Behavioral Assimilation in Social Preferences: Evidence from a Multi-Round Ultimatum Game with Immigrant Populations

By Michael Lee, Ola Sadik, Jacob Gelrud, Yucheng Lu, and Antonio Martinez

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Introduction

The United States of America is unique in that over 97.1% of its residents have at least one ancestor who immigrated to the country ("Race and Ethnicity in the United States: 2010 Census and 2020 Census"). As a result, "American culture" is particularly new compared to that of nations with longer, more homogeneous cultural histories and is instead molded by repeated waves of migration, assimilation, and evolution across generations. Over the years, numerous studies have documented how immigrants gradually adopt the most essential characteristics of behavior of their host country, such as language, customs, and various social norms. However, there is less evidence on how this assimilation process penetrates deeper dimensions. In particular, it remains unclear to what degree immigrants also incorporate the social preferences and interactive behavior of the receiving society, especially those related with altruism, cooperation, and fairness. Our research seeks to answer this question: *Does the amount of time immigrants and their descendants spend in the United States affect how closely their fairness and altruism behaviors align with American behavioral norms?*

To address this question, we analyze decision-making in a controlled laboratory setting using a 10-round Ultimatum Game. Participants are grouped into pairs of proposers who choose to share resources with their partner, and responders who choose to accept or reject the proposers' offers. This framework allows us to observe how individuals behave both as proposers and responders. Because individual conceptions of fairness and altruism play central roles in choices made within the Ultimatum Game, it serves as an ideal context for measuring these behaviors across individuals with different migration backgrounds.

Based on prior literature on cultural transmission and immigrant assimilation, we propose the following hypothesis: *The more time immigrants spend in the U.S., including generational*

distance, the more their fairness and altruism behaviors in the Ultimatum Game will converge toward host-country norms.

This behavior and decision-making context is important for several reasons. First, social preferences such as fairness, altruism, and reciprocity influence a wide range of real-world economic and political behaviors, such as cooperation, charitable giving, support for redistribution, and negotiation outcomes. Second, understanding how these preferences evolve in immigrant populations informs broader debates about cultural assimilation, social cohesion, and the long-run integration of diverse communities in multicultural societies. Finally, the United States is uniquely positioned for such an analysis given its demographic diversity and long history of immigration; studying social-preference assimilation here provides insight into how cultural norms are transmitted and transformed in one of the world's most heterogeneous societies.

Background

A growing literature in behavioral and cultural economics examines how immigrants' social preferences evolve when they relocate to new countries. A core insight of this research is that people in different countries exhibit different levels of altruism, fairness, trust, and reciprocity, which can be observed in how they play games such as the ultimatum game. The Ultimatum Game is a two-player economic game in which one player (the proposer) is given a fixed number of points, e, and must offer some portion, x, to the second player (the responder). The responder can either accept or reject the offer. If the responder accepts, the proposer receives $e - x$ points and the receiver gets x points. If the responder rejects, neither player gets any points (Güth et al.). We believe the Ultimatum Game is uniquely suited for our study as it provides the

most behaviorally informative measure of the two social preferences at the center of our research question: giving and the willingness to enforce fairness through costly rejection.

Luttmer and Singhal (2011) provide foundational evidence that immigrants to Europe and the United States retain social and political preferences from their countries of origin. By analyzing surveys on attitudes toward government redistribution, they find that second-generation immigrants maintain beliefs similar to those in their homelands, even after accounting for socioeconomic factors and duration of residence. These beliefs can persist for years after immigrating and even across generations, suggesting that preferences for altruism are culturally persistent and only adjust over long time periods.

Experimental work reinforces this conclusion. (Cameron et al.) studied Chinese immigrants in Australia using incentivized behavioral games and find systematic changes in altruism, trust, risk tolerance, and competitiveness as immigrants spend received more western education. They proxy assimilation through the share of an individual's education obtained in Australia and find systematic shifts across all domains: altruism, trust, trustworthiness, risk-taking, and competitiveness. In the Dictator Game, for example, "each additional 10% of education received in Australia is associated with a 1.87 percentage point decrease in the amount given," indicating a sizable decline in altruistic transfers. Their findings demonstrate that sustained exposure to a new social environment can meaningfully reshape economic preferences, motivating the core hypothesis of this study: social preferences may assimilate over time. Although Cameron et. al uses education received as their measure of exposure; the underlying mechanism they capture is temporal. Education is a structured channel through which subjects may encounter local norms, but it is also an imperfect proxy. Time spent in the host country captures a broader set of assimilation forces, such as daily interactions, workplace dynamics,

community participation, and informal social learning. These extend far beyond the classroom. Thus, a time-based measure reflects continuous exposure to host-country institutions and social relationships. For this reason, we plan on examining assimilation through time to observe preference changes that arise not only from formal instruction but from the cumulative experience of living within a new cultural context.

More recent cross-country research by Mariño-Fages and Morales (2022) demonstrates that immigrants' preferences converge toward host-country norms across a wide range of settings. Using data from global preference surveys, they show that assimilation is often monotonic but heterogeneous across preference domains. Altruism and trust tend to converge more rapidly than risk or time preferences, providing strong justification for focusing on fairness and altruism-related behaviors within an experimental framework.

Additional evidence on immigrant social behavior comes from trust and reciprocity research. Cox and Orman (2015) employ a trust game with randomized immigrant–native pairings and find meaningful differences in trusting and trustworthy behavior between the two groups. Importantly, when immigrants interact repeatedly with native-born Americans, their behavior shifts in the direction of native norms, highlighting the role of social interaction and repeated exposure in preference assimilation. For our study, this raises an important methodological concern, as if subjects update their strategies in response to the observed play of others across rounds, then later-round behavior may reflect adaptation or learning rather than stable behavior. Consequently, failure to account for the number of rounds risks conflating assimilation dynamics within the experiment itself with the preference heterogeneity we aim to measure. To avoid contamination, the number of rounds should be explicitly modeled or

controlled so that our estimates isolate genuine behavioral differences rather than artifacts of repeated play.

Despite these contributions, several gaps remain unaddressed. Much of the existing literature focuses on immigrant populations in Europe or Australia rather than the United States, despite the U.S. being one of the most culturally diverse immigrant destinations worldwide. Many studies also concentrate on specific cultural groups, mainly East Asian or European immigrants, leaving other regions underrepresented. Finally, numerous studies rely on single-round behavioral tasks, limiting opportunities to capture learning, adaptation, or dynamic behavioral responses.

The present study aims to address these gaps by implementing a multi-round Ultimatum Game with a diverse immigrant and American-born sample. Participants engage as both proposers and responders, allowing us to measure altruism and fairness across roles, and their detailed migration histories enable analysis of how years spent in the United States and generational distance from immigration influence these behaviors. By integrating methodological strengths from prior experimental studies with a broader and more heterogeneous U.S. sample, this research would contribute new evidence on the assimilation of social preferences in one of the world's most diverse cultural settings.

Building on this literature, our design speaks directly to how assimilation in social preferences can manifest within the structure of the Ultimatum Game. On the proposer side, we interpret higher offers as reflecting stronger altruistic or fairness-oriented motives; on the responder side, willingness to reject "unfair" offers captures a readiness to enforce fairness norms at a personal cost. If immigrants' preferences assimilate toward U.S. norms, we should

observe that (i) immigrant proposers with longer U.S. exposure make offers that are closer to those of native-born Americans, and (ii) immigrant responders adjust their minimum acceptable offers in the direction of host-country fairness thresholds. Moreover, to the extent that cultural transmission operates intergenerationally, second-generation immigrants may already resemble the U.S. reference group, while first-generation immigrants display a clearer gradient with respect to time in the United States.

Our framework therefore generates a set of empirical predictions that link observable behavior in the game to underlying assimilation dynamics. First, conditional on observable characteristics, longer residence in the United States and greater generational distance from immigration should be associated with higher convergence in both giving behavior and rejection thresholds relative to native-born Americans. Second, we expect heterogeneity across subgroups: for example, immigrants from societies with initially more egalitarian norms may start with higher offers and stricter fairness enforcement, leading to different assimilation trajectories than those from more individualistic backgrounds. By explicitly modeling these interactions between time, generation, and origin-country characteristics, our study uses the richness of the multi-round Ultimatum Game to move beyond documenting average differences and toward mapping the process through which social preferences gradually shift in a new cultural environment.

Design

To identify how immigrants and the descendants of immigrants' fairness and altruism preferences change as they spend more time in the U.S., we propose a well-controlled laboratory experiment based on a multi-round Ultimatum Game. The subject pool will consist of ~420 adult participants 18 years-old and over recruited from universities, local community organizations

that serve immigrant populations—such as immigrant health and law clinics—and online lab platforms—such as Prolific. We aim to gather 40 subjects from each of our eight regions, which are defined later, and 100 US-born subjects. In the lab experiment, 20-30 subjects will play 10 rounds of the Ultimatum Game. They will be the proposer for 5 rounds and the receiver for 5 rounds.

To maintain incentive compatibility, participants will receive a dollar payout of the total number of points they won in the game divided by 10. This yields a possible payoff range of $0 - $40. However, we expect the average payoff for participants to be $20:

$$E(\text{Payoff}) = \frac{5(e-x)+5(x)}{10} = \frac{5e}{10} = \frac{e}{2} = \frac{40}{2} = \$20$$

Thus, we expect this experiment to cost $8,400 to run. All decisions will be made via individual computer terminals. Subjects will not receive any identifying information about who they are playing against at any time. Instructions will emphasize anonymity, the random matching protocol, and the binding nature of their choices to minimize concerns regarding social desirability bias and reputational spillovers between rounds. After completing 10 rounds of the Ultimatum Game, participants will fill out a survey gathering their date of birth, country of origin, all countries they've lived in with start dates and end dates (including the U.S.), and how many generations their family has lived in the U.S. We ask for this information after subjects play the Ultimatum Game to avoid priming subjects with demographic cues that could influence their fairness- and altruism-related behavior during the game.

Anticipated Results

From this dataset, we will construct the following independent variables for the i^{th} subject in round r:

Table 1. Variable definitions and predicted signs for $\widehat{y_{i,r}}$ and $\mathbf{Pr}(\mathbf{A}_{i,r} = \mathbf{1})$ equations.	
Variables for the i^{th} subject	**Definition**
$y_{i,r}$	Amount offered by the i^{th} subject in round r
$f(r)\colon [0,10] \mapsto \mathbb{R}$	Function that controls for changes in the amount given as the number of rounds increases. The functional form is to be decided. However, we expect it to be a monotonic function.
$A_i \in \mathbb{R}$	Age of the i^{th} subject
$g(G_i) \in \mathbb{R}$	Number of generations the i^{th} subject's family has been in the U.S. Functional form to be decided, but we expect it to be monotonic.
$R_{1,i} = AFR_i \in \{0,1\}$	1 if the i^{th} subject is from Africa but not North Africa and 0 if else
$R_{2,i} = EU_i \in \{0,1\}$	1 if the i^{th} subject is from Europe and 0 if else
$\underline{R_{3,i} = MENA_i \in \{0,1\}}$	1 if the i^{th} subject is from the Middle East or North Africa and 0 if else
$R_{4,i} = EAS_i \in \{0,1\}$	1 if the i^{th} subject is from East Asia and 0 if else
$R_{5,i} = SA_i \in \{0,1\}$	1 if the i^{th} subject is from South Asia and 0 if else
$R_{6,i} = OCE_i \in \{0,1\}$	1 if the i^{th} subject is from Oceania and 0 if else
$R_{7,i} = LatAm_i \in \{0,1\}$	1 if the i^{th} subject is from Latin America and 0 if else
$R_{8,i} = Canada_i \in \{0,1\}$	1 if the i^{th} subject is from Canada and 0 if else
$h(t_i)\colon \mathbb{R} \mapsto \mathbb{R}$	Function that controls for the number of years the i^{th} subject has spent in the U.S., t_i. Functional form to be decided, but we expect it to be a monotonic function.
$j(a_i)\colon \mathbb{R} \mapsto \mathbb{R}$	Function that controls for the age at which the i^{th} subject immigrated to the U.S., a_i. Functional form to be decided, but we expect it to be a monotonic function.
$\epsilon_i \in \mathbb{R}$	Error term for the i^{th} subject immigrated

Additionally, let $\overrightarrow{R_i} = \left[R_{1,i} \dots R_{8,i}\right]^T$. Note that if $\vec{\mathrm{R}} = \vec{0}$, then the i^{th} subject is from the U.S.

We will use these independent variables to predict the amount the i^{th} subject will offer in round r $\widehat{g_{i,r}}$, using an OLS regression and the probability an offer will be accepted by the i^{th}

subject in round r, $Pr\left(A_{i,r} = \begin{cases} 1 \text{ if accept} \\ 0 \text{ if reject} \end{cases}\right)$, using a probit model. Below are the models we will use to analyze our data:

Predicting offer size:

$$\widehat{y_{i,r}} = \beta_0 + \beta_1 f(r) + \beta_2 A_i + [\gamma_1^T + g(G_i)\gamma_2^T + h(t_i)\gamma_3^T + j(a_i)\gamma_4^T]\overrightarrow{R_i} + \epsilon_i$$

where $\gamma_1, \gamma_2, \gamma_3, \gamma_4 \in \mathbb{R}^8$ and $\beta_0, \beta_1, \beta_2 \in \mathbb{R}$

Predicting if an offer will be accepted or rejected:

$$\Pr(A_{i,r} = 1) = \boldsymbol{\Phi}(\alpha_0 + \alpha_1 y_{i,r} + \alpha_2 f(r) + \alpha_3 A_i + [\gamma_1^T + g(G_i)\gamma_2^T + h(t_i)\gamma_3^T + j(a_i)\gamma_4^T]\overrightarrow{R_i})$$

where $\gamma_1, \gamma_2, \gamma_3, \gamma_4 \in \mathbb{R}^8$ and $\alpha_0, \alpha_1, \alpha_2, \alpha_3 \in \mathbb{R}$

We have several prior predictions regarding the direction of estimated coefficients, which are grouped into the following broad categories:

Round Effects. Consistent with repeated-game Ultimatum Game studies, like Slonim and Roth, we expect the average offer size to decline across rounds ($\beta_1 < 0$), while the acceptance rate for any given offer increases ($\alpha_1 > 0$).

Age. Older subjects may exhibit lower offers and lower acceptance thresholds ($\beta_2, \alpha_3 < 0$) (Bailey et al.).

Offer size. As offer size increases, we expect the acceptance rate of all offers to increase. As observed by Oosterbeek et al., this effect seems to replicate across all cultures, so we expect this to have a positive sign.

Region of origin. Cross-cultural evidence (Oosterbeek et al.; Roth et al.; Ahir; Henrich) suggests that non-Western regions give less than Western regions and reject more. Thus, expect the signs of rows in γ_1 to be negative or near zero.

Assimilation effects. We reject that the more generations a subject's family has been in the U.S. for and the more time a subject has spent in the U.S., the more their altruism and fairness behaviors mirror those of the average subject from the US. As a result, we expect the coefficients of γ_2, γ_3, and γ_4o have the opposite sign as γ_1.

Discussion

Our study seeks to answer whether immigrant behaviors related to altruism and fairness converge or fail to converge toward U.S. norms as their time in the country and generational distance from immigration increase. However, there are several potential limitations in experimental design.

One key limitations to this experimental design is the sample composition. Our experiment focuses on individuals recruited from three sources: university students, individuals from immigrant community organizations, and individuals who choose to participate in the study from platforms such as Prolific. While this subject pool may seem comprehensive, it may skew towards the extremely assimilated and the extremely unassimilated in the U.S. migrant community. University students and Prolific participants tend to have western educations. This may skew our data towards behaviors of the extremely assimilated, as they tend to have more westernized beliefs regarding altruism and fairness (Cameron et al.). Conversely, subjects recruited from community immigration services may skew our data towards the less assimilated, as these people go to immigrant services, because they do not speak English (Derose et al.). This

leaves us with the troubling problem that the experimental design may actually miss the true mean of altruism- and fairness-related behaviors in the U.S. migrant community. The experiment may also fail to distinguish US citizens' beliefs from those of immigrants whose countries of origins have similar beliefs to the US, which is another limitation.

Additionally, the experiment assumes cultural homogeneity within each region. Broad regional dummy variables like$AFR, EU, MENA, EAS, SA, OCE, LatAm,$ and $Canada$may function to hide large within-region variation in altruistic behavior. As a result, it would be difficult to determine whether the differences observed would reflect cross-national fairness and altruistic differences or variation in cultural norms. This also means that we may need larger sample sizes for subjects from different regions to account for the wider variation of cultures in certain areas. Placing all of Africa in AFR may result in a group with significantly larger variations in fairness- and altruism-related behaviors than another dummy variable such as $LatAm$, which represents a more culturally homogeneous region with fewer cultural variation.

The experiment also can suffer from information loss, as it cannot demonstrate how a participant may respond to an entirely new payout. For instance, if a participant is only offered $20, there is no telling how they would respond to smaller or larger offers. This may limit the experiment's ability to encompass more altruistic cultures that might accept significantly lower payouts if given the opportunity. Lastly, another key limitation to this experiment is that it is a single-game measure of behavior. It is likely that fairness- and altruism-related behaviors change in repeated-play settings such as those outside of the lab. Additionally, assimilation into a country may require a much longer timeframe than the experiment can accommodate. The experimental design, despite attempting to control repeated-play situations, may not be able to account for the longer-term repeated behaviors that occur in the real world. It may be that the

results from the Ultimatum Game experiment described in this paper do not describe real-world behaviors, a possibility that would be better mitigated by adapting this experiment to the field instead of the lab.

Several design and analysis choices can partially mitigate these limitations, even if they cannot fully eliminate them. For instance, we can collect rich demographic and socioeconomic covariates and use them to construct post-stratification weights so that observed characteristics of the sample more closely resemble the broader immigrant population. We can also oversample underrepresented regions or subgroups in order to better capture within-region heterogeneity, and then explicitly model region–time interactions in our regressions. Finally, robustness checks that re-estimate our main specifications on narrower, more homogeneous subsamples (e.g., by excluding highly assimilated students or very recent arrivals) would help assess the extent to which our core findings are driven by sample composition rather than genuine assimilation patterns.

More broadly, these constraints suggest that our results should be interpreted as evidence on mechanisms and directional patterns, rather than precise population averages of altruism or fairness. The lab setting, stylized payoffs, and single-game structure provide tight control and clean identification of behavioral responses, but at the cost of external validity to richer, repeated interactions that shape social life outside the lab. For this reason, we view the experiment as a first step that isolates how migration histories correlate with ultimatum behavior under controlled conditions. Future work could embed similar tasks in field settings, link them to real-world outcomes such as remittances or informal risk-sharing, or follow immigrants over time, thereby testing whether the assimilation patterns we document in the lab map onto longer-run changes in everyday economic and social behavior.

Despite these potential limitations, the experiment yields many possible insights. One such insight comes from the fact that participants serve as both givers and receivers; as such, we can directly compare how much they value sharing over their own gain. This lets us directly measure how altruistic participants are, and how their values may adjust over time. Additionally, while the subject pool is not fully comprehensive, it still successfully examines immigrants from varied backgrounds and demographics, lending to its generalizability. Finally, by tracking each participant's migration history, the experiment can isolate the effects each region has on participants and their beliefs.

Conclusion

This study proposes a framework for examining if immigrants' fairness- and altruism-related behaviors gradually converge with those commonly observed in US-born subjects. By using a multi-round Ultimatum Game and detailed migration history, our design aims to capture how social behaviors shift with exposure to a new cultural environment. While prior work shows that preferences, like altruism and trust, differ across regions and can evolve when exposed to a new host country, little of this evidence focuses on the United States or uses repeated strategic interaction to study dynamic behavior changes. Our experiment fills part of this gap by generating role-specific measures of giving and rejection behavior across a more heterogeneous set of immigrant backgrounds.

Simultaneously, our proposed design has potential limitations. Sampling from university students, Prolific workers, and immigrant-serving community organizations risks overrepresenting the most assimilated and least assimilated individuals, potentially missing the broad middle of the immigrant population. Region-level dummies also collapse substantial

cultural variation, making it difficult to pinpoint whether estimated differences reflect true preference gaps or simply measurement aggregation.

Despite these limitations, the project contributes a structured approach for thinking about how to measure assimilation in terms of social behavior and what an empirical test of this process might look like. By explicitly modeling years in the US, generational distance, the age of immigration, and region-of-origin differences, we outline how researchers could measure behavioral convergence and the speed at which it occurs.

Bibliography

Ahir, Kinjal V. “An Empirical Research of the Ultimatum Game in India.” *Global Journal for Research Analysis*, vol. 4, no. 5, May 2015, www.worldwidejournals.com/global-journal-for-research-analysis-GJRA/recent_issues_pdf/2015/May/May_2015_1431951417__139.pdf. Accessed 14 Nov. 2025.

Bailey, Phoebe E., et al. “Age-Related Differences in Social Economic Decision Making: The Ultimatum Game.” *The Journals of Gerontology: Series B*, vol. 68, no. 3, Aug. 2012, pp. 356–63, https://doi.org/10.1093/geronb/gbs073.

Cameron, Lisa, et al. “Cultural Integration: Experimental Evidence of Convergence in Immigrants’ Preferences.” *Journal of Economic Behavior & Organization*, vol. 111, Mar. 2015, pp. 38–58, https://doi.org/10.1016/j.jebo.2014.11.012.

Derose, Kathryn Pitkin, et al. “Immigrants and Health Care: Sources of Vulnerability.” *Health Affairs*, vol. 26, no. 5, Sept. 2007, pp. 1258–68, https://doi.org/10.1377/hlthaff.26.5.1258.

Güth, Werner, et al. “An Experimental Analysis of Ultimatum Bargaining.” *Journal of Economic Behavior & Organization*, vol. 3, no. 4, 1982, pp. 367–88, https://doi.org/10.1016/0167-2681(82)90011-7.

Henrich, Joseph, et al. “‘Economic Man’ in Cross-Cultural Perspective: Behavioral Experiments in 15 Small-Scale Societies.” *Behavioral and Brain Sciences*, vol. 28, no. 06, Dec. 2005, https://doi.org/10.1017/s0140525x05000142.

---. “Does Culture Matter in Economic Behavior? Ultimatum Game Bargaining among the Machiguenga of the Peruvian Amazon.” *American Economic Review*, vol. 90, no. 4, 2019, pp. 973–79, https://doi.org/10.1257/aer.90.4.973.

Oosterbeek, Hessel, et al. “Cultural Differences in Ultimatum Game Experiments: Evidence from a Meta-Analysis.” *Experimental Economics*, vol. 7, no. 2, June 2004, pp. 171–88, https://doi.org/10.1023/b:exec.0000026978.14316.74. Accessed 14 Nov. 2025.

“Race and Ethnicity in the United States: 2010 Census and 2020 Census.” *Census.gov*, United States Census Bureau, 12 Aug. 2021, www.census.gov/library/visualizations/interactive/race-and-ethnicity-in-the-united-state-2010-and-2020-census.html. Accessed 6 Dec. 2025.

Roth, Alvin E., et al. “Bargaining and Market Behavior in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: An Experimental Study.” *The American Economic Review*, vol. 81, no. 5, American Economic Association, Dec. 1991, pp. 1068–95, www.jstor.org/stable/2006907. JSTOR.

Slonim, Robert, and Alvin E. Roth. “Learning in High Stakes Ultimatum Games: An Experiment in the Slovak Republic.” *Econometrica*, vol. 66, no. 3, May 1998, p. 569, https://doi.org/10.2307/2998575.