Depopulation paradox? Depopulation risk and immigration policy preferences [*†]

Junghyun Lim [‡]

April 13, 2026

Abstract

How does depopulation risk shape individuals' support for open immigration policies? Depopulation poses growing challenges in developed economies, including declining tax revenue, and skills shortages. While immigration is often proposed as a major solution, it remains unclear whether those most affected are receptive to it. On one hand, depopulation may boost support for immigration by highlighting its economic benefits. Yet it may also raise concerns among natives about losing majority status and fostering out-group anxiety, leading to stronger opposition to immigration. I examine this question using a survey experiment in Italy, a country facing serious depopulation. I find that raising awareness about depopulation risk has little effect on preferences regarding immigration policies, while significantly increasing support for pro-natalist policies and the repatriation of co-nationals. Among those with strong in-group biases, depopulation awareness reduces support for immigration. These findings demonstrate a paradox: even as the need for immigration grows, public support remains limited or declines, revealing a key challenge in using immigration to mitigate depopulation.

Note for GRIPE participants: Thank you for taking a look at my paper. This document includes both the current draft and a short pre-analysis plan for the follow-up study. All comments and questions are welcome.

[*]This research was deemed exempt by University of North Carolina at Chapel Hill's Institutional Review Board (Study #: 25-0352). Pre-registration report is available at `link.` This manuscript was prepared for GRIPE presentation (2026) Please do not cite or circulate without author's permission.

[†]I would like to thank Cameron Ballard-Rosa, Anna Bassi, Kevin Greene, Hans Lueders, Nina Obermeier, Beth Simmons, and the participants of Borders and Migration Workshop at University of Houston, and 2025 IPES for helpful comments and suggestions.

[‡]Assistant Professor, Department of Political Science, University of North Carolina at Chapel Hill. `junglim@unc.edu`

Depopulation is an emerging issue in many developed economies. 14 OECD member states are projected to lose population by 2040,[1], with some expected to lose more than 30% of their current population by 2050 (OECD, 2023). [2] Depopulation poses a range of economic challenges, including declining tax revenue (Navarro-Galera et al., 2024), reduced public goods provision and increased pressure on formal social safety nets (Cremaschi et al., 2022; Dancygier et al., 2025), and labor shortages that contribute to stagnant economic growth (Collantes et al., 2014; Papapetrou and Tsalaporta, 2020).

Immigration is often suggested as one of the major solutions that can mitigate depopulation (Lichter, 2012; Aure et al., 2018). However, it remains unclear whether individuals in countries that are most affected by depopulation are receptive to immigration as a solution. To successfully use immigration as a policy response to depopulation, it is crucial to build broad public support for immigration (Fitzgerald et al., 2014; Lueders, 2024). How does depopulation risk shape attitudes toward immigration? Does greater awareness of depopulation risk lead people to be more supportive of immigration?

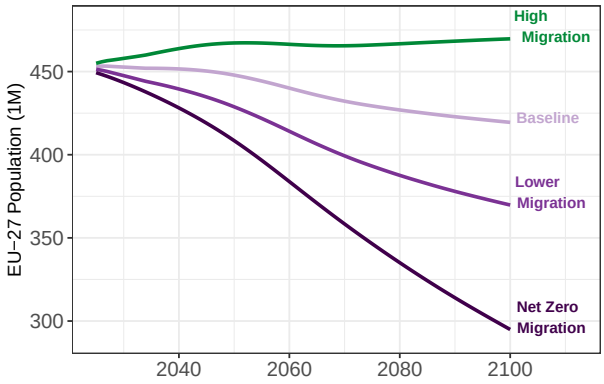

Figure 1: Population projection of EU-27 Countries by different assumptions on the volume of immigration. Source: Eurostat

This study examines how awareness of depopulation risk may (or may not) shape individuals' immigration attitudes. On one hand, higher awareness of depopulation risk may lead to increased support for immigration. Individuals tend to support immigration more when it is viewed as having positive effects on the national economy (Hainmueller and Hopkins, 2015; Kustov, 2021). Greater awareness of depopulation and its negative

[1]OECD, last accessed in Janurary 20, 2025
[2]Eurostat

consequences may highlight potential economic benefits of inflows of population, leading to increased support for immigration.

On the other hand, depopulation risk may also reduce support for immigration. Demographic shift can raise status threat among majority groups, fostering out-group anxiety (Outten et al., 2012). Depopulation risk may trigger similar threats among the native-born population. Furthermore, higher awareness of depopulation risk may amplify anxiety about negative economic prospect. This can turn into increased hostility toward immigrants by heightening concerns regarding competition over already scarce resources with out-groups who deemed 'less deserving' (Dancygier and Donnelly, 2013; Alesina et al., 2021; Magni, 2021; Cremaschi et al., 2022).

To examine the effect of depopulation risk on individuals' support for immigration, I implement a survey experiment in Italy, a country facing acute depopulation risk. We find that raising awareness has no significant effect on individuals' immigration attitudes, while it significantly increases support for other population-related policies aimed at increasing the native-born or co-ethnic population like repatriating co-ethnic emigrants or boosting birth rates. Furthermore, for those with strong in-group biases and high dissatisfaction with access to public goods, greater awareness of depopulation risk leads to more *negative* views on immigration.

This research note sheds light on the relationship between immigration attitudes and depopulation risk, a serious and emerging issue in many developed economies. Although immigration is one of the most widely suggested remedies for depopulation, it requires broad public support for effective implementation. The findings highlight a major challenge in using immigration as a policy instrument to mitigate depopulation by identifying a paradox that even when individuals learn about depopulation risk, public support for immigration remains limited or even declines. This note also builds on and contributes to multiple literatures. It adds to the growing body of work on the political consequences of demographic shifts (Anelli and Peri, 2017; Lim, 2023; Sánches-García et al., 2024; Dancygier et al., 2025) by examining the underexplored relationship between awareness of depopulation risks and individuals' immigration attitudes. It also contributes to the exten-

sive literature on immigration attitudes (e.g. Sides and Citrin, 2007; Goldstein and Peters, 2014; Hainmueller and Hopkins, 2015; Kustov et al., 2021) by connecting immigration with depopulation, an emerging issue with potentially significant implications for immigration policy. Finally, it contributes to a body of research on the politics of 'left-behind' areas (e.g. Colantone and Stanig, 2018; Baccini and Weymouth, 2021). Economically declining areas are also most likely to experience depopulation. This note highlights a growing challenge that can further exacerbate such decline and political rightward shift in these regions.

Depopulation risk awareness and immigration attitudes

How does greater awareness of depopulation risk affect individual attitudes toward immigration? There are several possible pathways. First, increased awareness of depopulation risk may lead individuals to support immigration by highlighting its positive effects on the national economy. Immigration policies are often influenced by a country's economic needs like labor demand from firms and industries (e.g., Peters, 2015; Shin, 2019). Even at the individual level, perceived economic effects of immigration can influence immigration preferences. When immigration is viewed as beneficial to national interests, it tends to be evaluated more positively (e.g. Hainmueller and Hopkins, 2015; Kustov, 2021). Awareness of the severe depopulation trends and their negative economic ramifications may thus foster more favorable views of population inflows as a means of mitigating depopulation-related issues and benefiting the economy.

On the other hand, depopulation risk may also reduce individuals' support for immigration through several channels. First, it may heighten concerns among native populations about their majority status. Depopulation indicates a shrinking native-born population, which can raise concerns about the sustainability of their numerical majority, and in turn, the sustainability of the existing social hierarchies, traditions, and group identities (Outten et al., 2012). These perceived status threats can lead to increased out-group anxiety and drive shifts in political attitudes and behaviors (Mutz, 2018; Ballard-Rosa et al., 2022). Therefore, awareness of depopulation risk may amplify anti-immigration sentiment and weaken support for open immigration, despite its potential economic benefits.

Greater awareness of depopulation may also reduce support for immigration by reinforcing existing economic grievances. Learning about depopulation risks is likely to trigger concerns about economic decline itself. Economic turmoil can aggravate anti-immigration attitudes, reflecting heightened anxiety regarding jobs and welfare (Goldstein and Peters, 2014; Dancygier and Donnelly, 2013; Magni, 2021; Laaker, 2024). Population decline also tends to result in reduced local public goods provision, which is associated with support for far-right parties (Cremaschi et al., 2022; Dancygier et al., 2025). For those who are already dissatisfied with their access to public goods, immigration may not be seen as a solution but rather as an amplifier of existing problems. Depopulation risk may therefore heighten concerns about competition over already scarce resources with out-groups. And immigrants may be deemed even 'less deserving' (Alesina et al., 2021; Magni, 2021).

Based on these different theoretical expectations, this study hypothesizes the relationship between awareness of depopulation risk and immigration attitudes as follows:

H1: *Greater awareness of depopulation risk increases (decreases) support for more open immigration.*[3]

Of course, immigration is not the sole solution to depopulation. Depopulation often stems from emigration of younger populations and low birth rates (Reynaud and Miccoli, 2018). Some policies directly target these causes and aim to repatriate emigrants or boost birth rates. While immigration and these other population-related policies can both be considered strategies to mitigate depopulation risk, they differ significantly in their target populations. Unlike immigration policies, repatriation or pro-natalist policies primarily aim to increase co-ethnic or native-born populations, which are less likely to trigger out-group anxiety or concerns regarding competition over resources with 'less deserving' immigrants. To compare treatment effects on support for immigration versus policies targeted to increase co-ethnic or co-national populations, we test the following hypotheses:

H2-3: *Greater awareness of depopulation risk increases support for policies to repatriate*

[3]All the hypotheses in the main manuscript are pre-registered.

co-national emigrants (H2)/ boost birth rates (H3).

Given the proposed mechanisms above, depopulation risk may have heterogeneous effects on immigration preferences across subpopulations. Higher awareness of depopulation risk may reduce support for more open immigration among those with strong in-group biases, favoritism toward co-nationals, and or attachment to traditional culture, as they are likely to be more sensitive to demographic threats to their majority status and the sustainability of group identity (Outten et al., 2012). Similarly, individuals with high grievances about the access to public goods may respond more negatively to depopulation risk, as they see immigrants as a source of competition over already scarce resources. These lead to the following hypotheses regarding heterogeneous treatment effects:

H4 - H6: *The effects of awareness of depopulation risk are moderated by subjects' in-group bias toward co-nationals (H4)/attachment to traditions (H5)/grievances regarding local public service access (H6).*

Finally, individuals' responses to the treatment may also depend on their lived experiences. The severity of depopulation varies significantly across localities. Residents in regions that have already been experiencing depopulation and its ramifications may respond more strongly to the treatment. This leads to the following hypothesis:

H7: The effects of awareness of depopulation risk are moderated by the severity of depopulation risk in the localities where subjects reside.

Experimental Design

To examine this causal relationship, we test our hypotheses using a survey experiment in Italy. Italy serves as an ideal case for our study as it is one of the countries experiencing rapid depopulation. According to Eurostat, Italy is expected to lose about 5 million of people by 2050, which is approximately 8% of its current population. At the same

time, Italy is also an emerging destination for immigrants, making it a well-suited case for examining the narrative of immigration as a remedy to depopulation. We recruited 1,894 participants in Italy through a polling company (Bilendi), stratified by age, gender, and region. The survey was fielded for 20 days in April 2025. [4]

The main goal of the experiment is to examine the causal relationship between greater awareness of depopulation risk and individuals' attitudes toward immigration (H1). To do so, respondents were randomly assigned to one of three groups. The first group (*Treatment I* or Depopulation Treatment) was presented with a short paragraph highlighting the depopulation risk in Italy as follows:

***Treatment I**: Many experts believe that Italy's population will continue to shrink in the future. Italy could lose about 5 million people by 2050, and some areas could lose over 30% of their population. Such a large population decline could cause economic problems like labor shortages and a decline of tax revenue. Some experts say that Italy's GDP will decrease by 4% because of population decline.*

The *Treatment I* informs participants of depopulation risks by providing two pieces of information: 1) Italy's depopulation trend and 2) its expected negative effects on the national economy. However, with *Treatment I* alone, it is difficult to determine if the treatment effect (or lack thereof) is caused by heightened awareness of depopulation risk or by general concerns about the national economy. To address this, this study includes a second treatment group (*Treatment II* or Economy Treatment) for another comparison. The second treatment group received a similar blurb to *Treatment I* about the negative economic outlook, but *without* any reference to depopulation.

***Treatment II**: Many experts believe that Italy will have many economic problems between now and 2050. Some experts say that Italy's GDP will decrease by 4% because of these problems.*

[4]This research was deemed exempt by University of North Caroilina at Chapel Hill's Institutional Review Board. See SI section A.5 for details.

Finally, the remaining group was not presented with any particular information (*Control*). Then, all respondents were asked a series of questions assessing their attitudes toward immigration as follows: 1)"To what extent do you think Italy should allow people from other countries?", 2)"To what extent do you agree with: The government should work harder to host more guest workers from abroad", 3)"Would you say that [(a) it is generally bad or good for Italy's economy / (b) Italy's cultural life is generally undermined or enriched / (c) Italy is made a worse or a better place to live] by people come to live here from other countries?"[5]

Each question captures a different aspect of immigration attitudes including general views on immigration, attitudes toward temporary labor migrations, and perceived effects of immigration on the economy, culture and place overall. While these views are likely correlated, treatment effects may vary across different aspects of immigration attitudes. For instance, if the depopulation treatment heightens economic concerns like labor shortages, it may increase support for temporary guest workers and or the perceived economic benefits of immigration, while having little effect on immigration's cultural impact.

Respondents were also presented with questions about their preferences for policies aimed at repatriating Italian emigrants (H2), and boosting birth rates (H3) as follows:"To what extent do you agree with the following: The government should work harder to 1) repatriate Italians living abroad, 2) to boost birth rate." These policies can be seen as efforts to mitigate depopulation risk, but they differ from immigration policies in that they primarily target co-nationals and co-ethnic populations rather than foreign populations.

To test heterogeneous effect of treatment by individuals' in-group bias (H4), we use National Superiority question battery, a widely used set of questions designed to capture in-group bias toward co-nationals (e.g., Mutz and Kim, 2017).[6] To measure individuals' attachment to tradition (H5), we ask: "Indicate how much the following type of person is or is not like you: Tradition is important to them. They try to follow the customs handed

[5]These questions mirror the immigration questions used in Table **??** (11-point scale).

[6]1) In Italy, our people are not perfect, but our culture is superior to others, 2) I would rather be a citizen of Italy than of any other country in the world, 3) The world would be a better place if people from other countries were more like Italians.

down by their religion or their family." To assess the level of satisfaction with local public goods, we ask: "How satisfied are you with the quality of public services provided in your municipality (comuni)? (Roads/Water/Education/Elderly Care)." All questions use 5-point scale, and I create binary indicators based on these responses. [7] Finally, to test the heterogeneous effect based on regional population projections (H7), we use a binary indicator of whether the NUTS2 region in which individuals reside is expected to gain or lose population by 2050, based on Eurostat projections.

Results

We start by testing H1: Greater awareness of depopulation risk increases (decreases) support for more open immigration.[8] Figure 2 shows that exposure to the depopulation treatment *(Treatment I)* has no significant effect on any of the immigration attitude measures. Respondents who received the treatment about depopulation risks do not differ from the control group in terms of their immigration attitudes. This is also the case for the economy treatment (*Treatment II*).

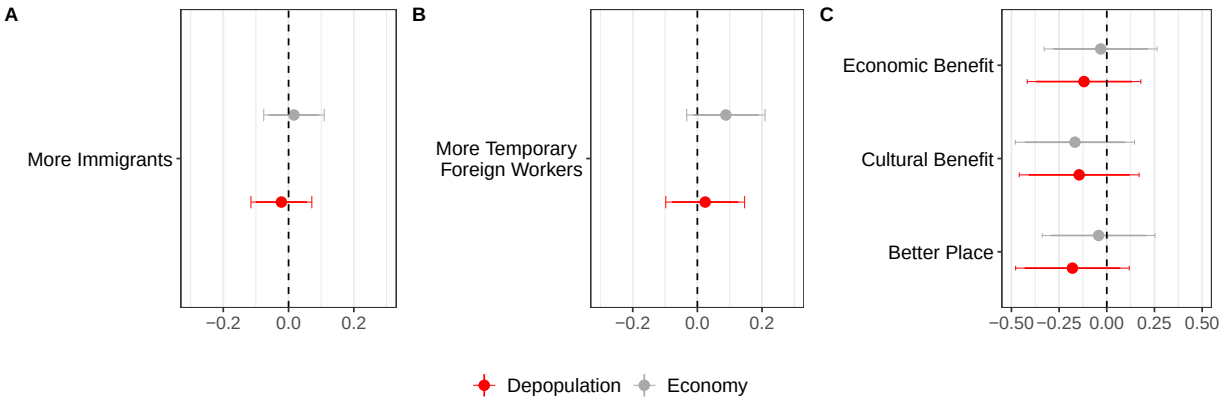

Figure 2: Average treatment effects of the depopulation treatment (Treatment I: red) and the economic treatment (Treatment II: gray) on immigration attitudes (Y-axis) toward: A) general immigration (4-point scale), B) temporary guest workers (5-point scale), and C) perceived benefits of immigration on the economy, culture, and general society (11-point scale). Coefficients are estimated using OLS with 90% and 95% confidence intervals. For the full regression results used to create the figures, see SI Table A3 (models 1 and 4) and Table A4 (models 1, 4, and 7).

Next, we turn to examine the treatment effects on other policies aimed at increasing the

[7] For details, see SI A.4.1.

[8] The results in the manuscript are based on the OLS without any control variables. With the control variables, the results are consistent. See SI A.3.3. for the full regression results.

co-ethnic or native-born population: policies to repatriate emigrants from abroad (H2) and to boost birth rates (H3). Figure 3 shows that, unlike immigration attitudes, participants who received the depopulation treatment (*Treatment I*) differ significantly from the control group in their support for these policies. They are more likely to support government efforts to repatriate Italian emigrants from abroad ($p < 0.01$), with support approximately 5% higher than that of the control group. Depopulation treatment group also shows significantly higher support for repatriation compared to those who received the economy treatment ($p < 0.05$).[9]

A similar pattern holds for support for birth rate policies. Those who received the depopulation treatment reported higher support for government efforts to boost birth rates than the control group. Unlike with repatriation, however, the economy treatment also increases support for pro-natal policies compared to the control group ($p < 0.1$). This may reflect frequent media attention to low birth rates and economic challenges in Italy in recent years (e.g., CNN, 2023).

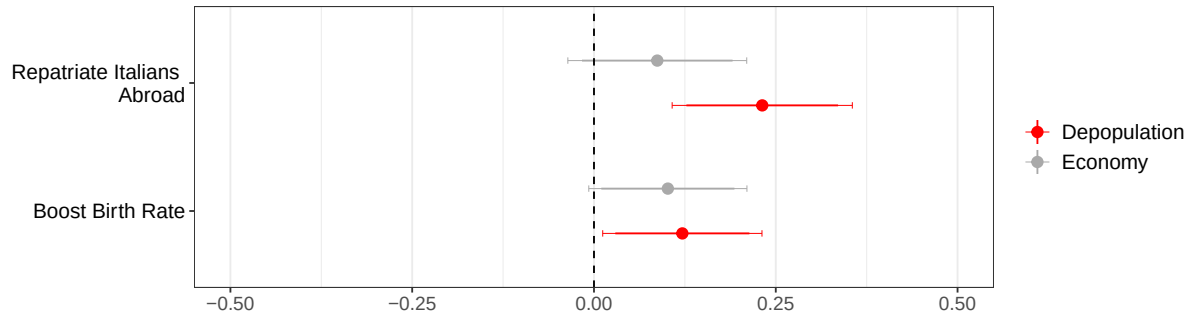

Figure 3: Average treatment effect of depopulation treatment (red) and economy treatment (gray) on other population-related policies (Y axis). Coefficients from OLS regression with confidence intervals are reported (90%, and 95%). For the full regression results used to create the figure, see SI Table A5 (models 1, and 4)

Combined, these findings suggest that while heightened awareness of depopulation risk has no significant effect on immigration preferences, it does promote support for repatriation of emigrants or pro-natalist policies aimed at expanding co-nationals and native-born populations. These contrasting results help rule out the possibility that the null effects of the treatments on immigration attitudes are caused by the treatments themselves failing to

[9]See SI A.3.4 for the difference-of-means test result.

affect awareness of depopulation risk (Treatment I), or negative economic prospect (Treatment II).[10] In particular, the depopulation treatment group shows significantly higher support for both repatriation and pro-natalist policies compared to the control group. This suggests that greater awareness of depopulation leads participants to seek policies that address it, but this does not extend to support for immigration policies. For instance, in an open-ended question asking respondents to explain their support for more restrictive or more open immigration policies, one respondent in the depopulation group stated: "We need to focus on increasing the birth rate of Italians. Too much immigration causes crime, tensions, loss of cultural identity, and the erosion of our traditions." This response suggests that increased demand for solutions to depopulation does not automatically translate into support for immigration, even when respondents recognize it as a potential solution, as other concerns about immigration may also intensify.

Next, to explore mechanisms further, we examine the heterogeneous treatment effects (H4-H7).

Figure 4 reveals a more nuanced pattern of immigration preferences. For general support for immigration ('More immigrants'), the treatment effects do not vary significantly across subgroups, showing the stable nature of immigration attitudes. However, those with strong in-group biases, attachment to tradition become more skeptical about the expected benefits of immigration when exposed to the depopulation treatment. This tendency is especially strong and consistent across models in their views on immigration's economic effects.

Figure 4 A shows that respondents with strong in-group biases perceive the effects of immigration on the economy more negatively when exposed to the depopulation risk treatment ($p < 0.1$). A similar pattern appears among those with strong attachment to tradition (Figure 4 B). They view the economic benefit of immigration more negatively when exposed to the depopulation treatment ($p < 0.05$). These results suggests a potential causal pathway through which depopulation may trigger out-group anxiety by heightening

[10]This study also includes a post-treatment manipulation check question. Using only the sample that passed the manipulation check, we find consistent results. Also, using open-ended questions about immigration, we find that Treatment I group states concerns about depopulation more than other groups ($p = 0.054$). See SI A.3.2 for details

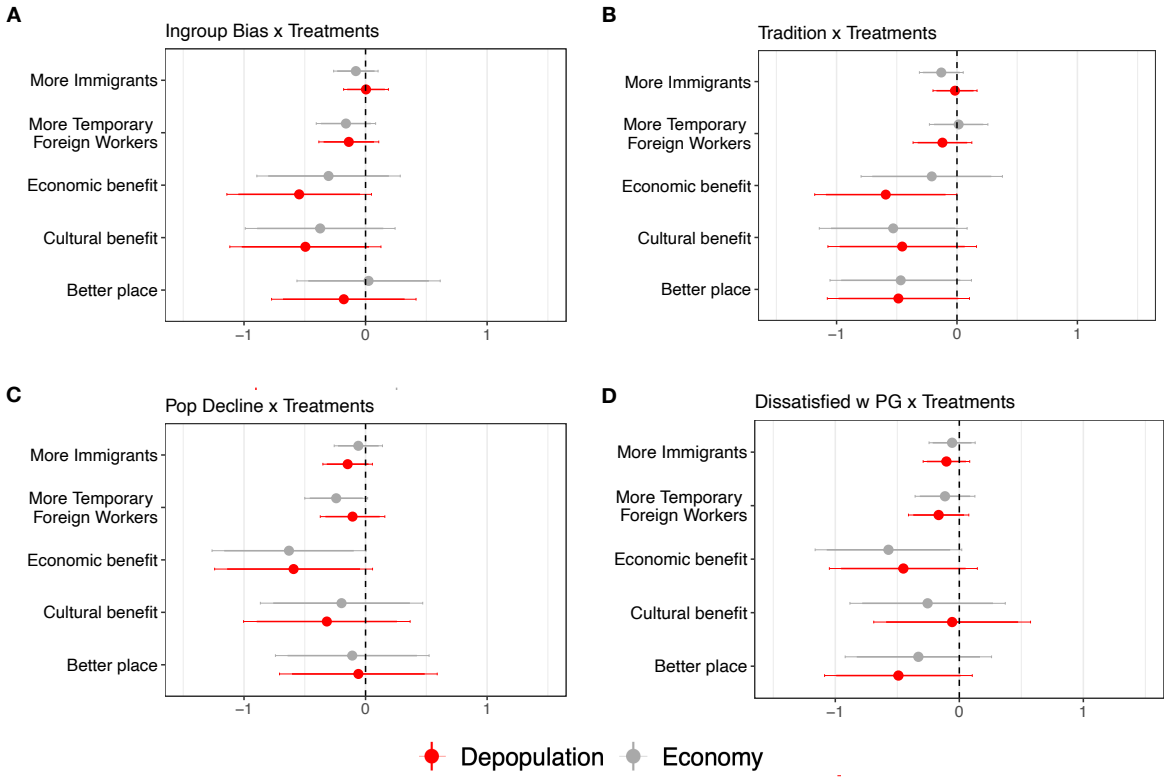

Figure 4: Heterogeneous effect of depopulation (red) and economy (gray) treatment on immigration attitudes (Y-axis). Coefficients of interaction terms between moderators and treatments from OLS regression with 90%, 95% confidence intervals. For the full regression results used to create the figures, see SI table A7, A8, A9, and A10.

status threat, providing partial support for H4 and H5.

Those who are living in regions expected to lose population also become more negative toward the perceived economic effects of immigration when exposed to the depopulation treatment ($p < 0.1$). Similarly, although not statistically significant ($p < 0.14$), participants dissatisfied with public goods provision tend to show more negative attitudes in response to the treatment when evaluating the potential impact of immigration on the national economy. These findings may be driven by that higher awareness of depopulation may amplify the existing grievances, leading to a more negative shift in attitudes toward immigration. Future research should corroborate this with sufficient powers for more detailed subgroup analysis.

One thing to note is that, respondents' reaction to the economy treatment also vary by the same moderators. For instance, those who are living in regions expected to lose population tend to view the economic impact of immigration more negatively when ex-

posed either the depopulation or the economy treatments. This suggests that individuals with existing grievances regarding local economy or public goods might respond negatively toward immigrants when exposed to projections of economic decline, *even* when such decline is attributed to depopulation (depopulation treatment) which could potentially be mitigated by immigration.

Discussions on Generalizeability

It is important to discuss the generalizability of these experimental results. Italy is one of the countries facing serious depopulation risks. At the same time, immigration has been a highly salient and divisive political issue, potentially making attitudes toward immigration in Italy more entrenched than in countries where immigration is less politically salient.

In particular, the incumbent party in Italy, Brothers of Italy, has employed strong anti-immigrant rhetoric. Furthermore, in June 2025, a referendum on changes to the acquisition of citizenship by foreign nationals failed to reach the required turnout, consistent with the position advocated by the incumbent and other right-leaning parties. As indiduals' attitudes on highly salient and politically divisive issues are often difficult to shift, Italy may represent a least-likely case for awareness of depopulation to increase support for immigration. In contexts where immigration is less salient, greater awareness of depopulation risk may be more effective in increasing support for immigration. Future research should examine this possibility further, and implement global-scale studies.

Nevertheless, this research note provides valuable insights for many developed economies, especially in Europe, that face both significant depopulation risk and high immigration salience. Furthermore, the fact that awareness of depopulation increases support for other population-related policies aimed at increasing co-national, co-ethnic populations suggests that the public is responsive to demographic crisis, which may have broader effects on policy preferences.

Conclusion

How does awareness of depopulation risk shape immigration attitudes? This research note finds that exposure to information about depopulation risk does not increase support for immigration, however, it does promote support for policies aimed at repatriating co-nationals or boosting birth rates. These findings suggest that, despite expert and some media framing immigration as a solution to depopulation (e.g., Collantes et al., 2014; BBC, 2020), its effectiveness in fostering public support is limited.

This study also finds that, for those with strong in-group biases toward their co-nationals, and those with existing grievances about public goods, greater awareness of depopulation leads to more negative views of immigration's effects on society. The heterogeneous treatment effects reveal potential underlying mechanisms connecting awareness of depopulation risks to immigration preferences. Yet, further investigation is needed to unpack how, and which aspects of, depopulation risk may undermine support for immigration. Future research should continue to explore the specific mechanisms that connect depopulation risks to immigration attitudes.

As discussed above, it is important to acknowledge limitations in the generalizability of these results. Unlike Italy, in countries where immigration is less salient, greater awareness of depopulation risk may be more effective in promoting support for immigration. Nevertheless, this research note provides valuable insights for many developed economies that face both significant depopulation risk and high salience of immigration, by revealing a paradox: even when individuals become more aware of depopulation risks, public support for immigration remains limited or may even decline.

References

Alesina, A., Murard, E., and Rapoport, H. (2021). Immigration and preferences for redistribution in europe. *Journal of Economic Geography*, 21(6):925–954.

Anelli, M. and Peri, G. (2017). Does emigration delay political change? evidence from italy during the great recession. *Economic Policy*, 32(91):551–596.

Aure, M., Førde, A., and Magnussen, T. (2018). Will migrant workers rescue rural regions? challenges of creating stability through mobility. *Journal of Rural Studies*, 60:52–59.

Baccini, L. and Weymouth, S. (2021). Gone for good: Deindustrialization, white voter backlash, and us presidential voting. *American Political Science Review*, 115(2):550–567.

Ballard-Rosa, C., Jensen, A., and Scheve, K. (2022). Economic decline, social identity, and authoritarian values in the united states. *International Studies Quarterly*, 66(1):sqab027.

BBC (2020). How do countries fight falling birth rates. Online at `https://www.bbc.com/news/world-europe-51118616`. Accessed: 2025-01-17.

CNN (2023). 'low fertility trap': Why italy's falling birth rate is causing alarm. Online at `https://www.cnn.com/2023/05/17/europe/italy-record-low-birth-rate-intl-cmd`. Accessed: 2025-07-08.

Colantone, I. and Stanig, P. (2018). The trade origins of economic nationalism: Import competition and voting behavior in western europe. *American Journal of Political Science*, 62(4):936–953.

Collantes, F., Pinilla, V., Sáez, L. A., and Silvestre, J. (2014). Reducing depopulation in rural spain: the impact of immigration. *Population, space and place*, 20(7):606–621.

Cremaschi, S., Rettl, P., Cappelluti, M., and De Vries, C. E. (2022). Geographies of discontent: Public service deprivation and the rise of the far right in italy. *American Journal of Political Science*.

Dancygier, R., Dehdari, S. H., Laitin, D. D., Marbach, M., and Vernby, K. (2025). Emigration and radical right populism. *American Journal of Political Science*, 69(1):252–267.

Dancygier, R. M. and Donnelly, M. J. (2013). Sectoral economies, economic contexts, and attitudes toward immigration. *The journal of politics*, 75(1):17–35.

Fitzgerald, J., Leblang, D., and Teets, J. C. (2014). Defying the law of gravity: The political economy of international migration. *World Politics*, 66(3):406–445.

Goldstein, J. L. and Peters, M. E. (2014). Attitudes toward immigrants during the great recession. *International Interactions*, 40(3):376–401.

Hainmueller, J. and Hopkins, D. J. (2015). The hidden american immigration consensus: A conjoint analysis of attitudes toward immigrants. *American journal of political science*, 59(3):529–548.

Kustov, A. (2021). Borders of compassion: Immigration preferences and parochial altruism. *Comparative Political Studies*, 54(3-4):445–481.

Kustov, A., Laaker, D., and Reller, C. (2021). The stability of immigration attitudes: Evidence and implications. *The Journal of Politics*, 83(4):1478–1494.

Laaker, D. (2024). Economic shocks and the development of immigration attitudes. *British Journal of Political Science*, 54(1):220–240.

Lichter, D. T. (2012). Immigration and the new racial diversity in rural america. *Rural sociology*, 77(1):3–35.

Lim, J. (2023). The electoral consequences of international migration in sending countries: Evidence from central and eastern europe. *Comparative Political Studies*, 56(1):36–64.

Lueders, H. (2024). Local immigration policies shape internal migration among immigrants regardless of immigration status. *Available at SSRN 4975802*.

Magni, G. (2021). Economic inequality, immigrants and selective solidarity: From perceived lack of opportunity to in-group favoritism. *British Journal of Political Science*, 51(4):1357–1380.

Mutz, D. C. (2018). Status threat, not economic hardship, explains the 2016 presidential vote. *Proceedings of the National Academy of Sciences*, 115(19):E4330–E4339.

Mutz, D. C. and Kim, E. (2017). The impact of in-group favoritism on trade preferences. *International Organization*, 71(4):827–850.

Navarro-Galera, A., Buendía-Carrillo, D., Gómez-Miranda, M. E., and Lara-Rubio, J. (2024). Fighting depopulation in europe by analyzing the financial risks of local governments. *International Review of Administrative Sciences*, 90(1):48–64.

OECD (2023). Demographic change in regions and cities.

Outten, H. R., Schmitt, M. T., Miller, D. A., and Garcia, A. L. (2012). Feeling threatened about the future: Whites' emotional reactions to anticipated ethnic demographic changes. *Personality and Social Psychology Bulletin*, 38(1):14–25.

Papapetrou, E. and Tsalaporta, P. (2020). The impact of population aging in rich countries: What's the future? *Journal of Policy Modeling*, 42(1):77–95.

Peters, M. E. (2015). Open trade, closed borders immigration in the era of globalization. *World Politics*, 67(1):114–154.

Reynaud, C. and Miccoli, S. (2018). Depopulation and the aging population: The relationship in italian municipalities. *Sustainability*, 10(4):1004.

Sánches-García, Á., Rodon, T., and Delgado-García, M. (2024). Where has everyone gone? depopulation and voting behaviour in spain. *European Journal of Political Research*.

Shin, A. J. (2019). Primary resources, secondary labor: Natural resources and immigration policy. *International Studies Quarterly*, 63(4):805–818.

Sides, J. and Citrin, J. (2007). European opinion about immigration: The role of identities, interests and information. *British Journal of Political Science*, 37(3):477–504.

Pre-Analysis Plan: Exploring the Impact of Depopulation Risks on Immigration Policy Preferences II *

Junghyun Lim †

April 13, 2026

1 Research Question

This study aims to test the extent to which information regarding depopulation risk can influence individuals' immigration policy preferences. On one hand, higher awareness of depopulation risk likely lead to increased support for immigration. Individuals tend to support immigration more when it is viewed as having positive effects on the national economy (Hainmueller and Hopkins, 2015; Kustov, 2021). Greater awareness of depopulation risk may highlight potential economic benefits of immigration as a solution to depopulation, leading to increased support for it.

On the other hand, depopulation risk may also reduce support for immigration. Depopulation risk may trigger status threats among the native-born population. Shrinking size of the historically dominant majority group can raise status threat among these groups, fostering out-group anxiety (Outten et al., 2012). This can easily lead to decreased support for immigration, despite its potential benefit. In addition, higher awareness of depopulation may amplify anxiety about negative economic prospect. This can turn into increased hostility toward immigrants by heightening concerns regarding competition over already scarce resources with out-groups (Alesina et al., 2021; Magni, 2021; Cremaschi et al., 2022).

To summarize, it is an empirically open question whether higher awareness of depopulation will promote support for immigration. This project aims to use survey experiment in Italy to test this.

2 Hypotheses

First hypothesis is about the overall effect of the awareness of depopulation risk on individuals' preferences for immigration policies.

*This is prepared for the presentation at GRIPE (2026 April). The details of the plan can be revised prior to registration.

†Assistant Professor, Department of Political Science, University of North Carolina, Chapel Hill

$H1$**:** Higher awareness of depopulation risk *increases (decreases)* support for more open immigration policies.

In addition to $H1$, this paper tests more specifically the effect of information that immigration can address depopulation risk on immigration policy preferences ($H2$). As discussed above, there are theoretical reasons to believe that depopulation risk may not increase support for immigration policies, as it can trigger status threat or economic anxiety. However, depopulation risk may also fail to increase support for more open immigration policies not because it triggers social status threat or economic anxiety, but because, without additional informational cues, participants may fail to consider immigration as a solution to depopulation.

$H2$**:** Receiving information that immigration can address depopulation risk *increases* support for more open immigration policies.

On the other hand, awareness of depopulation risk may increase concern about depopulation and demand for solutions, even as it reduces support for immigration due to heightened status threat. This may lead to increased support for policies aimed at directly expanding co-national or co-ethnic populations rather than increasing population size through more open immigration policies. The following hypothesis tests this possibility:

$H3$**:** Awareness of depopulation risk *increases* support for policies aimed at increasing co-national or co-ethnic populations.

Testing $H3$ will also provide a baseline for comparison with the treatment effects on immigration policies. If the treatment has no detectable effect on immigration policy preferences but has significant effects on support for policies aimed at increasing co-ethnic populations, we can rule out the possibility that the depopulation treatment failed to increase individuals' concerns about depopulation per se.
To further investigate the mechanism under which awareness of depopulation risk may shift support for more immigration policies, this paper examines whether depopulation risk shift respondents' perceived level of status threat, and 2) views on national economic prospect.

$H4$: Awareness of depopulation risk *increases* perceived status threat among native-born population

$H4$ tests if decline of population heightens perceived status threat among native-born population, which may explain the negative treatment effect on immigration policy preference.

$H5$: Awareness of depopulation risk *increases* negative views on the national economy.

2.1 Heterogeneous Treatment Effect

Finally, I aim to examine heterogeneous treatment effects. The overall average treatment effect may be negligible, if the treatment effect vary widely by subpopulations. For instance, depopulation treatment can reduce support for open immigration policies more for those who already have grievances regarding limited public service access (e.g. Cremaschi et al., 2022), and/or strong ingroup bias to co-nationals (Outten et al., 2012; Lim, 2023). Individuals' reaction may also vary by their lived experiences. For instance, many localities in Southern Italy has been already experiencing strong negative trend of population growth. The severity of depopulation risk in localities may moderate the size of treatment effect. To examine these, I will explore how individuals' reaction to depopulation risk may vary by their predispositions about public service, ingroup biases, and their local exposure to depopulation. I will also conduct exploratory analyses regarding the treatment effect conditional on pre-treatment demographic features including: age, education, and political leaning. Details of how each concept will be measured is available in Research Design section and Questionnaire in Supplementary Information.

3 Research Design

3.1 Sample Selection

This study will employ a survey experiment with a nationally representative sample of Italian citizens, stratified by census targets for gender, age, and region. Italy serves as an ideal case to test the impact of awareness of depopulation risk on immigration attitudes, as it is one of the countries experiencing a rapid depopulation trajectory due to mass out-migration of young workers from rural areas, combined with a lower fertility rate than the OECD average (OECD, 2024). Italy is projected to lose 5 million people by 2050, according to the projection by Eurostat. Simultaneously, Italy is one of the emerging destinations for immigrants, making it potentially well-suited for examining immigration as a solution for depopulation. The target sample size is approximately $3,000$, which will be recruited by professional polling firm, *Bilendi*. The target sample size provides enough power to detect the average treatment effect of 2% to 6% increase in dependent variable (informed by the first study), ranging 0 to 10 with standard deviation of 2.4, and mean of 5.07. This distribution of outcome variable is taken from the distribution of the Italian sample of the European Social Survey Wave 11 (2023) regarding the question about perceived effect of immigration on national economy.

3.2 Experimental Design

The main goal of the experiment is to test if awareness of depopulation risk affects individuals' support for open immigration policies. To do so, respondents will be randomly assigned to one of the four following groups: Depopulation Risk Treatment (T1), Depopulation Risk & Immigration

Treatment (T3), and pure control group (C). Each group will receive the corresponding text embedded in the survey as follows.

(T1) Depopulation risk: Italy's population is shrinking. Many experts say that Italy will lose about 5 million people by 2050. This is a large drop in population. If this trend continues, businesses may struggle to find workers, tax revenue will shrink, and pressure on the pension system will increase.

(T2) Depopulation risk & Immigration: (T1 text) + Experts say immigration can help. With increased immigration, Italy could slow or reverse population decline and ease these challenges.

(C) Control: Clouds form when water in the air cools and turns into tiny droplets. They appear in the sky under normal weather conditions. Their shape can change as air moves and temperature shifts. Some clouds stay in one place for a short time, while others move across the sky. People can often see clouds at different times during the day. Overall, clouds are a common part of everyday weather.

T1 provides information about the depopulation trend and its negative effect on the national economy. **T2** provides information about the benefit of immigration, in addition to information about the depopulation risk (T2). While the informational treatments (T1) may increase awareness of depopulation risk, respondents may fail to consider immigration as a potential solution without additional informational cues. Providing information that immigration can mitigate depopulation may increase support for more open immigration policies. To examine this, **T2** introduces an additional sentence describing immigration as a solution to depopulation. Finally, the pure control group (C) will receive irrelevant text of similar length to T3.

Post-treatment, all respondents will be presented to with a series of questions asking their attitudes toward immigration ($H1-2$), preferences for other policies that aim to increase co-ethnic and co-national populations ($H3$), perceived status threat ($H4$), and view on economy ($H5$). The order of these questions will be randomized.

3.2.1 Manipulation Check

This survey will also include manipulation check questions for subjects. First, respondents in each group will be asked a following question post-treatment: "which sentence summarizes the above paragraph the best."

Respondents will also be asked the salience of the depopulation issue as well ("How important do you think each of the following issues is for your country?"). This is to examine if the treatment effectively increased the awareness of the depopulation risk. This question will be asked after measuring the dependent variables to avoid potentially priming the control group about depopulation.

3.2.2 Attention Check

This study includes an attention check question before the treatment block as follows [1]:

- Click on one of options below such as Disagree and Agree. We want to test your attention, so please click on the answer "Agree." (Options: A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree)

The survey results will be analyzed both based on the full sample and the subsample that passed the attention check.

3.3 Estimation & Measurement Strategy

3.3.1 Model Specification

This paper will estimate variations of the following linear regression model: $y_i = \beta_0 + \beta_1 \tau_{1i} + \beta_2 \tau_{2i} + \epsilon$ where i for respondents, y for outcome variables, and $\tau_{1,2}$ for each treatment group. Variation of this model will include basic socio-demographic control variables: age, gender, level of education, and income. In addition to the regression, this paper will also conduct difference-of-means test using t-test to compare the mean of each group and more rigorously test $H2$.

3.3.2 Dependent Variable

To test the $H1-2$, I measure individuals' immigration preferences using following questions:

1. Support for general immigration policies ("To what extent do you think Italy should allow people from other countries?")[2]
2. Preference for immigration policies targeted toward guest workers ("To what extent do you agree with following sentence: The government should work harder to host more guest workers from abroad")
3. Preference for immigration policies targeted toward highly skilled workers ("To what extent do you agree with following sentence: The government should work harder to host more highly skilled foreign-workers from abroad")
4. Perceived effect of immigration on a society ("Would you say it is generally bad or good for Italy's economy/culture that people come to live here from other countries?"))[3]

To test $H3$, I ask to what extent respondents agree with the following statements to measure their preferences for population related policies aimed at expanding co-national or co-ethnic population.

[1] This attention check question follows the suggestion of Pei et al. (2020) to minimize risks of automatic responses. See Pei et al. (2020) for details.

[2] This question uses similar wording and the same 4-point scale with the immigration attitude question in European Social Survey. This allows us to compare our finding with the larger observational survey

[3] These questions mirror the immigration question battery in European Social Survey. This question uses an 11-point scale.

1. Support for policies to repatriate Italian emigrants ("The government should work harder to repatriate Italians living abroad")

2. Support for policies to boost fertility rates ("The government should work harder to boost birth rate")

To test $H4$, I ask the following questions. "To what extent do you agree with the following statements?"

1. Italy's way of life is threatened

2. If things keep going as they have been, there will be no place in Italy for real Italians

3. Today's cultural change in Italy are making my group less powerful to other groups

These questions are sourced from Parker and Lavine 2025, which provides survey questions to measure status threat.[4] We will use the average of these three items to measure the level of perceived status threat.

3.3.3 Moderators

I test heterogenous treatment effect by comparing the mean by subgroups (t-test), as well as using linear model with interaction terms between the treatment groups (τ_n) and moderators (γ) using variations of the following model: $y_i = \beta_0 + \beta_1\tau_{ni} + \beta_2\gamma_i + \beta_3\tau_{ni} * \gamma_i + \epsilon$. For some models, I will include the same set of covariates with the main analyses. All the moderators will be measured pre-treatment. I will use following survey items to examine the existing in-group biases and grievances regarding public services.

1. Grievances regarding public service access ("How satisfied are you with the quality of public services provided in your municipality (comuni)? (Roads/Water/Education/Elderly Care)")

2. Ingroup bias toward co-nationals (National Superiority)
   ("To what extent do you agree or disagree with each of these statements?")

   - In Italy, our people are not perfect, but our culture is superior to others.
   - I would rather be a citizen of Italy than of any other country in the world.
   - The world would be a better place if people from other countries were more like Italians.

National Superiority questions have been widely used to capture in-group bias to co-nationals (e.g. Mansfield and Mutz, 2013; Mutz and Kim, 2017). We will use 5-point Likert scale for each question. Following Mutz and Kim (2017), we will construct a measure of `National Superiority` by taking the mean of the three items.

[4]The original article provides seven questions total to capture the status threat. We use three representative questions instead due to space constraints.

3.4 Power Analyses

For power analyses, we consider three different scenarios, with average treatment effects ranging from 2% to 7.5% increase of the outcome variable. The outcome variable is in 0 to 11 scale, with the mean of 5.07, and standard deviation of 2.4, which mirrors the distribution of the immigration attitude question from the Italy section of the European Social Survey, Wave 11 (2023). Figure 1 shows that our target sample size (3,500) will be sufficient to provide power of above 0.8 under these scenarios.

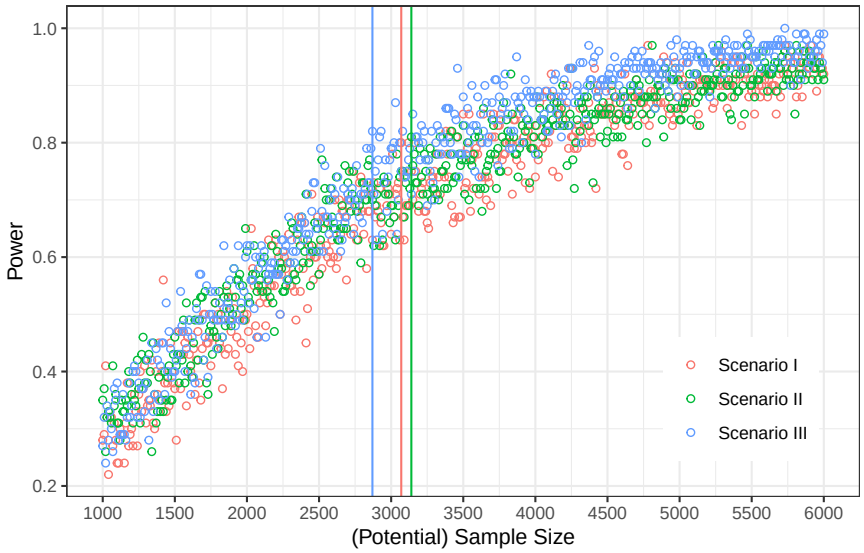

Figure 1: Power Analysis. Scenarios I, II, and III assume different treatment effect sizes, ranging 2% to 5% increase of the outcome variables. Each scenario includes three treatment groups and a pure control group. The distribution of the outcome variable (0–11 scale; Mean = 5.07, SD = 2.4) is based on responses to an immigration question from the Italy section of the European Social Survey, Wave 11 (2023).

References

Alesina, Alberto, Elie Murard, and Hillel Rapoport, "Immigration and preferences for redistribution in Europe," *Journal of Economic Geography*, 2021, *21* (6), 925–954.

Cremaschi, Simone, Paula Rettl, Marco Cappelluti, and Catherine E De Vries, "Geographies of discontent: Public service deprivation and the rise of the far right in Italy," *American Journal of Political Science*, 2022.

Hainmueller, Jens and Daniel J Hopkins, "The hidden American immigration consensus: A conjoint analysis of attitudes toward immigrants," *American journal of political science*, 2015, *59* (3), 529–548.

Kustov, Alexander, "Borders of compassion: Immigration preferences and parochial altruism," *Comparative Political Studies*, 2021, *54* (3-4), 445–481.

Lim, Junghyun, "The electoral consequences of international migration in sending countries: Evidence from Central and Eastern Europe," *Comparative Political Studies*, 2023, *56* (1), 36–64.

Magni, Gabriele, "Economic inequality, immigrants and selective solidarity: From perceived lack of opportunity to in-group favoritism," *British Journal of Political Science*, 2021, *51* (4), 1357–1380.

Mansfield, Edward D and Diana C Mutz, "US versus them: Mass attitudes toward offshore outsourcing," *World Politics*, 2013, *65* (4), 571–608.

Mutz, Diana C and Eunji Kim, "The impact of in-group favoritism on trade preferences," *International Organization*, 2017, *71* (4), 827–850.

OECD, "Society at a Glance 2024: OECD Social Indicators," Technical Report, OECD Publishing, Paris 2024.

Outten, H Robert, Michael T Schmitt, Daniel A Miller, and Amber L Garcia, "Feeling threatened about the future: Whites' emotional reactions to anticipated ethnic demographic changes," *Personality and Social Psychology Bulletin*, 2012, *38* (1), 14–25.

Parker, Christopher Sebastian and Howard Lavine, "Status threat: The core of reactionary politics," *Political Psychology*, 2025, *46*, 80–104.

Pei, Weiping, Arthur Mayer, Kaylynn Tu, and Chuan Yue, "Attention please: Your attention check questions in survey studies can be automatically answered," in "Proceedings of The Web Conference 2020" 2020, pp. 1182–1193.

Supplementary Information
Depopulation Paradox: Depopulation Risks and Immigration Policy Preferences

Junghyun Lim *

A.1 Summary Statistics

Variable	Mean	SD	Min	Max
Depopulation Treatment	0.33	0.47	0.00	1.00
Econ Treatment	0.34	0.47	0.00	1.00
More immigrants	2.86	0.84	1.00	4.00
More guest workers	2.88	1.10	1.00	5.00
Economic benefit	5.31	2.68	0.00	10.00
Cultural benefit	5.05	2.83	0.00	10.00
Better place	4.55	2.68	0.00	10.00
Repatriate emigrants	3.22	1.12	1.00	5.00
Boost birth rates	3.84	0.99	1.00	5.00
Age group	3.33	1.42	1.00	5.00
Male	0.49	0.50	0.00	1.00
Education	4.45	1.92	0.00	8.00
Income (group)	2.09	1.17	1.00	8.00
Unemployed	0.09	0.28	0.00	1.00

Table A1: Summary Statistics

A.2 European Social Survey and Population Projections

A.2.1 Survey Coverage

European Social Survey (ESS) Wave 11 was conducted between 2023 and 2024 across 24 European countries. We use surveys from 19 countries for which Eurostat provides population projections. Among them, three countries use regional identifiers at the NUTS1 level (major socio-economic regions): Germany, Italy, Cyprus. Nine countries use identifiers

*Assistant Professor, Department of Political Science, University of North Carolina at Chapel Hill. junglim@unc.edu

at the NUTS2 level (basic regions for the application of regional policies): Austria, Belgium, Switzerland, Spain, Netherlands, Norway, Poland, Portugal, Sweden. The remaining countries use the NUTS3 level (small regions for specific diagnoses): Finland, Croatia, Hungary, Ireland, Lithuania, Slovakia, Sloveni). For more information on the NUTS system, see Eurostat `(link)`

A.2.2 Survey Questionnaire and Immigration Attitude Measurement

This section reports the questionnaire used to measure immigration preferences (Table 2) from the European Social Survey Wave 11. First, general immigration attitudes ('More Immigrant') is measured by taking average of the following three questions regarding the immigration preferences.

- To what extent do you think [country] should allow people of the same race or ethnic group as most [country]'s people to come and live here? (ESS question title: `imsmetn`)
- To what extent do you think [country] should allow people of a different race or ethnic group from most [country] people? (ESS question title: `imdfetn`)
- To what extent do you think [country] should allow people from the poorer countries outside Europe? ESS question title: (`impcntr`)

All three questions are in 4 point scale, ranging from 'Allow none' (1) to 'Allow many to come and live here' (4).

Second, to capture the perceived effects of immigration, we use the following questions:

- ('Economic benefit') Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries? (ESS question title: `imbgeco`)
- ('Cultural benefit') Would you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries? (ESS question title: `imueclt`)
- ('Better place') Is [country] made a worse or a better place to live by people coming to live here from other countries? (ESS question title: `imwbcnt`)

These questions are in 10 point scale, ranging from the most negative view on the perceived effect (0) to the most positive view (10). Later in the experiment, we use the same questions with these three to measure participants' attitudes toward immigration.

A.2.3 Population projection (Pop Decline)

Eurostat (EUROPOP2019) provides population projection at both the national and sub-national level (NUTS3), covering the period from 2019 to 2100. These projections are based on assumptions regarding fertility, mortality and net migration. The data includes projections for 31 countries, and 1216 NUTS3 regions. Using this projection, if population is projected to decline by 2050 compared to 2019, **Pop decline** is coded 1, otherwise 0. For the Figure 1A, we use % change of population between 2019 and 2050. In addition to the baseline projection used in the manuscript, Eurostat provides alternative scenarios where they assume no migration flows. Data and detailed description is available from Eurostat(`link.`)

A.2.4 Other variables

Regional Covariates include log GDP, population size per km^2 in thousand, and the proportion of non-EU born population in each region. All data is sourced from Regional Statistics, Eurostat ((link))

Age represents age of participants (ESS question title: `agea`).

Female is a binary indicator of being female (1), otherwise 0 (ESS question title: `gndr`)

Education indicates the highest level of education (ESS question title: `eisced`). This is based on 7 point scale following International Standard Classification of Education.

Income indicates household total net income, using 10-point scale where 1 indicates 1st decile to 10 indicates 10th decile (ESS question title: `hinctnta`).

Conservative indicates political ideology, using 11-point scale where 0 indicates left, 10 indicates right (ESS question title: `lrscale`)

A.3 Experiment: Alternative model specifications

A.3.1 Covariates

We report the analyses with alternative model specifications. First, we report the results with different set of control variables. In the main text, we report the model without any control variables. Here, report the OLS results with a set of demographic control variables including: age (group), gender, education, and income. Table A2, A3, and A4 reports the consistent patterns with the main analyses: depopulation treatment has no statistically significant effect on immigration preferences, while significantly increases support for policies to repatriate co-nationals abroad, and boost birth rates.

A.3.2 Manipulation Check

We also replicate the results with the full sample including respondents who failed the manipulation check questions. As discussed in the main manuscript, we included manipulation check questions for the two treatment groups as follows: Which of the following sentences best summarizes the above paragraph?
(for Treatment group I)

- a. Population of Italy is expected to grow
- b. Population of Italy is expected to decline, and it will raise economic challenges
- c. Population of Italy is expected to decline, and it will lead to a strong economy

(for Treatment group II)

- a. Experts suggest that Italy's economy is going to flourish
- b. Experts suggest that Italy's economy will face challenges
- c. Experts suggest that Italian diet has health benefits

These questions are designed to check if the recipients of treatment read and understand the treatment text. In the main analysis, we only include the sample who passed the manipulation check. Here, we replicate the results with the full sample (models 2, 3, 5, 6 in Table A2, models 2,3,5,6,8,9 in Table A3, models 2,3,5,6 in Table A4) and find mostly consistent pattern that depopulation treatment has no statistically significant effect on immigration preferences, while significantly increases support for policies to repatriate co-nationals abroad, and boost birth rates.

Table A2: Immigration preference and depopulation

	Dependent variable:					
	More Immigrants			More Temporary Foreign Workers		
	(1)	(2)	(3)	(4)	(5)	(6)
Depopulation	−0.025	−0.025	0.014	0.019	0.019	0.005
	(0.048)	(0.048)	(0.049)	(0.063)	(0.063)	(0.065)
Economy	0.014	0.014	0.041	0.080	0.080	0.083
	(0.048)	(0.048)	(0.048)	(0.062)	(0.062)	(0.063)
Constant	2.600***	2.600***	2.594***	2.500***	2.500***	2.465***
	(0.085)	(0.085)	(0.086)	(0.111)	(0.111)	(0.114)
Control		✓	✓		✓	✓
Manipulation Check			✓			✓
Observations	1,847	1,847	1,714	1,848	1,848	1,715

Note: *p<0.1; **p<0.05; ***p<0.01. All models estimated using OLS. Dependent variable for model (1)-(3) is in 4-point scale, and (4)-(6) is in 5-point Likert scale

Table A3: Perceived effect of immigration and depopulation

	Dependent variable:								
	Economic Benefit			Cultural Benefit			Better Place		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Depopulation	−0.120	−0.120	−0.071	−0.182	−0.182	−0.157	−0.210	−0.210	−0.182
	(0.153)	(0.153)	(0.156)	(0.161)	(0.161)	(0.166)	(0.152)	(0.152)	(0.157)
Economy	−0.033	−0.033	0.015	−0.209	−0.209	−0.167	−0.075	−0.075	−0.132
	(0.151)	(0.151)	(0.153)	(0.160)	(0.160)	(0.163)	(0.151)	(0.151)	(0.154)
Constant	4.333***	4.333***	4.240***	4.921***	4.921***	4.836***	4.346***	4.346***	4.340***
	(0.269)	(0.269)	(0.277)	(0.284)	(0.284)	(0.294)	(0.269)	(0.269)	(0.278)
Control		✓	✓		✓	✓		✓	✓
Manipulation Check			✓			✓			✓
Observations	1,848	1,848	1,715	1,848	1,848	1,715	1,847	1,847	1,714

Note: *p<0.1; **p<0.05; ***p<0.01. All models estimated using OLS. All dependent variables are in 11-point scale (0-10) where 10 represents the most positive perceived effect of immigration.

Table A4: Support for population-related policies and depopulation

	Dependent variable:					
	Repatriate Co-nationals			Boost Birth Rate		
	(1)	(2)	(3)	(4)	(5)	(6)
Depopulation	0.231***	0.235***	0.211***	0.122**	0.136**	0.150***
	(0.063)	(0.064)	(0.066)	(0.056)	(0.056)	(0.058)
Economy	0.087	0.090	0.070	0.102*	0.107*	0.106*
	(0.063)	(0.064)	(0.065)	(0.055)	(0.056)	(0.057)
Constant	3.112***	3.020***	2.971***	3.763***	3.365***	3.344***
	(0.045)	(0.113)	(0.118)	(0.040)	(0.099)	(0.102)
Control		✓	✓		✓	✓
Manipulation Check			✓			✓
Observations	1,893	1,847	1,715	1,893	1,847	1,714

Note: *p<0.1; **p<0.05; ***p<0.01. All models estimated using OLS. All dependent variables are in 5-point Likert scale where 5 represents the strongest support for the policy.

A.3.3 Difference-of-means

Here, I report difference-of-means test results using t-tests to compare not only the treatment groups to the control group, but also the depopulation treatment group (*Treatment I*) to the economy treatment group (*(Treatment II*). None of the combinations among the three groups show significant differences in their support for immigration across any of the immigration attitude measures. Yet, depopulation treatment group has higher support for governments' effort to repatriate Italians abroad than both the control group, and the economy treatment group ($p < 0.01$). Depopulation group also reports higher support for government's effort to boost birth rates compared to the control group. Yet, the difference between the economy group is not statistically significant. These results align well with the regression results presented in the main manuscript.

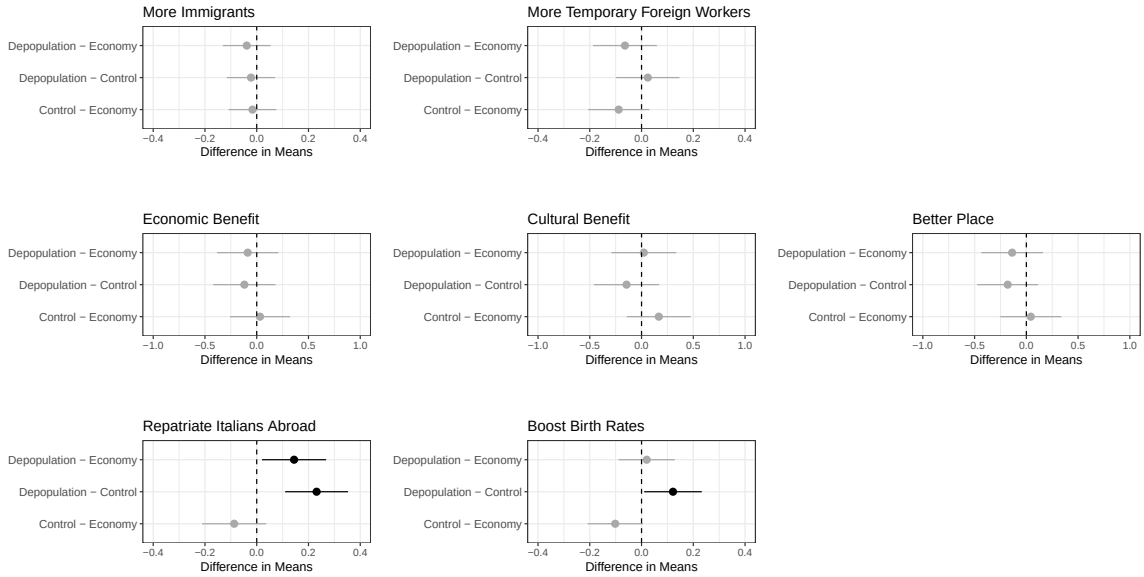

Figure A1: Difference in Means by Treatment Groups. The Y-axis indicates different pairing of the treatment groups, and the X-axis shows the difference in means with 95% confidence interval. The Darker color represents difference in means is significant at 95%.

A.4 Mechanisms

A.4.1 Measuring Moderators

In-group Bias

To measure in-group bias toward co-nationals, we use the national superiority question battery.

- "To what extent to do you agree with the following statements:"

  - In Italy, our people are not perfect, but our culture is superior to others.
  - I would rather be a citizen of Italy than of any other country in the world.
  - The world would be a better place if people from other countries were more like Italians.

We use a 5-point Likert scale to measure each item, ranging from 1 (strongly disagree) to 5 (strongly agree). We then calculate the average of the three items. Based on this average score, we create a binary indicator of in-group bias: 1 if the average score is greater than 3, and 0 otherwise.

Attachment to traditions

- 'Indicate how much each group of people are or are not like you: Tradition is important to them. They try to follow the customs handed down by their religion or their family."

This item also uses a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). When the score is greater than 3, it is coded 1 (to have attached to traditions), and 0 otherwise.

Dissatisfaction with public goods provision

- How satisfied are you with the quality of public services provided in your municipality (comuni)?
  - Roads
  - Water
  - Education
  - Elderly care

We use a 5-point scale to measure each item, ranging from 1 (Very satisfied) to 5 (Very unsatisfied). We then calculate the average of these four items. Based on this average score, we create a binary indicator: 1 if the average score is greater than 3 (dissatisfied with public goods), and 0 otherwise.

A.4.2 Testing Additional Heterogeneous Treatment Effect

As discussed in the pre-analysis plan, we explore potential heterogeneous treatment effects by whether participants live in regions with negative population projections, their self reported political ideology, vote choice, and intention to move.

To examine heterogeneous treatment effect by population projections of participants' region, we use population projection data at NUTS2 level from Eurostat.

Table A5: Exploring heterogeneous treatment effect by population projections

	Dependent variable:				
	More immigrants	More temp foreign workers	Economic benefit	Cultural benefit	Better place
Depopulation	0.161*	0.106	0.469	0.066	−0.005
	(0.089)	(0.118)	(0.285)	(0.303)	(0.286)
Economy	0.091	0.191*	0.444*	−0.005	−0.090
	(0.083)	(0.110)	(0.266)	(0.283)	(0.267)
Pop decline	0.116	0.162*	0.396*	0.397	0.286
	(0.072)	(0.095)	(0.231)	(0.245)	(0.231)
Depopulation:Pop decline	−0.207*	−0.150	−0.746**	−0.333	−0.233
	(0.107)	(0.141)	(0.342)	(0.364)	(0.343)
Economy:Pop decline	−0.075	−0.169	−0.615*	−0.267	−0.056
	(0.102)	(0.135)	(0.327)	(0.347)	(0.328)
Constant	2.512***	2.352***	3.905***	4.574***	4.108***
	(0.099)	(0.131)	(0.318)	(0.338)	(0.319)
Observations	1,685	1,686	1,686	1,686	1,686

Note: *p<0.1; **p<0.05; ***p<0.01. All models estimated using OLS. All models estimated using OLS with a sample that pass manipulation check, with control variables including age, gender, education, and income. Dependent variable for model (1)-(2) is in 4-point scale, and (3)-(5) is in 10-point Likert scale.*Pop decline* is a binary indicator of living in NUTS2 region with negative population projection in 2050 according to Eurostat.

To measure participants' political ideology, we asked: "In politics people sometimes talk of 'left' and 'right'. Where would you place yourself on this scale where 0 means the left and 10 means the right?" Based on this question, we created a binary indicator of ideology, classifying participants who reported a value above the median (5) as conservative. Table A6 shows that while conservative participants are less favorable to immigrants overall, the conditional effects of the treatment are not statistically significant across different dependent variables.

Table A6: Exploring heterogeneous treatment effect by self-reported political ideology

	Dependent variable:				
	More Immigrants	More Temp Foreign Workers	Economic Benefit	Cultural Benefit	Better Place
	(1)	(2)	(3)	(4)	(5)
Depopulation	−0.033	0.086	0.038	−0.007	−0.030
	(0.058)	(0.076)	(0.187)	(0.194)	(0.185)
Conservative	−0.452***	−0.479***	−1.163***	−1.507***	−1.175***
	(0.068)	(0.089)	(0.218)	(0.226)	(0.217)
Economy	−0.009	0.105	−0.005	−0.034	0.156
	(0.057)	(0.075)	(0.183)	(0.189)	(0.181)
Depopulation:Conservative	0.042	−0.140	−0.368	−0.289	−0.336
	(0.095)	(0.125)	(0.306)	(0.317)	(0.303)
Economy:Conservative	0.037	−0.082	−0.129	−0.466	−0.627**
	(0.096)	(0.126)	(0.307)	(0.319)	(0.305)
Constant	3.026***	3.013***	5.791***	5.704***	5.054***
	(0.041)	(0.054)	(0.132)	(0.136)	(0.130)
Observations	1,887	1,888	1,888	1,888	1,887

Note: *p<0.1; **p<0.05; ***p<0.01. All models estimated using OLS with a sample that pass manipulation check, with control variables including age, gender, education, and income. Dependent variable for model (1)-(2) is in 4-point scale, and (3)-(5) is in 10-point Likert scale. *Conservative* is a binary indicator of self-reported political conservatism.

To measure participants' vote choice, we ask: "Which party did you vote for in the last national election (September 2022 elections for the Chamber of Deputies)?" Based on this question, we create a binary indicator of those who voted for radical right wing parties (*Lega, Italexit, Italia Sovrana e Popolare*) Table A7 shows that while far-right voters are less favorable to immigrants overall, the conditional effects of the treatment are not statistically significant.

Table A7: Exploring Heterogeneous treatment effect of self-reported vote choice

	Dependent variable:				
	More Immigrants	More Temp Foreign Workers	Economic Benefit	Cultural Benefit	Better Place
	(1)	(2)	(3)	(4)	(5)
Depopulation	−0.063	0.017	−0.192	−0.063	−0.057
	(0.056)	(0.075)	(0.181)	(0.192)	(0.182)
Vote for FR	−0.450***	−0.542***	−1.973***	−1.776***	−1.145***
	(0.135)	(0.183)	(0.439)	(0.466)	(0.442)
Economy	0.030	0.085	−0.071	−0.215	0.001
	(0.055)	(0.074)	(0.178)	(0.189)	(0.179)
Depopulation:Vote for FR	0.114	−0.171	0.268	−0.219	−0.584
	(0.191)	(0.258)	(0.621)	(0.659)	(0.625)
Economy:Vote for FR	−0.184	−0.162	−0.639	−0.067	−0.842
	(0.203)	(0.275)	(0.661)	(0.702)	(0.665)
Constant	2.938***	2.952***	5.716***	5.392***	4.786***
	(0.040)	(0.053)	(0.129)	(0.137)	(0.130)
Observations	1,406	1,406	1,406	1,406	1,405

Note: *p<0.1; **p<0.05; ***p<0.01. All models estimated using OLS with a sample that pass manipulation check, with control variables including age, gender, education, and income. *Vote for FR* is a binary indicator of self-reported vote choice for the previous national election for far-right parties (classified using Chapel Hill Expert Survey)

To measure participants' vote choice, we ask:"To what extent do you agree with the following sentence: I would move somewhere else if I could." Based on this question, we created a binary indicator of those who intend to move if possible. Table A8 presents that mostly, treatment effects do not vary by pre-existing intention to move. One exception is that those who are intent to move are less likely to support the temporary foreign workers when exposed to depopulation treatment ($p < 0.01$). This potentially reflects

Table A8: Exploring Heterogeneous treatment effect of self-reported intend to move

	Dependent variable:				
	More Immigrants	More Temp Foreign Workers	Economic Benefit	Cultural Benefit	Better Place
	(1)	(2)	(3)	(4)	(5)
Depopulation	−0.041	0.172**	0.032	−0.060	−0.063
	(0.063)	(0.083)	(0.203)	(0.214)	(0.203)
Intend to move	−0.191***	0.198**	−0.173	−0.103	−0.021
	(0.068)	(0.090)	(0.219)	(0.231)	(0.219)
Economy	−0.054	0.115	−0.033	−0.285	−0.146
	(0.063)	(0.082)	(0.201)	(0.212)	(0.201)
Depopulation:Intend to move	0.059	−0.340***	−0.314	−0.176	−0.253
	(0.096)	(0.125)	(0.306)	(0.324)	(0.307)
Economy:Intend to move	0.171*	−0.075	0.017	0.270	0.230
	(0.095)	(0.125)	(0.304)	(0.322)	(0.305)
Constant	2.939***	2.755***	5.437***	5.201***	4.638***
	(0.044)	(0.058)	(0.141)	(0.149)	(0.141)
Observations	1,893	1,894	1,894	1,894	1,893

Note: *p<0.1; **p<0.05; ***p<0.01. All models estimated using OLS with a sample that pass manipulation check, with control variables including age, gender, education, and income. *Intend to move* is a binary indicator of self-reported intention to move from the current locality if possible.