 61–74.

Bottasso, Anna, Conti, Maurizio, Robbiano, Simone, Santagata, Marta, 2022. Roads to innovation: Evidence from Italy. J. Reg. Sci. 62, 981–1005.

Büchel, Konstantin, Kyburz, Stephan, 2018. Fast track to growth? Railway access, population growth and local displacement in 19th century Switzerland. J. Econ. Geogr..

Butler, Jeffrey V., Giuliano, Paola, Guiso, Luigi, 2016. The right amount of trust. J. Eur. Econ. Assoc. 14, 1155–1180.

Canning, David, 1998. A Database of World Stocks of Infrastructure, 1950-95. World Bank Econ. Rev. 12, 529–547.

Canning, David, Bennathan, Esra, 1999. The Social Rate of Return on Infrastructure Investments. Policy Research Working Papers, The World Bank.

Coşar, A Kerem, Demir, Banu, Ghose, Devaki, Young, Nathaniel, 2022. Road capacity, domestic trade and regional outcomes. J. Econ. Geogr. 22, 901–929.

Dalgaard, Carl-Johan, Kaarsen, Nicolai, Olsson, Ola, Selaya, Pablo, 2018. Roman Roads to Prosperity: Persistence and Non-Persistence of Public Goods Provision. CEPR Discuss. Pap..

Dinesen, Peter Thisted, Schaeffer, Merlin, Sønderskov, Kim Mannemar, 2020. Ethnic diversity and social trust: A narrative and meta-analytical review. Annu. Rev. Political Sci. 23, 441–465.

Dinlersoz, Emin M., Fu, Zhe, 2022. Infrastructure investment and growth in China: A quantitative assessment. J. Dev. Econ. 158, 102916.

Dohmen, T., Falk, A., Huffman, D., Sunde, U., 2012. The Intergenerational Transmission of Risk and Trust Attitudes. Rev. Econ. Stud. 79 (2), 645–677.

Donaldson, Dave, 2018. Railroads of the Raj: Estimating the Impact of Transportation Infrastructure. Am. Econ. Rev. 108 (4–5), 899–934.

Donaldson, Dave, Hornbeck, Richard, 2016. Railroads and American Economic Growth: A "Market Access" Approach. Q. J. Econ. 131 (2), 799–858.

Dong, Xiaofang, Zheng, Siqi, Kahn, Matthew E., 2020. The role of transportation speed in facilitating high skilled teamwork across cities. J. Urban Econ. 115, 103212.

Egnatia, 2022. The significance of the project access at. URL https://egnatia.eu/en/projects/egnatia-motorway/h-shmasia-tou-ergou/.

ESPON Database, 2023. Indicator metadata: Road travel time between centroids of NUTS-3 regions | ESPON database portal. Transp. Access. - Transp. Access..

Eurostat, 2009. Illustrated Glossary for Transport Statistics 4th edition.

Fernández, Raquel, 2011. Does culture matter? Handb. Soc. Econ. 1, 481–510.

Fernández, Raquel, Fogli, Alessandra, 2009. Culture: An Empirical Investigation of Beliefs, Work, and Fertility. Am. Econ. Journal: Macroecon. 1 (1), 146–177.

Flyvbjerg, Bent, 2009. Survival of the unfittest: why the worst infrastructure gets built—and what we can do about it. Oxf. Rev. Econ. Policy 25, 344–367.

Fogel, Robert William, 2004. The escape from hunger and premature death, 1700-2100: Europe, America, and the Third World. vol. 38, Cambridge University Press.

Fouka, Vasiliki, Voth, Joachim, 2016. Collective remembrance and private choice: German-greek conflict and consumer behavior in times of crisis. Stanf. Cent. Int. Dev. Work. Pap. No 587 (6), 26.

Francois, Patrick, Zabojnik, Jan, 2005. Trust, social capital, and economic development. J. Eur. Econ. Assoc. 3, 51–94.

Gao, Yanyan, Zheng, Jianghuai, 2018. The Impact of High-Speed Rail on Innovation: An Empirical Test of Companion Innovation Hypothesis of Transportation Improvement with China's Manufacturing Firms. SSRN Electron. J..

Garcia-Lopez, Miquel-Angel, 2012. Urban spatial structure, suburbanization and transportation in Barcelona. J. Urban Econ. 72, 176–190.

Garcia-Lopez, Miquel-Angel, 2019. All roads lead to Rome ...and to sprawl? Evidence from European cities. Reg. Sci. Urban Econ. 79, 103467.

Gonzalez-Navarro, Marco, Turner, Matthew A., 2018. Subways and urban growth: Evidence from earth. J. Urban Econ. 108, 85–106.

Graham, Stephen, Marvin, Simon, 2001. Splintering urbanism : networked infrastructures, technological mobilities and the urban condition. Routledge, p. 479.

Guiso, Luigi, Sapienza, Paola, Zingales, Luigi, 2004. Does local financial development matter? Q. J. Econ. 119 (3), 929–969.

Guiso, Luigi, Sapienza, Paola, Zingales, Luigi, 2008. Trusting the stock market. J. Financ. 63 (6), 2557–2600.

Guiso, Luigi, Sapienza, Paola, Zingales, Luigi, 2009. Cultural biases in economic exchange? Q. J. Econ. 124 (3), 1095–1131.

Hanley, Douglas, Li, Jiancheng, Wu, Mingqin, 2022. High-speed railways and collaborative innovation. Reg. Sci. Urban Econ. 93, 103717.

Heblich, Stephan, Redding, Stephen J., Sturm, Daniel M., 2020. The making of the modern Metropolis: Evidence from London*. Q. J. Econ. 135, 2059–2133.

Heuermann, Daniel F., Schmieder, Johannes F., 2019. The effect of infrastructure on worker mobility: evidence from high-speed rail expansion in Germany. J. Econ. Geogr. 19 (2), 335–372.
Hiroyasu, Inoue, Kentaro, Nakajima, Yukiko Umeno RIETI, Saito, Yukiko Umeno, Saito, 2017. The Impact of the Opening of High-Speed Rail on Innovation The Impact of the Opening of High-Speed Rail on Innovation1.
Hornbeck, Richard, Rotemberg, Martin, 2019. Railroads, reallocation, and the rise of American manufacturing. NBER Work. Pap. 26594.
Jedwab, Rémi, Storeygard, Adam, 2022. The average and heterogeneous effects of transportation investments: Evidence from Sub-Saharan Africa 1960–2010. J. Eur. Econ. Assoc. 20, 1–38.
Jeffrey, Butler, Giuliano, Paola, Guiso, Luigi, 2014. The right amount of trust. Technical Report, UCLA.
Katz, Ori, 2018. Railroads, Economic Development, and the Demographic Transition in the United States. MPRA Pap..
Knack, Stephen, Keefer, Philip, 1997. Does social capital have an economic payoff? A cross-country investigation. Q. J. Econ. 112 (4), 1251–1288.
La Porta, Rafael, Lopez-de Silanes, Florencio, Shleifer, Andrei, Vishny, Robert W, 1997. Legal determinants of external finance. J. Financ. 52 (3), 1131–1150.
Lampe, R., 1982. John and jackson, r. Marvin. Balk. Econ. Hist. 1550- 1950. from Imp. Borderl. Dev. Nations.
Larkin, Brian., 2008. Signal and noise : media, infrastructure, and urban culture in Nigeria. Duke University Press, p. 313.
Li, Binkai, Mayraz, Guy, 2017. Infrastructure spending in China increases trust in local government. Soc. Indic. Res. 132, 341–356.
McCormick, Michael, Huang, Guoping, Zambotti, Giovanni, Lavash, Jessica, 2013. Roman Road Network (version 2008). Harv. Univ. Camb. MA 02138 DARMC Scho (DARMC, Center for Geographic Analysis).
Melander, Eric, 2020. Transportation Technology, Individual Mobility and Social Mobilisation. CAGE Online Work. Pap. Ser. 471.
Michaels, Guy, Redding, Stephen J., Rauch, Ferdinand, 2019. Task specialization in U.S. cities from 1880 to 2000. J. Eur. Econ. Assoc. 17, 754–798.
Mojica, Laia, Martí-Henneberg, Jordi, 2011. Railways and population distribution: France, Spain, and Portugal, 1870–2000. J. Interdiscip. Hist. 42 (1), 15–28.
Nagy, Dávid Krisztián, 2023. Hinterlands, city formation and growth: evidence from the U.S. westward expansion hinterlands, city formation and growth: Evidence from the U.S. westward expansion *. Rev. Econ. Stud..
Nelson, A., 2008. Travel time to major cities: a global map of accessibility. Glob. Environ. Monit. Unit, Jt. Res. Cent. Eur..
Nikolakopoulou, Christina, Karampekou, Lamprini, 2013. Egnatia motorway: Analysing the impacts on the economic and social sustainability of urban areas in Greece.
Nikova, Ekaterina, et al., 2007. Roads connecting, roads dividing: On infrastructure in south east Europe Bisser Petrov. Comradeship on trial: BCP–CPG relations during the Greek C. Etudes Balk. (1), 3–16.
Nunn, Nathan, Wantchekon, Leonard, 2011. The Slave Trade and the Origins of Mistrust in Africa. Am. Econ. Rev. 101 (7), 3221–3252.
Palairet, Michael, 1997. The Balkan economies: Evolution without development.
Panebianco, Stefano, Schürmann, Carsten, 2002. The Egnatia Motorway–a chance for Northern Greece to catch up? In: 42nd Congress of the European Regional Science Association. vol. 2731, Citeseer.
Percoco, Marco, 2016. Highways, local economic structure and urban development. J. Econ. Geogr. 16, 1035–1054.
Perlman, Elisabeth Ruth, 2017. Market Access, Information Flows.
Pontarollo, Nicola, Ricciuti, Roberto, 2020. Railways and manufacturing productivity in Italy after unification. J. Reg. Sci. jors.12484.
Putnam, Robert D., 2007. E pluribus unum: Diversity and community in the twenty-first century the 2006 Johan Skytte prize lecture. Scand. Political Stud. 30 (2), 137–174.
Rauch, Ferdinand, 2018. Roads and Urban Growth. Econ. Ser. Work. Pap..
Spolaore, Enrico, Wacziarg, Romain, 2013. How deep are the roots of economic development? J. Econ. Lit. 51 (2), 325–369.
Szabo, Stanislav, Ferencz, Vojtech, Pucihar, Andreja, 2013. Trust, innovation and prosperity. Qual. Innov. Prosper. 17 (2), 1–8.
Tsiachtsiras, Georgios, 2020. Transportation networks and the rise of the knowledge economy in 19th century France article. Univ. Barc. Mimeo.
Turnock, D., 1979. Water resource management problems in Romania. GeoJournal 3 (6), 609–622.
Weiss, D.J., Nelson, A., Gibson, H.S., Temperley, W., Peedell, S., Lieber, A., Hancher, M., Poyart, E., Belchior, S., Fullman, N., Mappin, B., Dalrymple, U., Rozier, J., Lucas, T. C.D., Howes, R.E., Tusting, L.S., Kang, S.Y., Cameron, E., Bisanzio, D., Battle, K.E., Bhatt, S., Gething, P.W., 2018. A global map of travel time to cities to assess inequalities in accessibility in 2015. Nature 553 (7688), 333–336.
World Bank, 2006. World Development Indicators. World Bank, Wash. DC.
Zak, Paul J., Knack, Stephen, 2001. Trust and Growth. Econ. J. 111 (470), 295–321.
Zheng, Siqi, Kahn, Matthew E., 2013. China's bullet trains facilitate market integration and mitigate the cost of megacity growth. Proc. Natl. Acad. Sci. USA 110 (14), E1248–E1253.
Zimran, Ariell, 2019. Transportation and health in the antebellum United States 1820-1847. NBER Work. Pap. 24943.