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Wealth Inequality: Opportunity or Unfairness?*

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Abstract

This paper presents evidence of a new propagation mechanism for wealth inequality, based on differential responses, by education, to greater inequality at the start of economic life. It is motivated by a novel positive cross-country relationship between wealth inequality and perceptions of opportunity and fairness, which holds only for the more educated. Using unique administrative micro data and a quasi-field experiment of exogenous allocation of households, the paper finds that exposure to a greater top 10% wealth share at the start of economic life in the country leads only the more educated placed in locations with above-median wealth mobility to attain higher wealth levels and position in the cohort-specific wealth distribution later on. Underlying this effect is greater participation in risky financial and real assets and in self-employment, with no evidence for a labor income, unemployment risk, or human capital investment channel. This differential response is robust to controlling for initial exposure to fixed or other time-varying local features, including income inequality, and consistent with self-fulfilling responses of the more educated to perceived opportunities, without evidence of imitation or learning from those at the top.

JEL classification: G5, E21, E44, D31, D1.

Keywords: Household finance, wealth inequality, propagation of inequality, education, opportunity, refugees.

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1 Introduction

Exposure to wealth inequality and to its considerable skewness in favor of the wealthier population segment provides a signal to individuals who are about to launch their economic life regarding the outcome but leaves interpretation of this signal open. Some participants may interpret an unequal and heavily skewed wealth distribution as an opportunity to reach considerable wealth levels, while others may view it as indicating an unfair process where the cards are stacked in favor of a few "take-all" winners. The motivational implications of these interpretations can be very different: a perception of opportunity may motivate actions to reach high positions in the wealth distribution, while a perception of unfairness may lead to inactivity or actions to limit exposure to risks. Such differential responses may in turn boost the chances of the former to reach the upper part of the wealth distribution, leaving the latter group behind. The resulting placement can validate and reinforce perceptions of fairness or unfairness and also exacerbate the divergence in wealth outcomes over a long horizon.

Important recent work on wealth inequality has shown that those who are wealthier tend to earn persistently higher rates of return on wealth, both expected (Bach, Calvet, and Sodini, 2020) and actual, even across generations (Fagereng, Guiso, Malacrino, and Pistaferri, 2020). The finding that those who are ahead in terms of wealth tend to run faster than those behind suggests one channel through which wealth inequality tends to propagate itself. Our paper asks if there is an additional mechanism that propagates wealth inequality and social polarization. Specifically, our paper provides evidence that exogenous exposure to greater local wealth inequality at the launch of economic life in the country, even under similar initial resources of the exposed, motivates college-educated people into taking greater risks and achieving higher wealth levels and positions 10-20 years later, while failing to trigger analogous actions by the less educated. Such divergence in reactions to inequality exposure under similar initial conditions can provide an additional propagating mechanism, leading to further widening of wealth disparities, validation of divergent interpretations of inequality as opportunity or unfairness, and ultimately to social polarization. Our paper tests for the presence of such a propagation mechanism and studies its sources and implications.

The starting point of our analysis is the discovery of a novel pattern of cross-country correlations between wealth inequality and perceptions of opportunity or unfairness, that differs between those with at least some college education and the rest, and that is not observed for income inequality. Using two data sources (OECD and Eurobarometer), we observe that, in countries where a greater share of household wealth is held by the top 10% of the wealth distribution, a greater share of people tend to respond that they perceive equal opportunity for all and that, by and large, people get what they deserve. When we split the sample by educational attainment, however, we find that this positive correlation between inequality and perceptions of equal opportunity and of fairness is present only for those with at least some college education, and not for their less educated compatriots.

Understanding the nature of this relation and its implications presents a number of challenges. First, there may be unobserved factors about the institutions and structure of some countries that happen to generate greater wealth inequality and at the same time make the more educated people happier about opportunities and fairness, without inequality itself influencing perceptions directly. Second, the observed pattern of correlations between wealth inequality and perceptions may be the result of differential ability of the two education groups to sort into desirable locations. The better educated may have been more successful in sorting into the geographies (environments, institutions, markets) that generate higher inequality and greater opportunities for them, while little such sorting has been possible for the less educated. Third, the educated may have had significant influence on creating the institutional and policy structures that give rise to greater wealth inequality and opportunities for them, and are thus more likely to defend them on the basis of fairness than the less educated, especially when they are seen to generate greater wealth inequality. Or, in highly unequal societies, the wealthy have dramatically greater opportunities to become educated and thus to regard the system as fair and open. Further, and perhaps most importantly, it is possible that there is a dynamic element linking wealth inequality, wealth outcomes, perceptions of mobility, and perceptions of fairness. Perceptions of mobility can inspire actions, resulting in wealth outcomes that validate or revise these perceptions, and also create perceptions regarding fairness. In turn, these can inspire further action or inaction and outcomes and perceptions, pushing the more educated to the top and leaving the less educated behind.

Motivated by this novel pattern of correlations we uncovered and the challenges in interpretation, the paper asks whether and how exposure to local wealth inequality, at the launch of one's economic life in the country and under similar initial resources, tends to influence economic and financial behavior and outcomes, including the position in the wealth distribution, in the medium to longer term. It then investigates whether the answer systematically differs between college-educated individuals and the rest.

In order to address the conceptual and econometric challenges posed by such a question, the paper considers a unique, quasi-random field "experiment" of exogenous placement of refugees to different geographical areas upon arrival, focusing on those refugees who had no resources and thus no choice but to accept the apartment assigned to them in the first instance. We study systematic effects of exogenous exposure to different wealth inequality levels in the assigned municipality upon refugee arrival on economic and financial behavior and outcomes ten to twenty years later. We are able to control for aggregate conditions at the time of arrival and at the time behavior is observed, fixed common environmental factors in the municipality of arrival, a set of time-varying features of the initial municipality, its degree of wealth mobility, as well as cultural origins and household characteristics of the refugees. We study the refugees' medium to longer term responses to an environment created by others (the host country and initial municipality) and to which they had to adjust.

We find that initial exposure to a greater top 10% share leads to greater wealth levels and cohort-specific wealth percentiles for the college-educated refugees, while failing to trigger similar effects for the less educated. Digging deeper, we find significant positive effects in the municipalities exhibiting above-median wealth mobility, while effects on the less educated are largely absent, regardless of the degree of mobility. We define as "high-wealth-mobility" municipalities those that, around the time of initial entry, exhibited below-median probability of the richest to stay at the top of the wealth distribution.[1] A positive effect of initial exposure to wealth inequality is found on participation in risky financial and real assets and on occupational choice into self-employment, but not on household income, unemployment risk later in life, or investment in human capital. The effect of exposure to wealth inequality is robust to controlling for mean income, mean wealth, and income inequality in the municipality of placement at the time of arrival; and for the share of educated people among the wealthiest 10% in the municipality, as a proxy for

[1] Specifically, we split municipalities according to the share of households who were in the top 10% of the municipality's wealth distribution right before the allocation of refugees started in 1986, and who were also in the top 10% of the wealth distribution after the allocation of refugees was completed in 1992.

role model effects. Our findings do not support a mechanism of imitation or learning from those at the top of the wealth distribution. They are consistent with more educated refugees being more likely to respond successfully to perceived wealth inequality and mobility opportunities through investment in risky real and financial assets, and to make choices that confirm these perceptions and propagate inequality.

This interpretation of successful response is consistent with, and further amplifies recent literature on the greater ability of the educated to generate high returns, on the greater pessimism of the less educated regarding stock, housing, and self-employment returns, as well as on their likely greater difficulties of perceiving wealth inequality and the degree of wealth mobility. A close positive correlation between educational attainment and returns on net wealth and on each of its main sub-components is found by Girshina (2019) in Swedish data and by Fagereng, Guiso, Holm, and Pistaferri (2020) using data from Norway, while Barth, Papageorge, and Thom (2020) find a positive relation between educational attainment and retirement wealth among US households. Kuhnen and Miu (2017) and Das, Kuhnen, and Nagel (2019) use experimental data and survey data from nearly forty years of the Michigan Survey of Consumers, respectively, and find that individuals with lower socioeconomic status (SES), in terms of education level and income rank within year-age groups, tend to have significantly lower subjective return expectations. They argue that these account for a large part of the total effect of the SES variables on the decisions to participate in stocks and in homeownership, with estimates of up to 47% and 25%, respectively. Finally, recent research in perception, cognition, and developmental and social psychology focusing on inequality in people's minds stresses the importance of interpersonal comparisons, media attention, and physical attributes of the built environment as informational cues on local economic inequality that people receive from their environment (Phillips et al., 2020; Suss, 2021). Such cues are likely to be more abundant and better processed by the more educated.

We view our findings as consistent with a multi-pronged approach to addressing the propagation mechanism we uncover, aimed at improving perception of opportunities among the less educated, financial knowledge and ability to handle existing risky investment products, as well as design of securities that help overcome biases, as illustrated in Calvet, Celerier, Sodini, and Vallee (2021). Whether an extension of mandatory education could be added to this arsenal depends on the outcome of the ongoing debate on an exogenous role of education on returns.[2]

Our work relates to several strands of literature. One link is to the recent literature on the importance of asset returns for wealth inequality. Benhabib, Bisin, and Zhu (2011) showed that idiosyncratic rates of return govern the right tail of the wealth distribution, rather than income risk. Gabaix, Lasry, Lions, and Moll (2016) showed that persistently high returns can generate distributions with a fat right tail. The link between higher wealth level and higher returns was documented empirically by Bach et al. (2020), Fagereng et al. (2020), and Benhabib, Bisin, and Luo (2019) using Swedish, Norwegian, and US data, respectively. The importance of a link between investment in financial education and expected returns for wealth inequality was modeled by Lusardi, Mitchell, and Michaud (2017).

Our findings on differential financial response of the more educated to wealth inequality in areas with high wealth mobility parallel and extend to wealth inequality features of models of motivated beliefs (Bénabou and Tirole, 2006), originally built for work behavior and income inequality: some individuals perceive successes of others as signs of a fair world, use those as motivating drivers for their own efforts, and interpret their own successes as ratifying their beliefs. There is strong recent evidence in support of the relevance of the own position for assessing income distributions. Fisman, Kuziemko, and Vannutelli (2020) conduct an experimental study and find that subjects express preferences for income distributions by paying particular attention to incomes at the top of the distribution and to those adjacent to theirs. Hvidberg, Kreiner, and Stantcheva (2020) find a positive relation between an individual's current income position and the tendency to view income inequality within the reference groups as fair, along with evidence pointing to a causal link.

Our paper also relates to a separate and multifaceted strand of literature highlighting the importance of exposure to surrounding conditions for subsequent behavior. Malmendier and Nagel (2011) demonstrate the link between stock return experiences and subsequent stock market participation, Malmendier, Tate, and Yan (2011) and Bernile, Bhagwat, and Rau (2017) show that early-life experiences of CEOs influence their corporate financial policies and risk taking, respectively. Giuliano and Spilimbergo (2013) show that individuals who experienced a recession when

[2] There is debate as to whether educational attainment has an exogenous effect on returns (Girshina, 2019) or it is jointly determined with returns by innate ability (Fagereng et al., 2020), consistent with recent evidence on the importance of genetic markers (Barth et al., 2020).

they were young tend to believe that success in life depends more on luck than effort, and they are more likely to favor redistribution and to vote for left-wing parties. Kuhnen and Miu (2017) and Das et al. (2019) focus instead on the exposure to current macroeconomic conditions and to their variations over the business cycle.

The inequality propagation mechanism presented in this paper is established controlling for income inequality. Recent literature has considered the role of exposure to *income* inequality, and its consequences for consumption and borrowing behavior. Georgarakos, Haliassos, and Pasini (2014) find that self-reported perception of lower income than the average among peers makes people more likely to borrow and to worsen their financial indicators. Bertrand and Morse (2016) show that exposure to higher income levels at the 90th or 80th percentile of the local income distribution leads to higher consumption among the non-rich and higher bankruptcy rates. Roth (2021) shows that insolvency is positively related to the level of top incomes in different reference groups (municipality, workplace, age group, immediate neighborhood). Agarwal, Mikhed, and Scholnick (2019) consider exposure to lottery wins in the same zip code and find higher subsequent borrowing and bankruptcies, while Kuhn, Kooreman, Soetevent, and Kapteyn (2011) document higher consumption among neighbors of zip code lottery winners.

More broadly, the paper links to the fast growing literature on peer effects on financial behavior, recently surveyed in Gomes, Haliassos, and Ramadorai (2021) and in Kuchler and Stroebel (2021). The quasi-random experiment of refugee allocation has been fruitfully used in other papers for very different purposes.[3]

Section 2 presents the cross-country correlations between wealth inequality and perceptions of opportunity or fairness. Section 3 describes relevant features of the refugee allocation program and of the data, and Section 4 sets up the estimation model. Section 5 presents the estimated effects of exposure to wealth inequality and how they depend on wealth mobility opportunities, while Section 6 explores the mechanism through which exposure to wealth inequality operates. Section 7 concludes.

[3] Edin, Fredriksson, and Åslund (2003) study the consequences of living in enclaves for labor market outcomes. Åslund and Fredriksson (2009) study peer effects in welfare use among refugees, Åslund, Edin, Fredriksson, and Grönqvist (2011) focus on the extent to which immigrant school performance is affected by the characteristics of neighborhoods in which they grew up, while Haliassos, Jansson, and Karabulut (2020) study financial literacy externalities from neighbors with business or economics education.

2 Wealth Inequality and Perceptions of Opportunity and Fairness

We begin our analysis by establishing a novel relation between wealth inequality, measured by the share of total household wealth held by those in the top 10% of the wealth distribution, and perceptions of opportunities or unfairness in the population.[4] Figure I plots the wealth share of the top 10% in each European Union country against the proportion of the corresponding population that agrees with the statement:

"I have equal opportunities for getting ahead in life, like everyone else."

We see evidence of a positive association, with people in more unequal countries being more likely to agree with the presence of equal opportunities for getting ahead in life (see also Table O.A.1).[5] Figure II presents the observed association separately for the two subsamples of respondents in each country, namely those who have had at least some years of college education and those without any college education. Looking at the cross-country relation, we see that the association between greater wealth inequality and more widespread perception of equal opportunities comes entirely from the more educated subsample. It actually has a statistically insignificant slope when looking at the less educated part of the population across countries.[6]

How is wealth inequality related to perception of fairness of outcomes? Figures III and IV plot the top 10% share of household wealth against the percentage of the total population and of each of the two educational subsamples, respectively, who agree with the statement:

"I believe that, by and large, people get what they deserve."

As we compare countries with lower and higher shares of total household wealth accruing to the top 10% of the wealth distribution, we find that for the overall population, the observed association is positive, but when we split the samples into those with at least some college education and

[4]The data on wealth inequality are from the OECD wealth distribution database, which reports the most recent available data (for most countries, this refers to 2014-15). The data on perceptions are derived from the Eurobarometer Survey fielded in December 2017 (Eurobarometer, 2018).

[5]Even though Sweden is characterized by relatively lower income inequality, the distribution of wealth across the population is highly skewed. As shown in Table O.A.1, the top 10 share of aggregate net personal wealth in Sweden accounts for 67% and is one of the largest in Europe. To put this in context, it is of the same order of magnitude as the top 10 share in the US.

[6]Differences by education group persist to a large extent even if we consider a measure of wealth inequality more sensitive to inequality at the middle of the wealth distribution, namely the Gini coefficient. Figures O.A.1 and O.A.2 exhibit, respectively, a positive association between the Gini coefficient on household wealth and the share of the overall population that perceives equality of opportunity for getting ahead in life, a greater positive slope for the more educated subsample, and a much less tight and only marginally positive association for those without any college education.

those without any, we find that the positive association holds for the more educated group, while their less educated compatriots exhibit a statistically insignificant association, actually estimated to be negative.

All in all, those who live in countries with greater shares of household wealth accruing to the top of the distribution and have at least some college education are also more likely to perceive equality of opportunities and fairness of outcomes, while those who live in the same countries but have no college education do not exhibit a similar tendency.[7]

Interestingly, we do not find a similar pattern of relations between income inequality and perceptions of opportunities and of fairness. Figure V shows that greater income inequality, measured by the Palma ratio,[8] bears no statistically significant relation to the share of people in different countries who perceive equal opportunities for getting ahead in life as being open to all. This is also true when we split the sample by educational attainment (Figure VI). The lack of a significant relation with income inequality carries over to perceptions of fairness. Figures VII and VIII show that, across countries, income inequality is not significantly related to the population share of those who agree that people get what they deserve, even when we distinguish between those who have received at least some college education and those who did not.[9] This suggests that the novel observed relation between wealth inequality and perceptions of opportunity or fairness is worthy of investigation in its own right and not a mere derivative of how people perceive income inequality.

In trying to uncover the sources and nature of the relation between the top 10% wealth share and perceptions of opportunity and fairness, it would be interesting to look at wealth outcomes for the different education groups, as perceptions may be related to those. Data on the evolution of wealth shares by education over a longer horizon and across countries are not readily available, to the best of our knowledge. Such tracking is possible with the US Survey of Consumer Finances and Financial Accounts, and Figure O.A.9 shows that, between 1990 and 2020, the share of household wealth held by households whose financial respondent had at least a college degree

[7]As the Online Appendix shows, these findings are robust to considering an alternative measure of wealth inequality, namely the Gini coefficient for wealth (see Figs. O.A.1, O.A.2, O.A.3, O.A.4).

[8]The Palma ratio is defined as the share of household income accruing to the top 10% of the income distribution, normalized by the share of income accruing to the bottom 40% of the income distribution.

[9]This finding is robust to considering the Gini coefficient for income as the measure of income inequality (see Figs. O.A.5, O.A.6, O.A.7, and O.A.8).

grew at the expense of every other education category, but especially of those without any college education.

Disentangling the relation between wealth inequality and perceptions of opportunity and fairness introduces various challenges for the empirical implementation. First, there may be unobserved heterogeneity, in the sense of unobserved institutional and environmental factors generating both greater wealth inequality in some localities and responses in outcomes and perceptions among the more educated, without inequality itself influencing perceptions directly. Second, the observed pattern of correlations may be partly the result of sorting. Third, the educated may have had greater involvement and responsibility in creating the institutional and policy structures that gave rise to greater wealth inequality, and are thus more capable to use them and likely to defend them as fair, especially if they generate greater inequality. Fourth, the educational composition of a country's population may itself be a result of the degree of wealth inequality observed in the country. Our analysis exploits the exogenous allocation of destitute refugees to areas whose local inequality they could not have anticipated and prepared for, at a time that was - by definition - the launch of their career in their new country. It explores the influence of allocation to an area with greater top 10% wealth share on behavior and outcomes over the medium to longer run, with implications for the dynamic element in the relation.

3 The Natural Experiment and the Data

3.1 Important Features of the Refugee Allocation Program

We exploit a unique natural experiment: a Swedish policy of exogenously allocating refugees to apartments shortly after they obtained the residence permit, in response to congestion arising from self allocation of refugees in major cities in the past.[10] The experiment was implemented between 1985 and 1994, but most strictly between 1987 and 1991, the period of entry on which we are focusing. Participation of Sweden's municipalities in the program was extensive, with 277 out of 284 municipalities participating. The Swedish Immigration Board was authorized to allocate refugees who moved to Sweden for reasons other than family reunification to apartments, as these were becoming available. Using STATIV data, described in section 3.2, we are able to identify precisely

[10]For further details about this policy experiment, used in another context, see Edin et al. (2003) pp. 333-335.

the refugees, among migrants to Sweden in the relevant period, who were not being reunited with family members, had limited resources, and therefore little choice but to reside in the apartment allocated by the municipal officers. We are also able to observe any subsequent movements of these refugees to other areas for a period of about 20 years after the initial placement.

Our causal analysis relies on the assumption that, given the observed characteristics of the refugees, the wealth inequality to which they were exposed at the municipality of initial placement is independent of unobserved refugee characteristics that influence the probability of taking specific actions or experiencing specific individual outcomes ten to twenty years later in life.

The way in which the placement program assigned refugees to particular apartments is important for the validity of this identification assumption. Did the Board have information additional to what we observe in the data when allocating refugees to apartments? Importantly, no personal interviews were conducted, and our data include all refugee information available to the Immigration Board when deciding the initial allocation of refugees. According to the process narratives, the Board mainly based its decision on the random arrival of available apartments, but may have also taken into consideration the language spoken by the refugees, their marital status in view of the limited availability of smaller apartments, and their education level (Åslund and Fredriksson, 2009; Åslund et al., 2011). All three factors are included in our data. Specifically, we control for the country of origin and year of arrival of the refugee, the refugee's education level, marital status, household size, and number of children, in addition to other observable characteristics relevant for financial behavior. The Board also asked refugees to declare their location preferences, and these were not recorded in the data. However, as other studies based on this data have noted, personal preferences of refugees are unlikely to have played an important role in the allocation decision for at least three reasons. First, the program was implemented specifically because the unrestricted free choice of refugees resulted in extreme congestion in major metropolitan cities. Second, the initial refugee allocation generated by the Immigration Board was different from the previous migrant concentration. Finally, about 60 percent of refugees had moved from the place of their initial placement by the year 2000. This move occurred despite the fact that their immediate relocation was essentially precluded by their limited means and short-term benefits, such as language classes; and that they ended up spending 8.7 years in their initial municipality.

As a further check of possible sorting, we regress our key measure of wealth inequality (the share of the top 10 percent in total household wealth at the time of refugee arrival) in the initial municipality on characteristics of the refugees observable to municipal officers. As seen in Table O.A.2, we include gender, marital status, household size, having children, educational attainment, and age group controls, as well as municipality, country of origin, and arrival year fixed effects. The measure of exposure to wealth inequality at the time of arrival is independent of initial refugee household characteristics observable to municipal officers, including those they might have reportedly taken into account.

Since we find considerable differences when we split our sample by educational attainment, into those with at least some college education and the rest, we also check the distributions of our measure of wealth inequality for the two refugee subsamples. As Table I shows, the two educational groups faced very similar distributions of our measure of wealth inequality.

Finally, as we describe in detail in section 4, we also include in our model controls for specific time-varying conditions in the municipality of initial placement, as well as for time-invariant factors through fixed effects, and we estimate the effect of initial exposure to wealth inequality net of those conditions.

3.2 Household Panel

We employ two datasets from Statistics Sweden, LINDA and STATIV. The period of interest spans the main years of operation of the immigration allocation program, 1987-1991, to the last year in the period 1999-2007 in which Sweden imposed the wealth tax and was collecting detailed financial data to compute taxable net wealth. This combination of two datasets allows us not only to observe a significant number of refugee households but also to identify those who had little possibility or prospect to not accept the offer of an apartment made by the immigration authorities, at least in the first instance. The advantage of using administrative data collected for the purpose of taxing net wealth is the high quality of reporting, both of the amounts of taxable assets and of debt that could be set off against assets in order to reduce the wealth tax liability. The data are not reported by households themselves, but by the relevant Swedish institutions.

LINDA provides data on an annual sample of 300,000 households (about 3% of the Swedish population), which may include immigrants, and an additional sample of 200,000 immigrant individuals, representing about 20% of all immigrants. Importantly, the data include detailed demographic and financial characteristics, but also precise locational information over the entire period, tracking any relocations. The extensive financial data come from the data collected for purposes of wealth taxation and refer to the period 1999-2007 only. Given that we look at refugees with very limited means at the time of arrival, focusing on their medium to longer run financial profile and outcomes is relevant.

STATIV provides extensive data on immigrants, collected from a variety of Swedish registers. Particularly relevant for us are data on reasons for immigration, allowing us to distinguish between refugee and labor immigrants. Even within refugee immigrants, we are able to focus on refugees who were admitted for humanitarian reasons and with insufficient resources, and thus had little choice as to whether to accept the apartment offered to them by the immigration authorities, coupled with opportunities for integrating in Sweden (e.g., through language classes). Specifically, we are able to exclude refugees who have come to Sweden for reasons related to work, family ties, studies, other reasons, as well as those with sufficient living supplies. We also exclude those refugee households who first appear in LINDA with an adult member previously residing in Sweden or holding Swedish citizenship. As an extra step, we only consider immigrant households that first appear in LINDA in the year of immigration or in the immediately following year.

We also make sure that, for households included in the final sample, we can observe both the initial location and the full set of locations in the 1999-2007 period, as well as the year of arrival and the country of origin.

After taking all these steps to avoid misclassifying immigrants, we end up with a final sample of about 5,105 refugee immigrants per observation year (i.e., in the period 1999-2007). As shown in Table O.A.3, more than half of our refugee sample entered Sweden in 1988 or 1989, and relatively few entered in 1991, with all remaining refugees in the sample arriving in 1987 or 1990. Iran was the country of origin for the largest group of refugees (about 28% of the sample), but other relatively large groups came from Chile (about 12%), Iraq and Lebanon (about 9% each).

4 The Estimation Model

We study the effect of exposure to wealth inequality, $WINEQ_{m0}$, as reflected in the share of household wealth owned by the top 10% of the wealth distribution in the municipality of initial placement, m, at the time of the refugee's arrival, $0 \in [1987, 1988, 1989, 1990, 1991]$,[11] on various outcomes observed about ten to twenty years later, at time $t \in [1999, 2000, ..., 2007]$. These outcomes are, in turn, the level of net wealth, the ratio of financial wealth to labor income, the rank in the cohort-specific net wealth distribution,[12] the level of household labor income, and the probability of being unemployed in this later period. We also study the effect of exposure to wealth inequality at the launch of the refugee's economic life in Sweden on participation in various types of assets and debt in the 1999-2007 period. The behavior considered is relevant for generating net wealth and refers to stockholding, owning a business or practice (as indicated by self employment), homeownership, and the ratio of household debt to labor income. Each of these variables appear, in turn, as the dependent variable, Y_{ikm0t}, in our regressions, where i denotes the household, and k the country of origin of the household head:

$$Y_{ikm0t} = \alpha_1 \cdot X_{ikm0t} + \alpha_2 \cdot X_{m0} + \beta \cdot WINEQ_{m0} + \gamma_m + \gamma_k + \gamma_0 + \gamma_t + \epsilon_{ikm0t} \tag{1}$$

In estimating the impact of this early exposure to wealth inequality, β, we control for various observed characteristics of the household, X_{ikm0t}. These include the age category and gender of the household head, the occupational status (distinguishing between those who are employed, unemployed, retired, or students), the marital status, as well as the household size and adult-children composition.

We introduce a municipality fixed effect, γ_m, to account for time-invariant institutional and other environmental features of the municipality where the refugee was initially placed, that may have been relevant for household choices and later outcomes (correlated effects).[13] We are iden-

[11] We compute this top 10% wealth share from the full LINDA sample, by municipality and year of arrival. As this is taxable net wealth, it is bounded below by zero.

[12] The wealth rank is the percentile in which the refugee household finds itself in the net wealth distribution among all sampled households in LINDA with the same birth cohort year, regardless of the origin of the household head. Thus, it compares the refugee household to all households in Sweden whose household head had the same age in the year of observation.

[13] Sweden had 284 municipalities at the time of implementation of the program, of which 277 participated in the refugee allocation process. Subsequent antagonism within some municipalities resulted in the somewhat larger number

tifying the effect of exposure to wealth inequality from time variation of the wealth inequality measure over the range of years of initial settlement, 1987 to 1991. Figures O.A.10 to O.A.14 give a visual impression of this time variation, when viewed in sequence. In robustness exercises, we also introduce controls for other time-varying features of the initial municipality, X_{m0}, with $0 \in [1987, ..., 1991]$, namely average wealth, average household income, and income inequality, so as to avoid that our wealth inequality measure simply reflects such other potentially relevant factors that were also changing over the refugee arrival period.

In order to control for macroeconomic and other time varying aggregate factors, we include further time effects: for the arrival year of the refugee, γ_0, and for the observation year of the endogenous variable, γ_t. Finally, we introduce a fixed effect for the country of origin, γ_k, to capture language and other cultural considerations that may systematically influence refugee outcomes and economic choices, as well as social and professional interactions.

We present OLS regression coefficients when the endogenous variable is continuous, and coefficients from linear probability models when we study participation or unemployment probabilities. As placement in the initial municipality was exogenous to the refugee and implemented by the immigration authorities, we do not need to instrument initial wealth inequality to isolate the causal effect of interest. For skewed continuous variables, such as wealth and income, that may also include zeros, we adopt the inverse hyperbolic sine (IHS) transformation, which admits an elasticity interpretation for coefficients. We correct standard errors through clustering at the initial municipality level. Our estimation allows wealth inequality in the initial municipality to influence subsequent outcomes and economic behavior through various channels other than those for which we explicitly control.

5 Effects of Exposure to Wealth Inequality

5.1 Effects on Household Economic Outcomes

In this section, we present our findings regarding the effect of initial exposure to local wealth inequality. We include municipality fixed effects to capture relevant features of the environment, and we identify the effects on various wealth and labor market outcomes observed about 10 to 20

of 290 observed today.

years later (1999-2007) out of the variation in top 10% shares across the five arrival years (1987-91). This time variation for each municipality is depicted graphically in Figures O.A.10-O.A.14 by means of successive geographical heat maps of Sweden.[14] We also include fixed effects for the refugee arrival year, outcome observation year, as well as country of origin. In our estimations, we consider separate regressions on each of the two education subsamples.

Interestingly, when we divide the population into the two subsamples by the level of education, we find a strongly statistically significant effect on the wealth level and percentile of those households who had at least a college education, but no statistically significant effect in the less educated subsample (Table II). In terms of economic magnitude, a one standard deviation increase in the initial wealth inequality to which a better-educated household was exposed upon settlement increases her rank in the birth cohort wealth distribution by 7 percentiles 10 to 20 years later, on average.[15]

Do educated households respond more to particularly high levels of wealth concentration in the top 10% of the wealth distribution? In our data, the wealth concentration observed in different municipalities ranges from 31% to 76%. In Table O.A.4, we have replaced the continuous measure of the top 10% wealth share with (three) quartiles of the size of this share. We find that initial exposure to wealth inequality registers significantly higher effects on the subsequent wealth level of refugees and on their position in the cohort-based wealth distribution when the top 10% share takes values in the third or fourth quartiles, i.e., when it falls in the range between 54% and 76% in our data.

One may suspect that initial exposure to wealth inequality may influence labor market choices in an effort to boost labor income and to reduce unemployment risk, eventually allowing the more educated to build up higher levels of wealth and attain a higher percentile in the wealth distribution. However, our findings in Table III suggest that exposure to greater wealth inequality does not systematically result in higher labor income or lower probability of unemployment in

[14]Our data are consistent with aggregate data for the same period from Statistics Sweden ("Wealth distribution in Sweden 1997 looking back to 1975", ISSN 1400 - 3147). In these data, the top 10% wealth share in Sweden is reported at 56.7% in 1988 and 58.7% in 1990, with an average of 57.7% between 1988-92. In our data, the average wealth share of the top 10% is 55.1% with a standard deviation of of 8.4%.

[15]To compute the estimated effect of a one standard deviation change in the initial wealth inequality to which the refugee was exposed upon settlement, we need to multiply the coefficient estimate by 0.084, which represents a standard deviation of 8.4 percentage points. When the outcome variable is expressed in IHS, this represents a semi-elasticity.

the medium to longer term, even for the more educated population group. Indeed, we also find a significant positive effect of initial exposure to wealth inequality on the wealth-to-income ratio for the more educated group but not for those without any college education (columns (5)-(6) of Table II).

5.2 Effects on Household Choices

If exposure to wealth inequality at the launch of their career does not influence households' potential for wealth accumulation through higher labor income or improved prospects of reducing the risk of unemployment, it can still influence the path of cash on hand through its influence on portfolio composition. Specifically, a household perceiving greater wealth inequality may be induced to undertake grater private risk through entrepreneurship, or self employment more generally. Indeed, Roussanov (2010) showed that investing in a private business would be an optimal response to status concerns, in an objective not just to keep up or catch up with the Joneses, but actually to "beat" them. Such a motive encourages one to engage in private risk, so as to get rich alone, if things do work out. This need not only apply to entrepreneurs but also to self-employed professionals, such as lawyers or medical doctors, who attempt to make it on their own. In our data, we observe self employment, as opposed to a breakdown between these two categories. Panel A of Table IV reports estimates of the effect of exposure to wealth inequality on the likelihood to be self employed for the education split, both with and without a control for the household's position in the wealth distribution at the observation time. Regardless of whether we control for current wealth quartile, we find a significant effect of initial exposure to wealth inequality on the probability of becoming self employed for those with at least some college education, while it is insignificant for households without any college education.

While trying to get richer than their peers can push people towards private risk, stockholding opportunities are more widely accessible, do not require sizable investments, and open up greater possibilities for risk diversification. Indeed, household-level survey data for the US show that stocks and mutual funds comprise a much bigger part of the portfolios of college graduates than of any other education category (see Fig. O.A.15). Panel B of Table IV presents estimates of the effect of initial exposure to wealth inequality on the probability of exposed households to hold stocks in their portfolio later in life. Our estimates suggest that only those who had at least some college education and were exposed to greater wealth inequality in the municipality of their initial placement were systematically more likely to be holding stocks in the medium to longer run.

A home is an asset and an important component of wealth for most homeowners, but it can also be a source of status, in addition to the housing services it provides to the owners. Panel C of Table IV reports estimates of the role that exposure to wealth inequality in the municipality of initial placement plays in homeownership observed in the medium to longer run. These estimates control for marital and occupational status, age, and household size, in addition to the full set of fixed effects. Estimates in columns (3) and (4) also control for one's position in the wealth distribution and for level of income. When we split the sample, we again find a strongly statistically significant effect of initial exposure on the probability of subsequent homeownership among those with at least some college education. By contrast, we find no systematic effect on the incidence of homeownership among those who were exposed to greater wealth inequality but did not have any college education.

For given level of assets, net wealth can also be boosted by keeping debt levels low. We have already seen in column (5) of Table II that greater exposure to wealth inequality leads to a higher wealth-to-income ratio for the more educated households. Table V presents our corresponding estimates for the debt-to-income ratio observed later in life. Interestingly, here we find that initial exposure to wealth inequality has an estimated positive (but insignificant) effect on the debt exposure of those with at least some college education, but it does have a statistically significant moderating effect on the debt exposure of those without any college education, controlling for household characteristics and the full array of fixed effects.

Taken together, our baseline estimates suggest that exposure to greater wealth inequality at career launch led those with at least some college education to take on more financial and real risk, while it failed to have a similar effect on those without any college education. The tendency of the less educated to participate in risky financial or real assets appears to be unresponsive to the wealth inequality they experienced, but for debt, our baseline estimates indicate a mitigating effect of exposure to greater wealth inequality. We now proceed to sharpen and interpret the source of these findings.

5.3 Is Wealth Inequality Proxying for Other Municipality Characteristics?

In our baseline analysis, we have stressed the importance of exposure to wealth inequality in the municipality of initial placement. Could it be that the share of household wealth going to the top 10% of the wealth distribution merely proxies for other key features of the initial municipality and it is these features that actually produce the observed effects? Importantly, our estimations always include municipality fixed effects, and these control for all time-invariant aspects of a municipality that could be playing a role. In this section, we examine whether our time-varying wealth inequality measures could be proxying for omitted relevant time-varying municipality characteristics. In particular, we examine whether households are responding to how wealthy municipality residents are on average, or to average income in the municipality, or to local income inequality.

Table O.A.5 reports regression estimates that include, in addition to the usual controls and fixed effects, controls for mean (logarithms of) wealth and (of) income, and income inequality (measured by the share of total household income received by the top 10% of the income distribution) in the municipality of initial allocation. Columns (1) and (2) refer to the (inverse hyperbolic sine of the) level of net wealth, while columns (3) and (4) refer to the percentile of the household in the wealth distribution during the years of observation of financial behavior (1999-2007). We see that the pattern of effects of exposure to wealth inequality is unaffected by inclusion of these additional controls. Indeed, none of the three additional controls are statistically significant for the better-educated subsample.[16]

Similarly, Table O.A.6 shows that our finding, that exposure to greater wealth inequality does not operate by influencing labor market outcomes, such as earnings levels attained and the likelihood of unemployment in the medium to longer run, is not an artifact of failing to account for these other features of the initial municipality, which actually turn out to be statistically insignificant.

Table O.A.7 examines robustness of our findings on risk taking in occupation (columns (1)-(2)), financial assets (columns (3)-(4)), and homeownership (columns (5)-(6)). We find the same pattern

[16]Initial mean income shows up as significant when initial wealth inequality does not play a systematic role, but higher initial mean income actually pushes in the opposite direction, discouraging wealth accumulation and lowering the subsequent position of the household in the net wealth distribution.

of effects of initial exposure to wealth inequality across the two education subsamples, with initial wealth inequality encouraging all forms of risk taking only among the more educated households. Moreover, the three additional controls turn out to be insignificant for self-employment across the two samples considered. Exposure to greater initial income inequality shows up as discouraging homeownership among the less educated, while initial mean income has a statistically significant but quantitatively very small estimated effect. Taken together, these findings suggest that wealth inequality is not a mere proxy for the overall standing of the municipality in terms of wealth and income nor for its income inequality, and that its relevance for the more educated is robust.

Finally, Table O.A.8 examines robustness of our findings on the ratios of gross financial wealth to income (columns (1)-(2)) and of debt to income (columns (3)-(4)). The findings reported in columns (1) and (2) confirm that exposure to initial wealth inequality encourages subsequent attainment of higher wealth to income ratios only among the more educated. However, column (4) shows that our finding that the less educated tend to limit their debt exposure relative to their income when faced with greater initial wealth inequality, is not robust when we also control for mean income in the municipality of initial placement. Interestingly, this finding on (lack of) robustness is more in line with the overall picture our results paint for responses of the less educated to experiencing greater wealth inequality at the launch of their careers in the country, namely a lack of significant response.

5.4 Exposure to Wealth Inequality and Regional Wealth Mobility

Our findings are consistent with more educated refugees interpreting wealth inequality at the initial municipality as suggesting opportunities for them to attain higher wealth levels. As our administrative data do not include elicited perceptions of refugees regarding opportunities to rise to the upper part of the wealth distribution, we cannot test directly for the presence of this link between exposure to wealth inequality and perceptions of opportunity. We therefore take an indirect approach, exploiting our ability to observe the actual degree of wealth mobility in the municipality of initial placement around the time of arrival.

More precisely, we compute the share of households who were in the top 10% of the municipality's wealth distribution right before the allocation of refugees started, i.e., in year 1986, and who were also in the top 10% of the wealth distribution right after the allocation of refugees was completed, in year 1992. We find that, across all municipalities, the median value of this share was about 67%. We then distinguish the municipalities of arrival into two groups: the "more mobile" ones, where the share of the initial wealthy in 1986 that remained in the top 10% of the distribution in 1992 was below the median of 67%; and the "less mobile", where this share was above the median. We rerun our benchmark estimations separately for these two sets of initial municipalities.

We find that our benchmark estimates (reported in Tables VI to IX) are in general robust in the group of municipalities where greater wealth mobility is observed around the arrival times of refugees, while exposure to greater wealth inequality does not generally contribute to better outcomes or more risk taking even among the more educated households in the less mobile municipalities.

Specifically, Table VI reports that exposure to greater wealth inequality tends to lead to larger wealth levels and to attainment of higher percentiles in the cohort-based wealth distribution later in life, but this systematic link is present only for the more educated refugees that arrive in municipalities with greater mobility. By contrast, Table VII not only confirms our benchmark finding that initial exposure to greater wealth inequality does not affect the subsequent level of earnings or the probability of unemployment, but it also shows that this finding has little to do with the degree of wealth mobility in the region.[17]

Table VIII shows that our benchmark findings on the positive role of exposure to wealth inequality for self employment, stockholding, and homeownership later in life are present only in the more mobile initial municipalities, consistent with opportunity playing a key role in activating these risky choices. Lastly, Table IX shows that the effects of exposure found in our benchmark analysis on the financial wealth-to-income ratio and on the debt-to-income ratio are not present among those allocated to municipalities with more limited wealth mobility.

All in all, our sample split by the degree of wealth mobility in the initial municipality points to a more nuanced overall interpretation of our findings, but also one that is more consistent with the role of opportunity. Being exposed to greater wealth inequality at the start of their careers

[17]We find one statistically significant coefficient, implying that better-educated refugees arriving in low-mobility regions with greater wealth inequality end up with lower probability of unemployment later on.

in areas exhibiting high wealth mobility tends to make educated households more likely to take on risks in the occupational, financial and real asset domain, and to attain higher wealth levels and higher positions in the cohort-specific wealth distribution. This can be viewed as evidence of a propagation mechanism, whereby exposure to greater wealth inequality and wealth mobility tend to lead to greater risk taking by educated people with access to higher returns, who end up with higher wealth levels and positions. In this sense, greater wealth mobility and inequality beget greater mobility and inequality, given the non-response of less educated households in the same areas and of all households in less mobile areas.

6 Understanding the Mechanism

The non-response of the less educated when they are confronted with greater wealth inequality at the launch of their careers even in areas of high mobility raises the question of whether they simply fail to perceive existing opportunities or they have less ability to generate positive wealth outcomes, or both. We discuss the issue of observability of wealth inequality and of mobility opportunities in section 6.1, and the link of differential ability to generate wealth to education in section 6.2. We then consider whether the mechanism involves investment in human capital, a role model effect, imitation, and learning from those at the top of the wealth distribution.

6.1 Observability of Wealth Inequality and Mobility

Our findings highlight the responsiveness only of educated refugees to the top 10% wealth share at the time of entry and to the degree of wealth mobility in the municipality. Studies have found evidence of ignorance regarding the nationwide level and trend of inequality.[18] Are there reasons to believe that educated individuals can form perceptions of *local* wealth inequality and wealth mobility at the municipality of initial entry, accurate enough for the objective inequality and mobility to register effects on their risky asset choices?

Recent research in perception, cognition, and developmental and social psychology focusing on (mostly income) inequality in people's minds stresses the importance of three types of infor-

[18] Gimpelson and Treisman (2018), for example, examined nine large cross-sectional surveys and found that many respondents could not even approximately identify the nationwide average wage, national salaries in different jobs, the poverty rate, or the share of wealth of the nationwide top 1% of the distribution.

mational cues that people receive from their environment: interpersonal comparisons, attention of the media to inequality issues, and physical attributes of the built environment, such as houses, schools, and cars (Phillips et al., 2020).

Kraus et al. (2017) argues that social class signals, received from neighbors in the daily process of comparing one's own socioeconomic standing to that of others, are important for experiencing economic inequality. The findings of Haliassos et al. (2020) on financial literacy externalities are consistent with informative social interactions of the more educated refugees in Sweden with their new neighbors.

Diermeier et al. (2017) use data from the German SOEP and find evidence that prolonged inequality-related media coverage tends to make people more likely to declare high or medium concern about the state of the economy and to be concerned about social justice. In Sweden, it is in fact possible to observe wealth levels in the municipality directly. There are public listings of wealth levels by name, and local newspapers often fill their pages with reports on the wealthiest individuals in the locality.

Suss (2021) is the first study to provide evidence that features of the built environment are linked to perceptions of local neighborhood inequality, even when respondents are asked about income rather than wealth inequality. The author constructs highly granular measures of local housing value inequality, based on house price estimates or realized purchase values of over 91% of all residential houses in the UK. He finds that housing value inequality is indeed associated with income inequality perceptions of individuals in two surveys, even after controlling for political orientation, education, and other observables. Using text analysis on the factors that influenced respondents' perceptions of inequality, the author finds that local housing is about twice as important as income. Some respondents state that they base their assessment of inequality on things that they can observe, rather than on income that is unobservable to them. As housing value inequality accounts for about 10% of a standard deviation of perceptions, Suss (2021) recognizes that there are likely other important factors, as well.

Against this background, and given that our granular administrative data do not include survey responses on perceptions of inequality, we examine systematic links between the objects of interest (actual wealth inequality and mobility) and municipality characteristics likely to be more readily available to people living there (Tables X and XI). Table X presents panel OLS regressions of the top 10% wealth share in the five years of refugee arrival on contemporaneous time-varying characteristics of the municipality, as well as on municipality fixed effects and (in column 2) time fixed effects. We see that a modest number of municipality features correlate significantly with the time-varying part of wealth inequality in the municipality and explain close to 90% of the variation. While the number of new firms founded is positively correlated with wealth concentration at the top, greater shares of college attendees, of stockholders, and of homeowners are negatively related to wealth concentration. A higher average income, average wealth, and higher house price inflation in the municipality are associated with greater wealth inequality, whereas the number of firm defaults with lower inequality.

An implication of existing literature and of our exercise here is that those who are better able to draw the link between wealth concentration at the top and more widespread asset ownership and education, as well as those who interact more with knowledgeable neighbors and are more in tune with local media, are more likely to perceive the extent of local wealth inequality. Our findings are consistent with better educated refugees being more likely to receive and process information from these sources.

Table XI shows regressions of the indicator of wealth mobility that we used to split the sample of municipalities into high- and low-mobility subsamples, on various municipality characteristics. This indicator is the probability of a municipality resident who was not in the top 10% of wealthy in 1986, one year prior to the first arrivals, to be in the top 10% in 1992, after the entry of refugees in our sample was completed. In these cross-sectional regressions, capturing wealth mobility prospects in the municipality, control variables refer to 1986 values. Based on these estimates, the share of wealth held by the top 10% and the average income level in the municipality in 1986 are (negative) indicators of wealth mobility prospects, while a greater inflow of new firms and a greater share of college attendees, are positive indicators of future wealth mobility. It is reasonable to suppose that the college educated are more likely to observe these indicators, while a number of other indicators that could be visible to a greater set of people (e.g., new constructions) do not bear a significant relation to mobility. In addition, the low R-squared suggests that it is not straightforward to learn much about wealth mobility prospects from observing initial municipality characteristics.[19]

[19]In fact, experimental evidence from psychology points to an increasing tendency of subjects to attribute economic

We have found that greater local wealth inequality influences the chances of educated households to attain higher wealth or invest in risky assets later in life in areas with substantial wealth mobility, but it fails to do so for less educated ones, regardless of wealth mobility. The findings in this section suggest that difficulties in perceiving local wealth inequality and, especially, mobility opportunities do exist and could be part of the reason for non-response of the less educated, apart from any objective difficulties they may have in managing wealth and risky assets. This is also consistent with the lack of any systematic relation between wealth inequality and perceptions of opportunity or fairness among the less educated in the cross-country data that motivated this study.

6.2 Ability to Generate Wealth

A number of recent studies find a positive link between educational attainment and returns on wealth and its components. A close positive correlation between educational attainment and returns on net wealth and on each of its main sub-components is found by Girshina (2019) in Swedish data and by Fagereng et al. (2020) using data from Norway, while Barth et al. (2020) find a positive relation between educational attainment and retirement wealth among US households.

Is there any evidence that ability is a factor for the less educated even when mobility prospects for them are better and they register some response to wealth inequality? We split municipalities based on the (above- or below-median) wealth mobility specifically of those without college education. In unreported regressions, we find that the less educated in these areas are significantly more likely to enter into self employment, but no more or less likely to invest in risky financial or housing assets. Despite this greater tendency for self employment, though, their exposure to greater inequality does not lead to higher levels of subsequent wealth or higher position in the cohort-specific wealth distribution. This suggests that even when mobility opportunities are available to the less educated and some response in self employment is registered, they fail to use them effectively in order to boost their wealth level and ranking.

Is education an independent causal factor for higher wealth returns among the more educated? The answer to this question is relevant for whether there is room for educational policy per se to improve opportunities for those who currently are, or would otherwise be less educated. Here

success and failure to external factors beyond a person's control, as economic inequality grows (Davidai, 2018) views differ. Girshina (2019) uses three alternative instruments, namely family background and ability, within-siblings variation in educational attainment, and a reform of compulsory schooling to argue for a causal effect of education. Fagereng et al. (2020) employ an exogenous increase in schooling requirements from 7 to 9 years and show that, in their data, the correlation between educational attainment and returns disappears in IV estimation. They argue that the positive relation between education and returns reflects a correlation between innate wealth management ability and educational attainment, with the former being ultimately responsible for the higher returns to wealth and its components. Barth et al. (2020) find that average US household polygenic scores (predictive indices aggregating multiple genetic markers) robustly predict educational attainment as well as retirement wealth in the US Health and Retirement Survey. Higher polygenic score households are found to be more likely to invest in stocks and in private businesses.

The continuing debate on whether the level of educational attainment is an independent factor that generates opportunities for more profitable participation in risky assets and eventual wealth creation, or a joint outcome of innate abilities for wealth management is important for whether extensions in compulsory education are part of the arsenal to mitigate the source of propagation of wealth inequality that we find.

6.3 Investment in Human Capital

In refining our understanding of the link between being college educated and responding to greater wealth inequality in the ways we have found, it may be useful to distinguish between education obtained prior to arriving in Sweden and that obtained after being exposed to the initial municipality. In particular, we want to know whether such additions to human capital were causally linked to exposure to greater wealth inequality in the initial municipality.

Out of the 5,031 individuals we include in our sample,[20] 1,261 (or 25% of the total) added at least one year of education between arrival and year 2000, the latter being the reference year we use for our education sample splits. At least half of those who pursued education after arrival were 25 years of age or younger when they arrived in Sweden.[21] We run a regression to exam-

[20] We exclude from our main sample a small number of observations that do not state educational attainment both at arrival and in year 2000.

[21] The data include a few negative observations, which represent downgrading of educational qualifications after proper examination of their level by the Swedish authorities. We have set those to zero, as they do not represent

ine whether exposure to initial wealth inequality significantly influenced the number of years of schooling accomplished between individual arrival and year 2000, controlling for demographics and income at time of arrival, and for fixed effects of municipality, arrival year and of cultural factors proxied by country of origin.

Table O.A.9 reports our findings for the full sample and for a sample breakdown based on whether the household head had attained at least some college education by year 2000. Our estimates do not support a significant role of initial exposure to wealth inequality in determining the size of investment in human capital after arrival in Sweden. We conclude from this that the differential behavior we observe by education group is not in any significant way the result of human capital investment in response to exposure to initial wealth inequality, even though part of the sample had not completed their education by the time of arrival in the initial municipality.

6.4 Relocation

It is possible that being immersed in an initial environment with high wealth inequality may lead households to move to a different location with potentially less inequality and greater perceived opportunities. Is moving to a different location a significant part of the mechanism linking greater exposure to wealth inequality and better wealth outcomes?

We know already from Section 3.1 that the time spent by a refugee household in the initial municipality was on average approximately 9 years. We define an indicator variable on whether the household has moved to a different municipality by the year of 2000, and regress this variable on the level of wealth inequality in the initial municipality, household controls as defined at the time of arrival, as well as on a battery of fixed effects. The regression results for the full, better-educated, and less-educated samples are reported in Table O.A.10. As shown in column (1), we observe no significant effect of initial wealth inequality on the subsequent moving decisions of households in the full sample. When we split the sample by the level of education (see columns (2) and (3)), we observe similar insignificant effects. Taken together, our empirical findings do not support the idea that the estimated effects of initial wealth inequality on household outcomes can be attributed to relocation decisions of households.

investment in human capital.

6.5 A Role Model Effect

In this section we examine whether the effects of exposure to inequality on the educated households represent a role model effect. Specifically, we examine whether the share of those with at least some college education in the initial municipality's wealthiest 10% motivates the more educated refugees to emulate those successes as "role models".

Tables O.A.11 to O.A.14 introduce this share alongside the initial wealth inequality measure. We find that introduction of this additional control does not affect the sign or significance of initial wealth inequality found in our benchmark regressions. Wealth inequality in the initial municipality influences educated households in a similar way, even when we control for how successful educated people have been in general. In addition, the share of educated among the wealthiest does not have a significant effect on the subsequent level or rank of net wealth of either group of households.[22] These results suggest that the presence (or absence) of role models does not seem to be the source of our exposure effects.

However, we do find evidence that exposure to a higher share of educated people among the top 10% of wealthy has a positive effect on stockholding participation among the more educated, and a mitigating effect on their debt-to-income ratio later in life. These findings provide some scope for learning from, or imitation of the rich to contribute to the actions taken by the more educated refugees. We investigate the possible role of learning or imitation more broadly in the next section.

6.6 Imitation and Learning from the Rich

It is possible that the tendency of the more educated to respond to greater inequality by being more likely to engage in self-employment, stockholding, and homeownership can be attributed, at least partly, to imitation or learning from the rich. Maybe the educated households responded to greater inequality in these ways because the prevalence of such practices was greater in municipalities with a higher share of total wealth owned by the top 10% of the distribution, and there was greater scope for the refugees to imitate or learn from them.

Table O.A.15 introduces, as additional control to our regressions regarding the tendency to

[22] The share of the more educated among the wealthy does not affect the subsequent earnings level, either, but it registers a mitigating effect on unemployment risk among the better educated.

undertake self employment, stockholding, and homeownership risk, the respective shares of the wealthiest 10% in the initial municipality who made each choice. We see that none of these shares is statistically significant, in either of the two subsamples, while our benchmark measure of wealth inequality retains its role for the more educated subsample.

We examine further if initial exposure to greater wealth inequality helped the individuals to avoid investment mistakes, such as under-diversification or sluggishness in rebalancing their portfolios. Table O.A.16 reports estimates of the effect of greater initial exposure to wealth inequality on the extent of subsequent diversification and of portfolio adjustments. The former is proxied by the share of directly held stocks in the stock portfolio, while the latter follows Calvet, Campbell, and Sodini (2009) in considering the absolute change in the risky portfolio share since the previous period. As indicated in the table, we find no evidence of such beneficial learning effects on the subsequent financial behavior of households.

These findings argue against pure imitation, emulation or learning being the driving forces behind the effects of exposure to wealth inequality on the choices made by the more educated refugees in later life. They are consistent, however, with the more educated interpreting greater wealth inequality as an opportunity to attain higher wealth levels and deciding to take on greater occupational and asset risks in an effort to attain them. They are also consistent with the educated doing so because they have a greater innate ability to manage risky assets and debt and to generate wealth, compared to the less educated. Finally, the lack of support for a learning effect from being exposed to greater wealth inequality per se does not necessarily imply that learning from others in general has no beneficial or motivating effect on financial behavior.

7 Conclusions

This paper is motivated by a novel pattern of positive correlations between the share of household wealth owned by the top 10% of the wealth distribution and perceptions of equality of opportunity and fairness. These are statistically significant only among those with at least some college education, but not among the less educated subsample across countries. Using a unique quasi-random field experiment, in the form of a refugee allocation program in Sweden over the period 1987-1991, and detailed data on refugees and other households over a horizon of about 20 years, the paper studies whether and how exposure to wealth inequality at the launch of one's economic life tends to influence economic and financial behavior and outcomes 10 to 20 years later, distinguishing between two education groups.

We find that those with at least some years in college tend to respond to this initial exposure by being more likely to choose self employment, to hold risky financial and real assets, and to reach higher levels of wealth and positions in the wealth distribution. By contrast, those less educated tend to be largely unresponsive to their initial exposure to wealth inequality in the aspects of economic and financial life we examine, except perhaps for reducing their debt ratios over the medium and longer runs. In robustness analysis, we also find that wealth inequality is not a mere proxy for the overall standing of the municipality in terms of mean wealth and mean income nor for its income inequality.

Asymmetry in response is consistent with exposure to greater wealth inequality leading the more educated to perceive more mobility opportunities, motivating them to take actions that result both in higher levels of wealth and confirmation of their perceptions. The link between inequality and mobility is supported by our findings that the effects of wealth inequality exposure on the more educated are only present in municipalities that exhibited above-median mobility in the top 10% of the wealth distribution around the arrival time of refugees. Where mobility opportunities were more prevalent, the educated responded and were able to alter their choices of risky assets and occupation, ultimately securing higher levels and positions in the wealth distribution. Our findings do not support interpretations of exposure to inequality as operating through "role model" effects or through imitation or learning and thus contributing to the subsequent economic and financial choices of refugees.

What should we make of the failure to respond to greater wealth inequality? The successful response of educated refugees in high-mobility areas suggests that their lack of response in low-mobility areas is likely to be explained by constraints to mobility rather than by lack of perception or ability. We find that the less educated fail to respond to wealth inequality even in areas where mobility opportunities for the less educated are greater; and that inferring wealth inequality but especially local mobility is difficult and likely to require significant information gathering and processing. Thus, our findings suggest that the lack of response by the less educated is likely attributable to a combination of more limited ability to earn higher returns through participation in risky assets and of greater difficulty in assessing local mobility opportunities due to informational requirements, possibly augmented by the greater pessimism associated with lower SES.

The differential reaction to wealth inequality at the launch of one's career in the country, which boosts the wealth level and position of the more educated in the areas of greater mobility but fails to trigger similar outcomes among the less educated, tends to widen wealth inequality, boost the representation of the more educated at the top of the wealth distribution, and reaffirm their financial and economic choices. This sets the stage for perpetuation of differential response to wealth inequality and for further propagation of wealth inequality and of the concomitant social polarization.

Our findings on differential responses to wealth inequality depending on educational attainment do not necessarily imply that there is a simple way to limit this source of propagation, e.g., by extending the mandatory minimum years of education. Although education is largely predetermined in our refugee sample and we have shown that it is not influenced by the initial exposure to wealth inequality, it need not be causal for higher returns, and some (though not all) recent studies argue that it is not. Taken together, our findings suggest instead that it is more promising to configure a multi-pronged approach, that improves perception of opportunities among the less educated, as well as their ability to generate higher returns through participation in risky assets, including ones that are suitably designed to limit behavioral biases and investment mistakes.

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Figure I: Beliefs in Opportunity and Wealth Inequality

This figure presents the cross-country correlations between wealth inequality, measured by the share of aggregate wealth held by the people who are in the top 10 percent of the wealth distribution, and proportion of the corresponding population that agrees with the statement: "I have equal opportunities for getting ahead in life, like everyone else". The pairwise correlation between perceptions and inequality is 0.52 (p-value=0.018). The data for the top 10 share for sampled countries are obtained from OECD Wealth Distribution Database. The information for Sweden comes from Lundberg and Waldenström (2018). The data on beliefs are derived from the Eurobarometer Survey fielded in December 2017 (Eurobarometer, 2018).

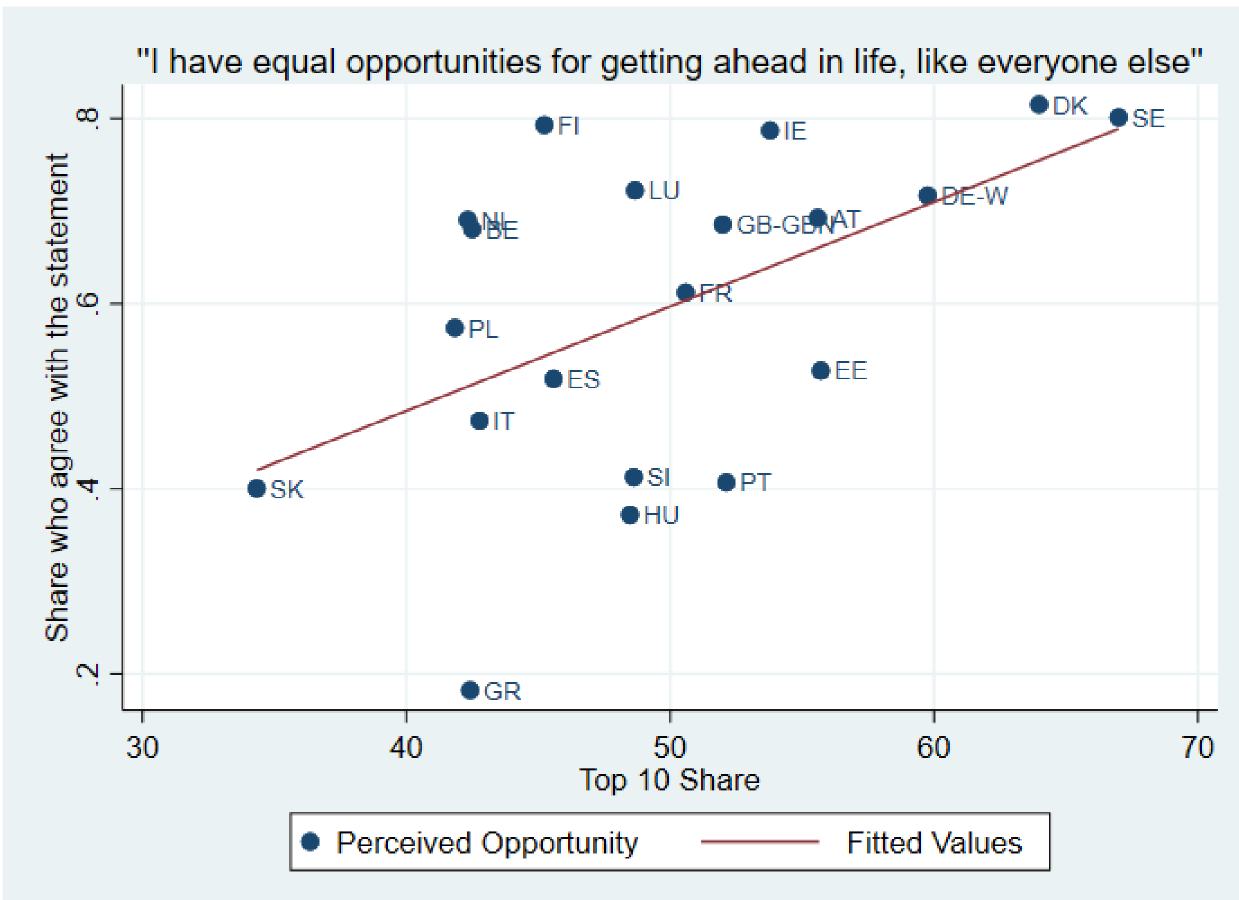

Figure II: Beliefs in Opportunity and Wealth Inequality by Education Level

This figure presents the cross-country correlations between wealth inequality, measured by the share of aggregate wealth held by the people who are in the top 10 percent of the wealth distribution, and proportion of the corresponding population that agrees with the statement: "I have equal opportunities for getting ahead in life, like everyone else" separately for the two subsamples of respondents in each country, namely those who have had at least some years of college education and those without any college education. The pairwise correlation between perceptions and inequality is 0.64 (p-value=0.002) and -0.21 (p-value=0.38) for college and high-school sample, respectively. The data for the top 10 share for sampled countries are obtained from OECD Wealth Distribution Database. The information for Sweden comes from Lundberg and Waldenström (2018). The data on beliefs are derived from the Eurobarometer Survey fielded in December 2017 (Eurobarometer, 2018).

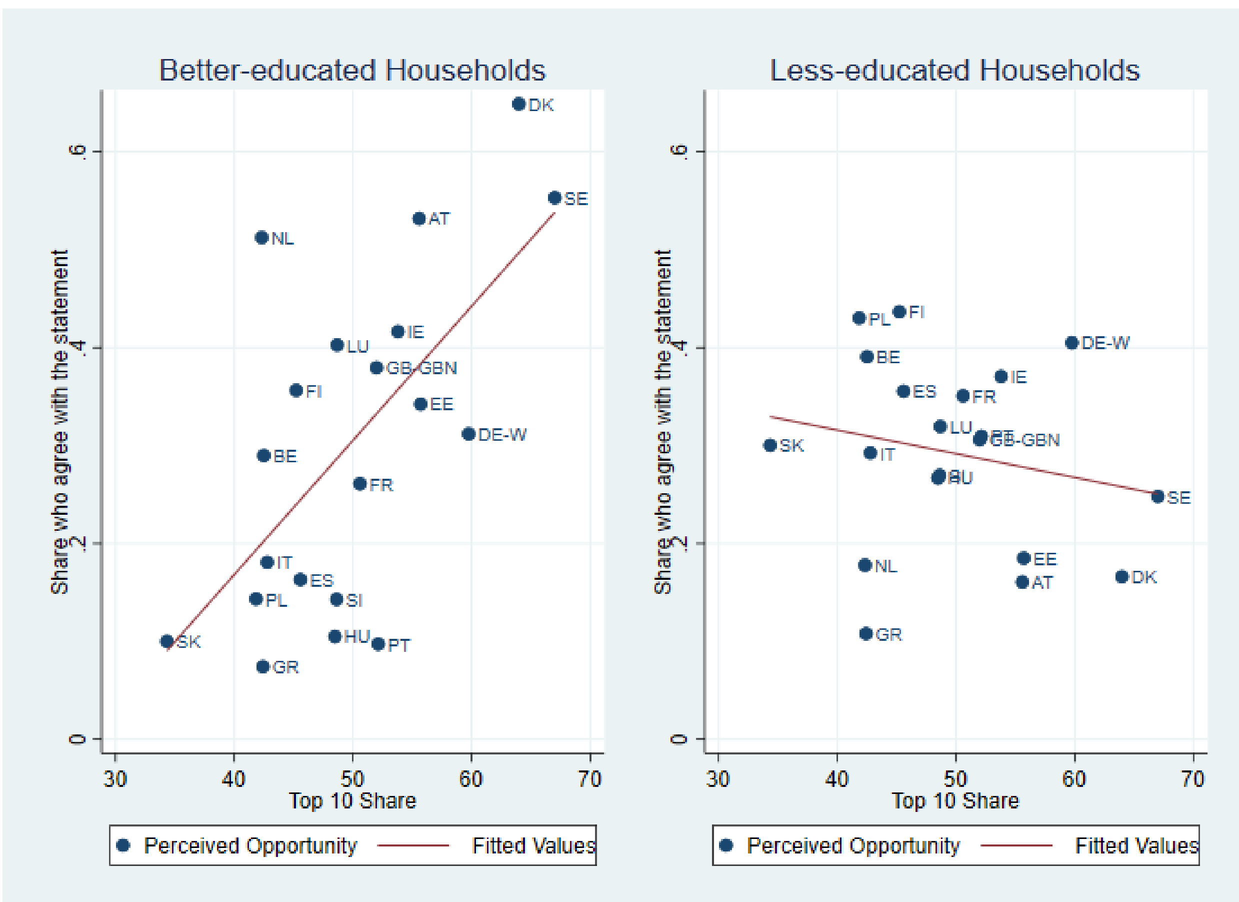

Figure III: Perceived Fairness and Wealth Inequality

This figure presents the cross-country correlations between wealth inequality, measured by the share of aggregate wealth held by the people who are in the top 10 percent of the wealth distribution, and proportion of the corresponding population that agrees with the statement: "I believe that, by and large, people get what they deserve". The pairwise correlation between perceptions and inequality is 0.37 (p-value=0.11). The data for the top 10 share for sampled countries are obtained from OECD Wealth Distribution Database. The information for Sweden comes from Lundberg and Waldenström (2018). The data on beliefs are derived from the Eurobarometer Survey fielded in December 2017 (Eurobarometer, 2018).

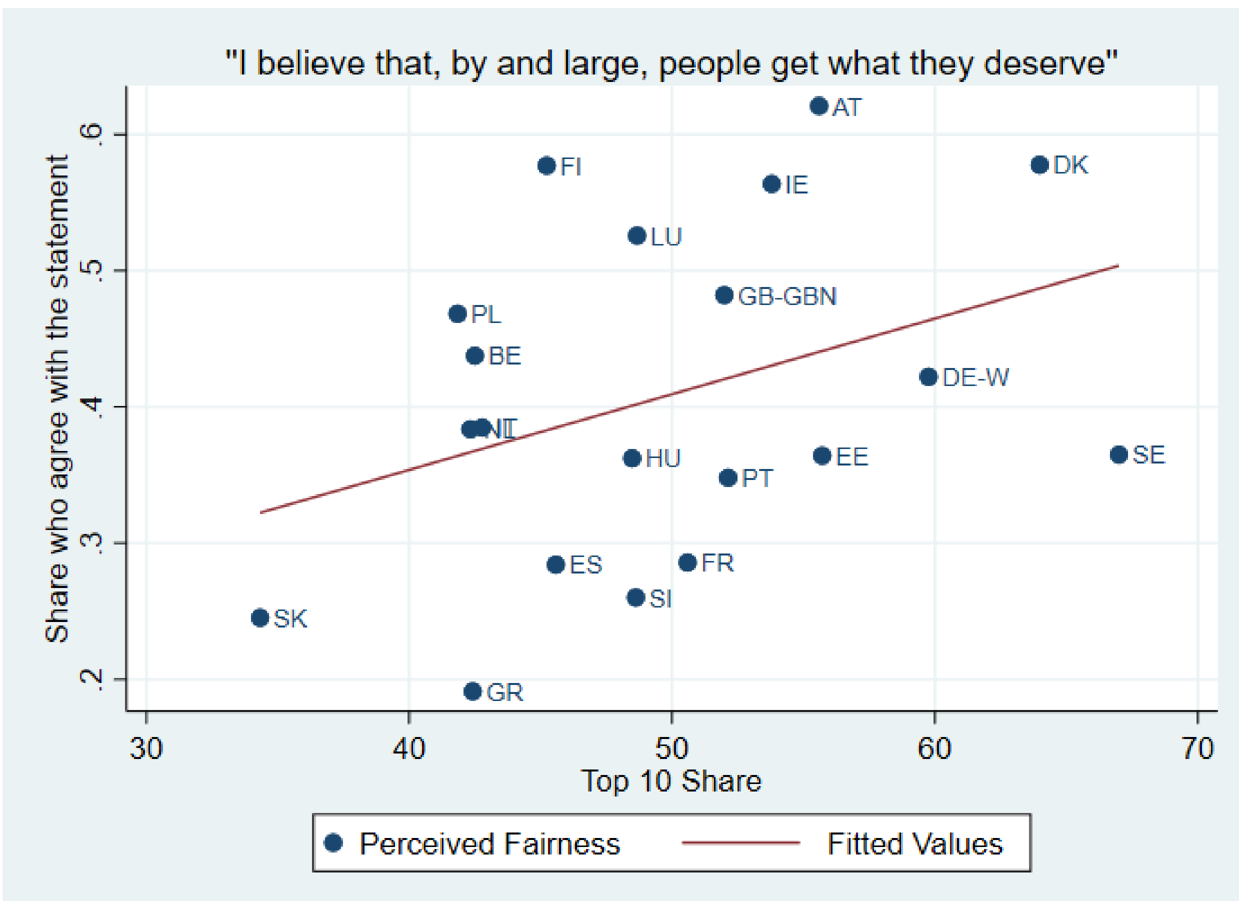

Figure IV: Perceived Fairness and Wealth Inequality by Education Level

This figure presents the cross-country correlations between wealth inequality, measured by the share of aggregate wealth held by the people who are in the top 10 percent of the wealth distribution, and proportion of the corresponding population that agrees with the statement: "I believe that, by and large, people get what they deserve" separately for the two subsamples of respondents in each country, namely those who have had at least some years of college education and those without any college education. The pairwise correlation between perceptions and inequality is 0.55 (p-value=0.01) and -0.32 (p-value=0.18) for college and high-school sample, respectively. The data for the top 10 share for sampled countries are obtained from OECD Wealth Distribution Database. The information for Sweden comes from Lundberg and Waldenström (2018). The data on beliefs are derived from the Eurobarometer Survey fielded in December 2017 (Eurobarometer, 2018).

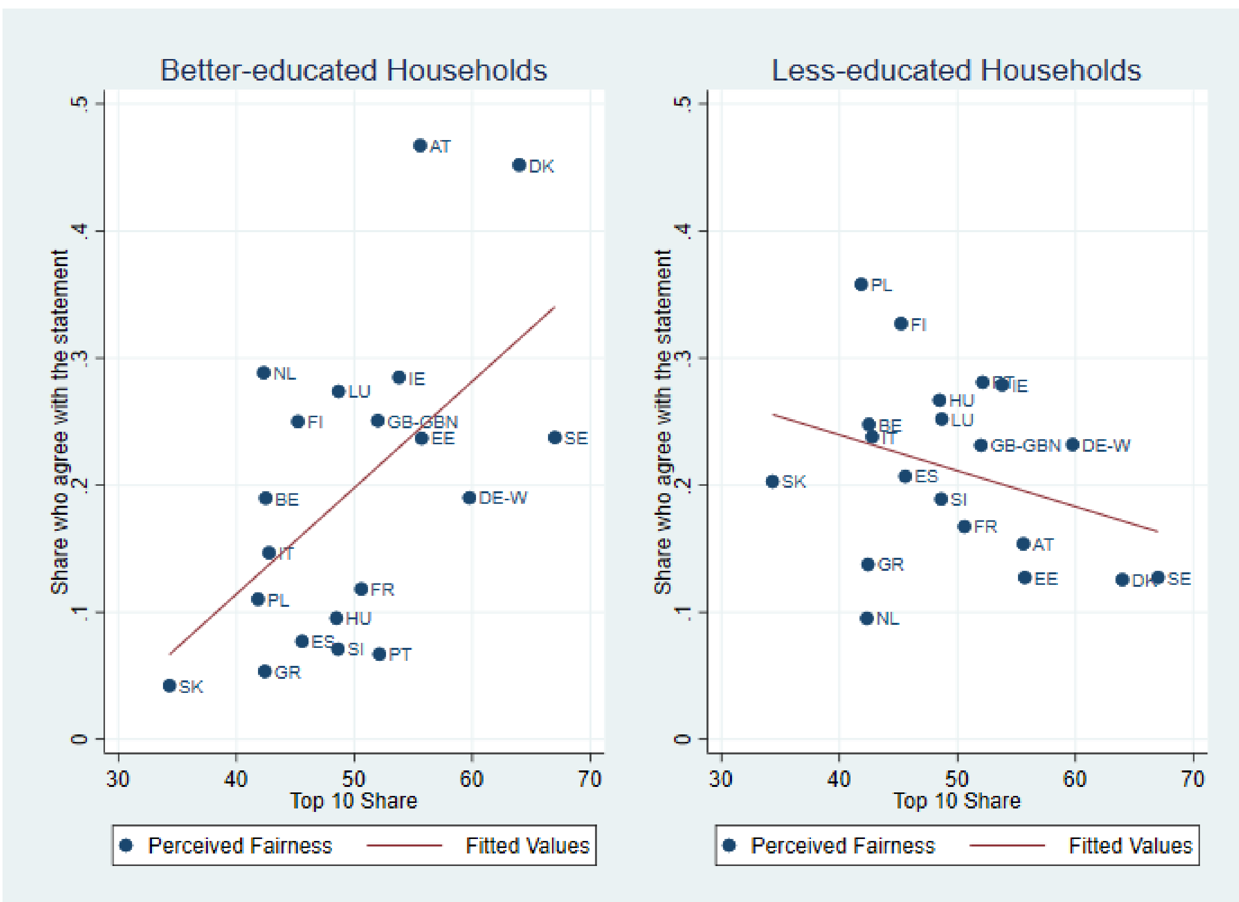

Figure V: Beliefs in Opportunity and Income Inequality

This figure presents the cross-country correlations between income inequality, measured by the share of aggregate disposable income received by the people who are in the top 10 percent of the disposable income distribution divided by the share of all income received by the 40 percent people with the lowest disposable income, and proportion of the corresponding population that agrees with the statement: "I have equal opportunities for getting ahead in life, like everyone else". The pairwise correlation between perceptions and inequality is -0.09 (p-value=0.72). The data for income inequality for sampled countries are obtained from OECD Income Distribution Database. The data on beliefs are derived from the Eurobarometer Survey fielded in December 2017 (Eurobarometer, 2018).

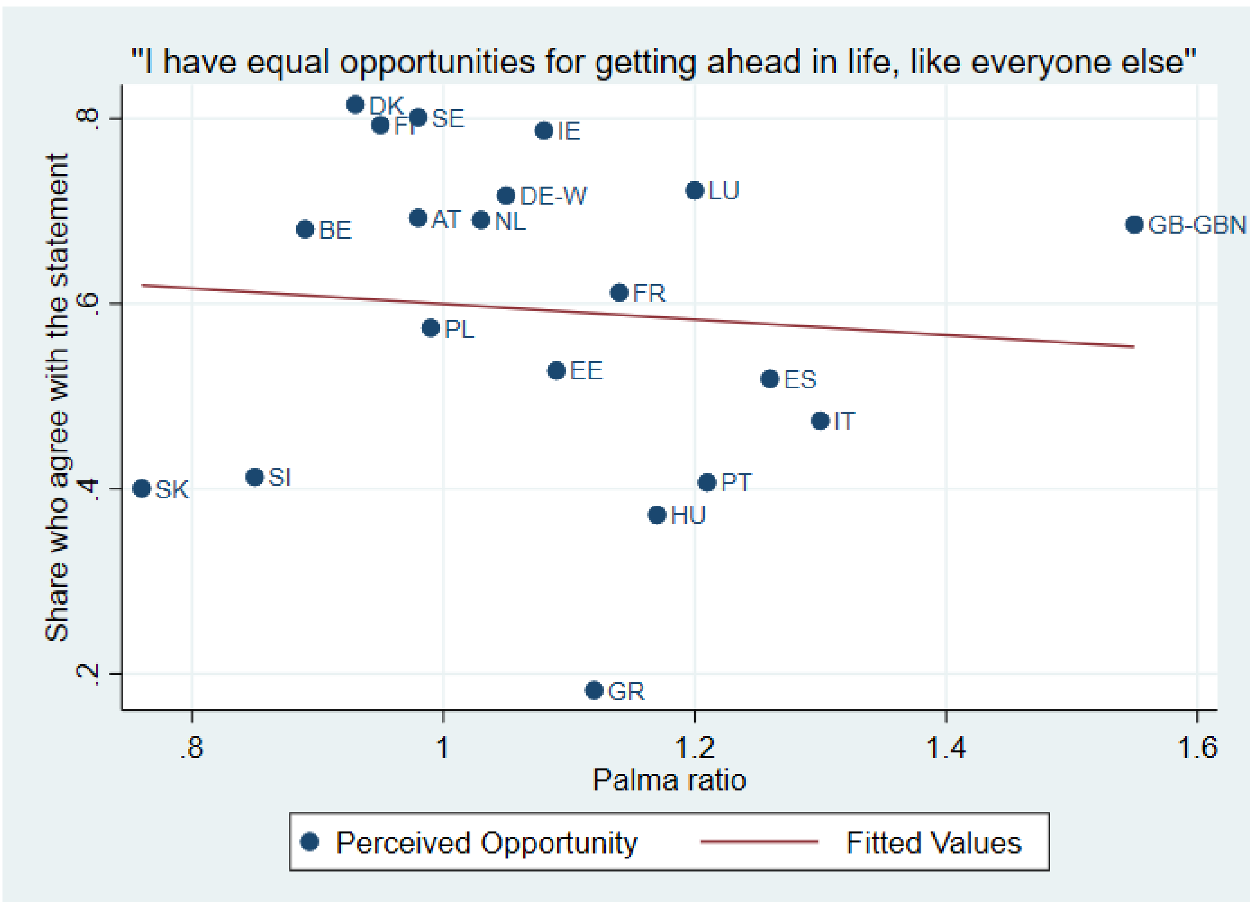

Figure VI: Beliefs in Opportunity and Income Inequality by Education Level

This figure presents the cross-country correlations between income inequality, measured by the share of aggregate disposable income received by the people who are in the top 10 percent of the disposable income distribution divided by the share of all income received by the 40 percent people with the lowest disposable income, and proportion of the corresponding population that agrees with the statement: "I have equal opportunities for getting ahead in life, like everyone else". The pairwise correlation between perceptions and inequality is -0.1 (p-value=0.68) and 0.02 (p-value=0.92) for college and high-school sample, respectively. The data for income inequality for sampled countries are obtained from OECD Income Distribution Database. The data on beliefs are derived from the Eurobarometer Survey fielded in December 2017 (Eurobarometer, 2018).

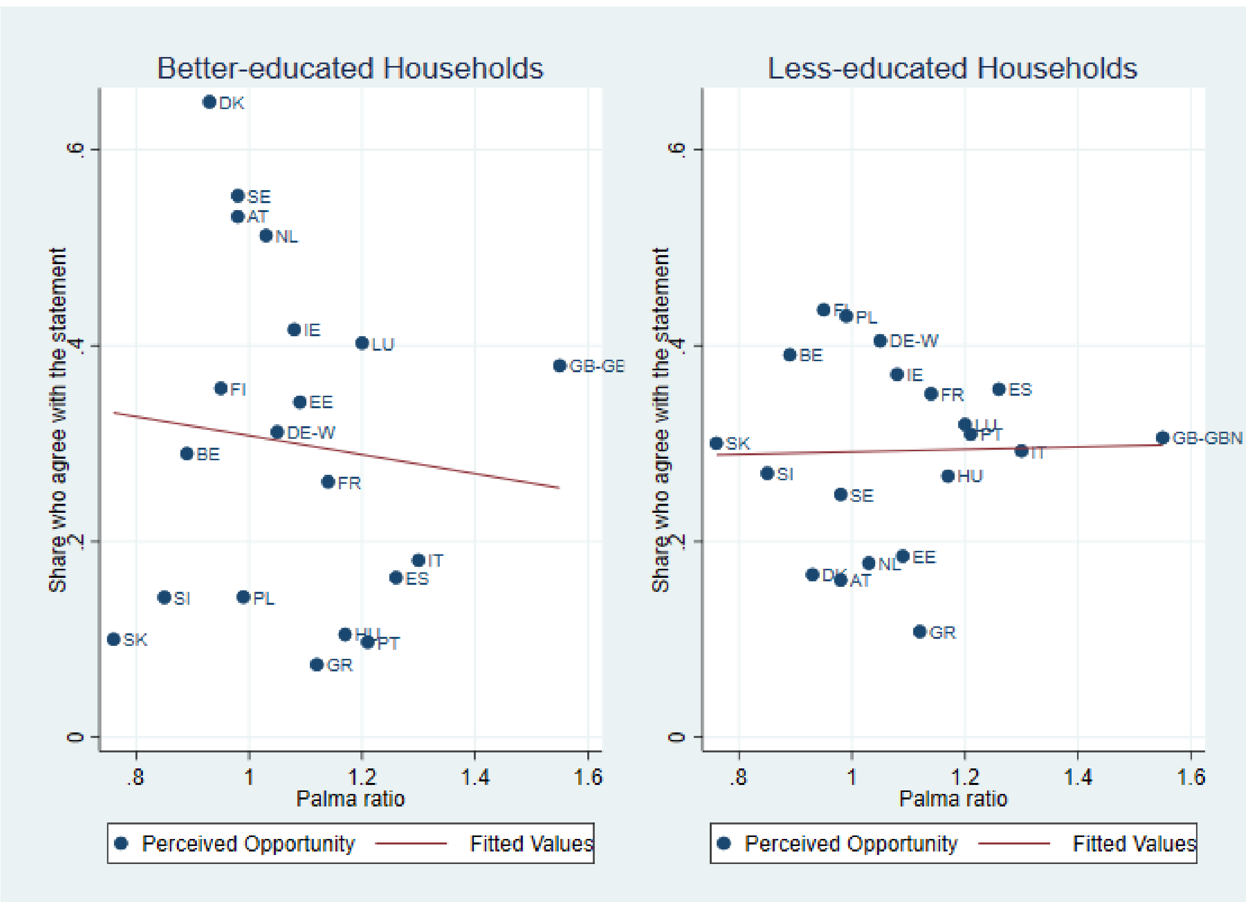

Figure VII: Perceived Fairness and Income Inequality

This figure presents the cross-country correlations between income inequality, measured by the share of aggregate disposable income received by the people who are in the top 10 percent of the disposable income distribution divided by the share of all income received by the 40 percent people with the lowest disposable income, and proportion of the corresponding population that agrees with the statement: "I believe that, by and large, people get what they deserve". The pairwise correlation between perceptions and inequality is 0.01 (p-value=0.96). The data for income inequality for sampled countries are obtained from OECD Income Distribution Database. The data on beliefs are derived from the Eurobarometer Survey fielded in December 2017 (Eurobarometer, 2018).

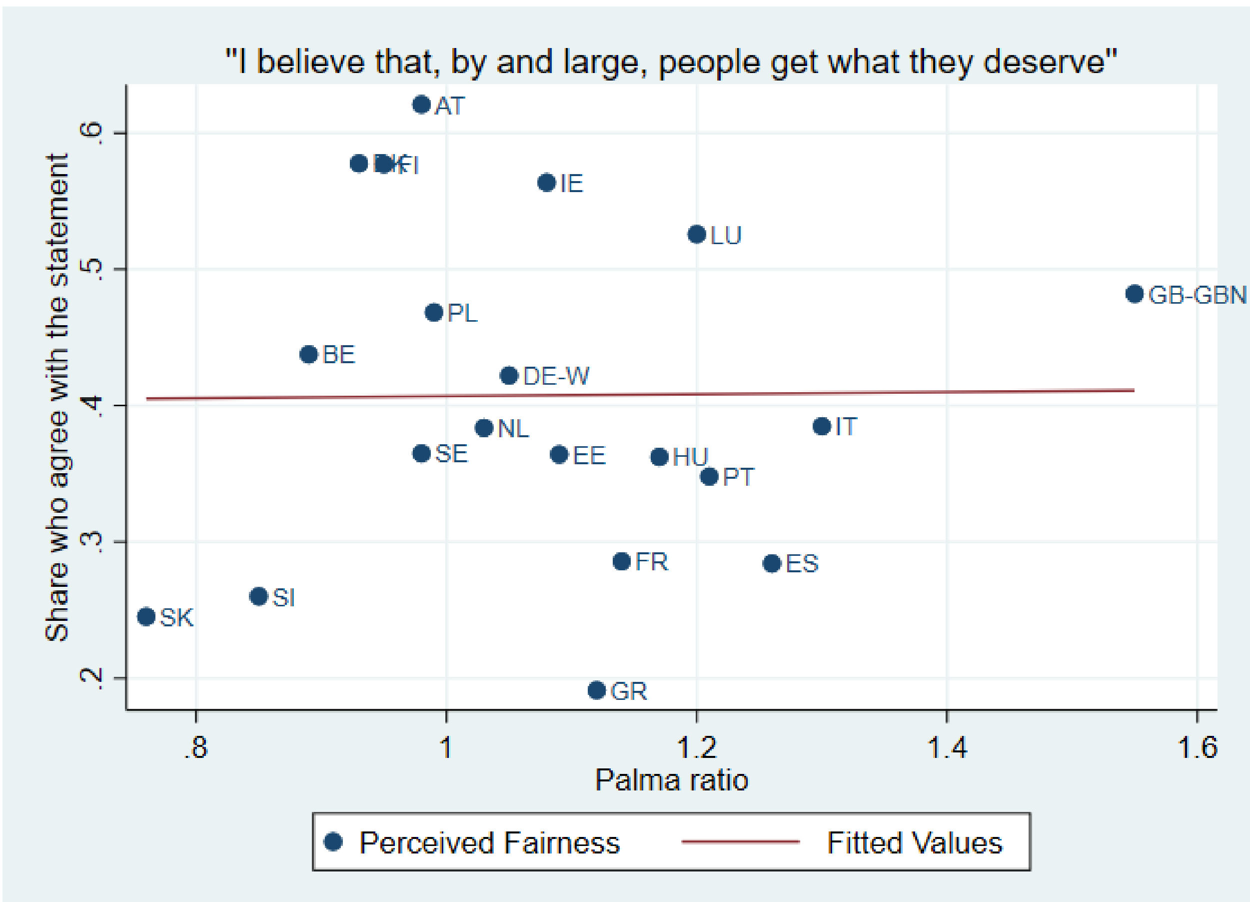

Figure VIII: Perceived Fairness and Income Inequality by Education Level

This figure presents the cross-country correlations between income inequality, measured by the share of aggregate disposable income received by the people who are in the top 10 percent of the disposable income distribution divided by the share of all income received by the 40 percent people with the lowest disposable income, and proportion of the corresponding population that agrees with the statement: "I believe that, by and large, people get what they deserve" separately for the two subsamples of respondents in each country, namely those who have had at least some years of college education and those without any college education. The pairwise correlation between perceptions and inequality is -0.07 (p-value=0.78) and 0.13 (p-value=0.58) for college and high-school sample, respectively. The data for income inequality for sampled countries are obtained from OECD Income Distribution Database. The data on beliefs are derived from the Eurobarometer Survey fielded in December 2017 (Eurobarometer, 2018).

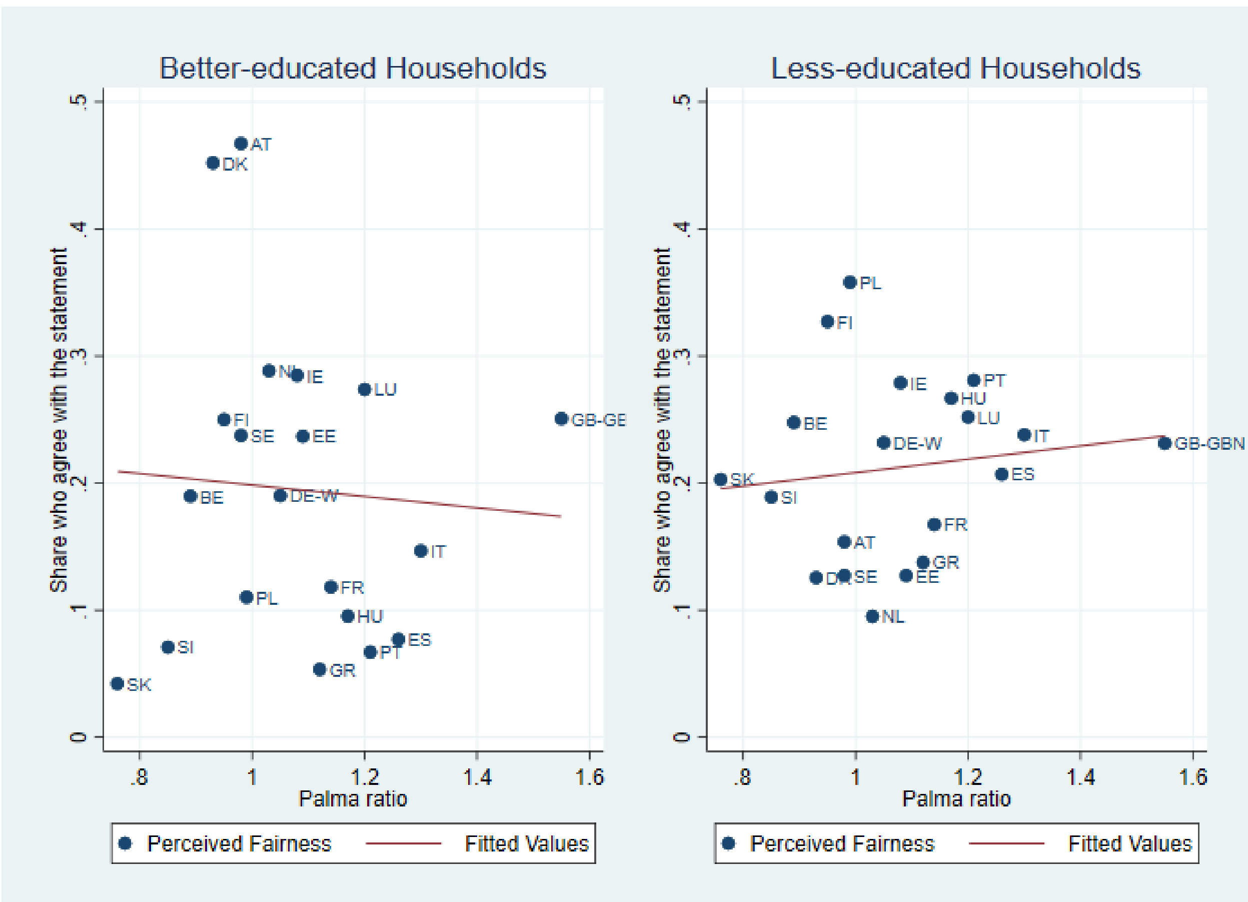

Table I: Summary Statistics

This table presents summary statistics for the variables employed in the empirical analysis. The sample consists of 5,105 refugee immigrant households for the time period between 1999 and 2007. Panel A reports the mean, standard deviation, and number of observations for the outcome variables defined at the household level. Panel B reports the mean, standard deviation, and number of observations for the initial municipality characteristics observed between 1987 and 1991. Better-educated Sample includes refugee immigrants with at least some college education, while Less-educated Sample consists of refugee immigrants with a high school degree or less. For variable definitions, see Online Appendix A.

	Full Sample			Better-educated Sample			Less-educated Sample		
	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	Obs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Outcome Variables									
Net Wealth Level	64140.5	759,561	45,897	120765.4	1,180,413	13,918	39,496.02	468,645.4	31,979
Net Wealth Rank	30.84	21.72	45,897	30.71	24.79	13,918	30.90	20.242	31,979
(IHS) of Earnings	12.58	2.49	45,897	12.96	1.94	13,918	12.42	2.59	31,979
Unemployed	0.327	0.469	45,897	0.268	0.443	13,918	0.352	0.478	31,979
Self-employed	0.104	0.306	45,897	0.107	0 .309	13,918	0.103	0.305	31,979
Stock Market Participation	0.361	0.480	45,897	0.504	0.500	13,918	0.298	0.457	31,979
Homeownership	0.270	0.444	45,897	0.363	0.481	13,918	0.229	0.421	31,979
Wealth-to-Income Ratio	0.215	0.496	44,468	0.311	0.583	13,674	0.172	0.446	30,794
Debt-to-Income Ratio	0.705	1.29	44,468	0.834	1.37	13,674	0.648	1.25	30,794
Panel B: Initial Municipality Characteristics									
Initial Wealth Inequality	0.551	0.084	45,897	0.551	0.083	13,918	0.551	0.085	31,979
Initial Mean Wealth	12.32	0.226	45,897	12.32	0.234	13,918	12.32	0.223	31,979
Initial Income Inequality	0.263	0.024	45,897	0.264	0.024	13,918	0.263	0.024	31,979
Initial Mean Income	12.38	0.145	45,897	12.38	0.155	13,918	12.38	0.139	31,979

Table II: Exposure to Wealth Inequality and Household Wealth

This table presents coefficient estimates from OLS regressions of household net wealth. In all regressions, we control for household characteristics, arrival-year fixed effects, country-of-origin fixed effects, time-year fixed effects, and neighborhood fixed effects defined at the municipality level. Standard errors are clustered at the municipality level, and corresponding t-statistics are reported in parentheses. We consider a sample of 5,105 refugee immigrant households and net wealth in the period 1999-2007. Better-educated Sample includes refugee immigrants with at least some college education, while Less-educated Sample consists of refugee immigrants with a high school degree or less. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	(IHS of) Net Wealth		Net Wealth Percentile		Wealth-to-Income Ratio	
	Better-educated	Less-educated	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)	(5)	(6)
Initial Wealth Inequality	33.373***	-2.097	85.741***	-10.342	1.745**	-0.467
	(2.71)	(-0.33)	(3.11)	(-0.81)	(2.49)	(-1.50)
Age 30-45	1.494	0.774*	-1.387	-9.250***	-0.003	0.054***
	(1.54)	(1.87)	(-0.52)	(-8.16)	(-0.04)	(3.82)
Age 45-60	5.649***	1.567***	1.320	-16.156***	0.032	0.025
	(4.87)	(3.26)	(0.44)	(-12.88)	(0.48)	(1.51)
Age 60-75	7.120***	2.590***	-8.292**	-27.348***	-0.024	0.011
	(4.40)	(3.84)	(-2.21)	(-18.86)	(-0.29)	(0.42)
Male	-1.032*	-0.825***	-1.697	-1.571***	0.043	-0.033***
	(-1.82)	(-2.90)	(-1.46)	(-2.75)	(1.44)	(-2.63)
Student	-2.054***	-1.236***	-5.834***	-3.140***	0.135**	0.047**
	(-3.09)	(-2.79)	(-3.92)	(-3.15)	(2.52)	(1.99)
Retired	0.663	0.841*	-0.286	-1.200	-0.043	-0.037*
	(0.82)	(1.85)	(-0.17)	(-1.59)	(-0.95)	(-1.95)
Employee	0.511	1.361***	0.628	1.911***	0.016	0.055***
	(1.11)	(5.49)	(0.73)	(4.06)	(0.78)	(5.00)
Married	1.618***	1.547***	2.984***	2.373***	-0.022	0.023*
	(2.93)	(4.79)	(2.67)	(3.85)	(-0.85)	(1.90)
Nbr of adults	-1.825***	-1.198***	-3.952***	-2.373***	0.001	0.005
	(-5.24)	(-7.06)	(-5.13)	(-7.50)	(0.09)	(0.65)
Nbr of children	-0.023	-0.071	-0.273	0.051	0.003	-0.005
	(-0.10)	(-0.55)	(-0.59)	(0.23)	(0.22)	(-1.33)
Income	4.745***	2.458***	11.249***	4.032***		
	(10.15)	(8.20)	(9.11)	(6.78)		
Constant	-92.796***	-35.639***	-175.411***	0.330	-1.259***	0.210
	(-11.51)	(-7.29)	(-8.74)	(0.03)	(-3.33)	(1.20)
Observations	13,918	31,979	13,918	31,979	13,674	30,794
R-squared	0.2663	0.1404	0.2471	0.2001	0.1728	0.1070
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Arrival-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table III: Exposure to Wealth Inequality and Labor Market Outcomes

This table presents coefficient estimates from OLS regressions of labor market outcomes. In all regressions, we control for household characteristics, arrival-year fixed effects, country-of-origin fixed effects, time-year fixed effects, and neighborhood fixed effects defined at the municipality level. Standard errors are clustered at the municipality level, and corresponding t-statistics are reported in parentheses. We consider a sample of 5,105 refugee immigrant households and labor market outcomes in the period 1999-2007. Better-educated Sample includes refugee immigrants with at least some college education, while Less-educated Sample consists of refugee immigrants with a high school degree or less. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	(IHS of) Labor Income		Unemployment	
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(1)	(2)
Initial Wealth Inequality	0.071	0.129	-0.317	-0.046
	(0.13)	(0.31)	(-0.68)	(-0.17)
Observations	13,674	30,794	13,918	31,979
R-squared	0.5339	0.3876	0.1614	0.1193
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes

Table IV: Exposure to Wealth Inequality and Household Risk Taking

This table presents coefficient estimates from linear probability model regressions of household risk taking. In all regressions, we control for household characteristics, arrival-year fixed effects, country-of-origin fixed effects, time-year fixed effects, and neighborhood fixed effects defined at the municipality level. Standard errors are clustered at the municipality level, and corresponding t-statistics are reported in parentheses. We consider a sample of 5,105 refugee immigrant households and measure of risk taking in the period 1999-2007. Better-educated Sample includes refugee immigrants with at least some college education, while Less-educated Sample consists of refugee immigrants with a high school degree or less. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	Panel A: Self-employment			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	0.756***	0.185	0.639***	0.204
	(3.05)	(0.95)	(2.60)	(1.08)
Observations	13,918	31,979	13,918	31,979
R-squared	0.1995	0.1466	0.2124	0.1650
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Household Wealth	No	No	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes
	Panel B: Stock Market Participation			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	0.974**	-0.554	0.785*	-0.526*
	(2.15)	(-1.61)	(1.79)	(-1.66)
Observations	13,918	31,979	13,918	31,979
R-squared	0.2920	0.2057	0.3014	0.2284
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Household Wealth	No	No	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes
	Panel C: Homeownership			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	1.163***	-0.118	1.072***	0.013
	(2.79)	(-0.41)	(2.60)	(0.06)
Observations	13,918	31,979	13,918	31,979
R-squared	0.3415	0.2197	0.4102	0.3444
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Household Wealth	No	No	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes

Table V: Exposure to Wealth Inequality and Household Debt

This table presents coefficient estimates from OLS regressions of debt-to-income ratio. In all regressions, we control for household characteristics, arrival-year fixed effects, country-of-origin fixed effects, time-year fixed effects, and neighborhood fixed effects defined at the municipality level. Standard errors are clustered at the municipality level, and corresponding t-statistics are reported in parentheses. We consider a sample of 5,105 refugee immigrant households and debt behavior in the period 1999-2007. Better-educated Sample includes refugee immigrants with at least some college education, while Less-educated Sample consists of refugee immigrants with a high school degree or less. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	Debt-to-Income Ratio	
	Better-educated	Less-educated
	(1)	(2)
Initial Wealth Inequality	1.341	-1.260*
	(1.46)	(-1.91)
Observations	13,674	30,794
R-squared	0.3410	0.2340
Clustering	Ini Muni	Ini Muni
Household Controls	Yes	Yes
Household Wealth	Yes	Yes
Arrival-year FE	Yes	Yes
Country-of-origin FE	Yes	Yes
Municipality FE	Yes	Yes
Time-year FE	Yes	Yes

Table VI: Exposure to Wealth Inequality and Household Wealth by Wealth Mobility

This table presents coefficient estimates from OLS regressions of household net wealth split by the degree of regional wealth mobility. In all regressions, we control for household characteristics, arrival-year fixed effects, country-of-origin fixed effects, time-year fixed effects, and neighborhood fixed effects defined at the municipality level. Standard errors are clustered at the municipality level, and corresponding t-statistics are reported in parentheses. We consider a sample of 5,105 refugee immigrant households and household wealth outcomes in the period 1999-2007. Better-educated Sample includes refugee immigrants with at least some college education, while Less-educated Sample consists of refugee immigrants with a high school degree or less. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	High Wealth Mobility		Low Wealth Mobility	
	Panel A: (IHS of) Net Wealth			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	52.278***	5.475	0.749	-8.053
	(3.68)	(0.64)	(0.05)	(-0.94)
Observations	7,323	17,523	6,595	14,456
R-squared	0.2790	0.1383	0.2889	0.1572
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes
	Panel B: Net Wealth Percentile			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	124.963***	-0.295	15.005	-17.679
	(3.56)	(-0.02)	(0.47)	(-1.04)
Observations	7,323	17,523	6,595	14,456
R-squared	0.2619	0.2074	0.2671	0.2068
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes

Table VII: Exposure to Wealth Inequality and Labor Market Outcomes by Wealth Mobility

This table presents coefficient estimates from OLS regressions of labor market outcomes split by the degree of regional wealth mobility. In all regressions, we control for household characteristics, arrival-year fixed effects, country-of-origin fixed effects, time-year fixed effects, and neighborhood fixed effects defined at the municipality level. Standard errors are clustered at the municipality level, and corresponding t-statistics are reported in parentheses. We consider a sample of 5,105 refugee immigrant households and labor market outcomes in the period 1999-2007. Better-educated Sample includes refugee immigrants with at least some college education, while Less-educated Sample consists of refugee immigrants with a high school degree or less. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	High Wealth Mobility		Low Wealth Mobility	
	Panel A: (IHS of) Labor Income			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(1)	(2)
Initial Wealth Inequality	0.178	0.333	-0.191	-0.001
	(0.29)	(0.63)	(-0.19)	(-0.01)
Observations	7,171	16,926	6,503	13,868
R-squared	0.5606	0.3922	0.5224	0.3917
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes
	Panel B: Unemployment			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(1)	(2)
Initial Wealth Inequality	0.216	-0.085	-1.394**	-0.163
	(0.37)	(-0.26)	(-2.36)	(-0.37)
Observations	7,323	17,523	6,595	14,456
R-squared	0.1788	0.1298	0.1783	0.1193
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes

Table VIII: Exposure to Wealth Inequality and Household Risk Taking by Wealth Mobility

This table presents coefficient estimates from linear probability model regressions of household risk taking split by the degree of regional wealth mobility. In all regressions, we control for household characteristics, arrival-year fixed effects, country-of-origin fixed effects, time-year fixed effects, and neighborhood fixed effects defined at the municipality level. Standard errors are clustered at the municipality level, and corresponding t-statistics are reported in parentheses. We consider a sample of 5,105 refugee immigrant households and measures of risk taking in the period 1999-2007. Better-educated Sample includes refugee immigrants with at least some college education, while Less-educated Sample consists of refugee immigrants with a high school degree or less. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	High Wealth Mobility		Low Wealth Mobility	
	Panel A: Self-employment			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	0.652*	0.139	0.644	0.160
	(1.94)	(0.55)	(1.61)	(0.55)
Observations	7,323	17,523	6,595	14,456
R-squared	0.2075	0.1691	0.2445	0.1813
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Household Wealth	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes
	Panel B: Stock Market Participation			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	1.213**	-0.442	-0.146	-0.481
	(2.23)	(-0.97)	(-0.22)	(-1.09)
Observations	7,323	17,523	6,595	14,456
R-squared	0.3184	0.2274	0.3200	0.2414
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Household Wealth	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes
	Panel C: Homeownership			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	1.576***	0.260	0.342	-0.255
	(3.21)	(0.91)	(0.55)	(-0.69)
Observations	7,323	17,523	6,595	14,456
R-squared	0.4212	0.3501	0.4272	0.3470
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Household Wealth	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes

Table IX: Exposure to Wealth Inequality and Household Financial Ratios by Wealth Mobility

This table presents coefficient estimates from OLS regressions of financial wealth-to-income and debt-to-income ratios split by the degree of regional wealth mobility. In all regressions, we control for household characteristics, arrival-year fixed effects, country-of-origin fixed effects, time-year fixed effects, and neighborhood fixed effects defined at the municipality level. Standard errors are clustered at the municipality level, and corresponding t-statistics are reported in parentheses. We consider a sample of 5,105 refugee immigrant households in the period 1999-2007. Better-educated Sample includes refugee immigrants with at least some college education, while Less-educated Sample consists of refugee immigrants with a high school degree or less. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	High Wealth Mobility		Low Wealth Mobility	
	Panel A: Wealth-to-Income Ratio			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	2.594***	-0.252	-0.194	-0.766
	(2.89)	(-0.71)	(-0.19)	(-1.48)
Observations	7,171	16,926	6,503	13,868
R-squared	0.1798	0.1122	0.1948	0.1135
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes
	Panel B: Debt-to-Income Ratio			
	Better-educated	Less-educated	Better-educated	Less-educated
	(1)	(2)	(3)	(4)
Initial Wealth Inequality	1.541	-1.450**	1.641	-0.983
	(1.27)	(-2.05)	(0.95)	(-0.81)
Observations	7,171	16,926	6,503	13,868
R-squared	0.3261	0.2550	0.3767	0.2198
Clustering	Ini Muni	Ini Muni	Ini Muni	Ini Muni
Household Controls	Yes	Yes	Yes	Yes
Household Wealth	Yes	Yes	Yes	Yes
Arrival-year FE	Yes	Yes	Yes	Yes
Country-of-origin FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Time-year FE	Yes	Yes	Yes	Yes

Table X: Determinants of Wealth Inequality

This table presents coefficient estimates from panel regressions of local wealth inequality defined at the municipality level. The dependent variable is the share of wealth held by the top 10 percent of the households in the municipality in each year between 1987 and 1991. The control variables are defined over the same period as the outcome variable. In both specifications, we control for municipality fixed effects, while (2) accounts for time-year fixed effects. Standard errors are clustered at the municipality level, and corresponding t-statistics are reported in parentheses. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	Wealth Inequality	
	(1)	(2)
New Firms Founded	0.117***	0.033
	(4.98)	(1.36)
Share of Homeowners	-0.389***	-0.153*
	(-5.95)	(-1.82)
House Price Inflation	0.047***	0.031*
	(2.73)	(1.88)
Share of Stockholders	-0.176***	-0.137**
	(-6.47)	(-2.58)
Share of College Attendees	-0.766***	-0.708***
	(-5.01)	(-4.26)
Average Income	0.266***	0.080*
	(8.13)	(1.84)
Average Wealth	0.053***	0.038*
	(2.61)	(1.85)
Unemployment Rate	0.021	0.105
	(0.34)	(1.45)
New Constructions	0.005	0.003
	(1.61)	(1.13)
Firms Defaulted	-0.056*	-0.062**
	(-1.93)	(-2.01)
Number of Default-affected Employees	0.002	0.004
	(0.87)	(1.22)
Constant	-1.478***	-0.045
	(-5.00)	(-0.12)
Observations	1,415	1,415
R-squared	0.8832	0.8931
Clustering	Ini Muni	Ini Muni
Municipality FE	Yes	Yes
Time-year FE	No	Yes

Table XI: Predictors of Wealth Mobility

This table presents coefficient estimates from cross-sectional OLS regressions of local wealth mobility at the municipality level. The dependent variable is the share of households who moved to the bottom 90 percent of the wealth distribution in 1992 conditional on being in the top 10 percent in 1986. Control variables refer to 1986 values. Standard errors are robust to heteroscedasticity, and corresponding t-statistics are reported in parentheses. Statistical significance at the 10, 5, and 1 percent levels is indicated by *, **, and ***, respectively. For variable definitions, see Online Appendix A.

	Wealth Mobility	
	(1)	(2)
New Firms Founded	0.207**	0.179**
	(2.35)	(2.01)
Share of Homeowners	0.050	0.153
	(0.65)	(1.64)
House Price Level	0.028	0.056*
	(0.94)	(1.74)
Share of Stockholders	0.047	0.115
	(0.37)	(0.74)
Share of College Attendees	0.205*	0.291**
	(1.94)	(2.42)
New Constructions	0.005	-0.001
	(0.24)	(-0.04)
Firms Defaulted	0.164	0.149
	(1.09)	(0.97)
Number of Default-affected Employees	0.021	0.015
	(0.73)	(0.54)
Share of Wealth held by Top 10	-0.431***	-0.361***
	(-3.79)	(-3.00)
Average Income		-0.095*
		(-1.68)
Average Wealth		-0.031
		(-0.99)
Unemployment Rate		-0.006
		(-0.03)
Constant	0.277	0.929*
	(1.38)	(1.86)
Observations	283	283
R-squared	0.1416	0.1550

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