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The Cultural Transmission of Environmental Preferences: Evidence from International Migration*

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Abstract

This paper investigates both theoretically and empirically the hypothesis that individual environmental attitudes can be partly accounted for by a cultural component. To empirically identify this component, we exploit variation associated with international migration flows. We find that the environmental attitudes of migrants, while being resilient to environmental conditions, also embed a cultural component, which persists till the second generation migrants. Our results suggest that, in the presence of multiple environmental problems that require collective action, comprehending the driving forces behind the formation of an environmental culture is critical to design effective policies.

Keywords: Cultural Transmission, Migration, Environmental Preferences

JEL Classification Numbers: Q50; Q58; R23

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1 Introduction

The profound effect of culture on economic outcomes and the formation of public policy has been at the center of a recent debate that explores the transmission of cultural traits. Several aspects of the economy and the society such as the fertility rate, female labor force participation and preference for redistribution have been argued to manifest a cultural component that frames individual economic behavior and ultimately economic policies. In the light of major ecological problems that require immediate collective action, several studies in Anthropology and Sociology pointed out the reasons why accounting for cultural factors is also important in environmental issues. Humans are self-centered and this feature is inherently anti-ecological. Also, public beliefs and values tend to interpret scientific information on environmental issues (e.g. on gas emissions, ozone depletion), thus affecting social preferences towards the environment (see Plumwood, [21]; Kempton et al., [12]). These factors, by reducing environmental awareness, are likely to undermine the design of effective environmental policies. Also, the difficult consensus on greenhouse gas emission targets for the period 2013-2020 within the United Nations Framework Convention on Climate Change suggest that, besides political or economic factors, a cultural component exists that determines a heterogeneous degree of environmental awareness across country members.

The economic literature has so far neglected the analysis of the role of environmental culture. To define culture is a challenging task. As R. Borofsky [5] puts it: " we talk about culture as something real,..., but culture is in fact an intellectual construct used for describing a complex cluster of human behaviors, ideas, emotions and artifacts. [...] efforts to define culture are akin to trying to encage wind".[1] This paper advances the hypothesis that differences in environmental preferences across individuals can be traced to cultural differences. In particular, we argue that environmental attitudes such as the willingness to pay for the environment are not solely the effect of local environmental conditions on individual attitudes but can also be accounted for by culture. For the purpose of this paper, we build on Guiso et al. [11], and define environmental preferences as a set of values that embodies beliefs, social norms and attitudes, which rule individual behavior towards the environment.

Our analysis tackles this issue both theoretically and empirically. In the theoretical part of the paper we present a model of transmission of environmental preferences based on Bisin and Verdier [4]. We assume agents live in two separate social groups, and consume goods whose production causes pollution. Each social group has a specific environmental trait, defined as the dis-utility from pollution. In the absence of migration, each social group preserves a homogeneous environmental trait, and agents in each group select consumption levels, thus the amount of pollution, which maximizes their utility. When migration takes place, assumingly due to income differences, first generation migrants carry their cultural

[1] Another related issue is how culture affects human behavior. For this see Bowles and Gintis [6].

traits and preferences with them from their origin to the destination group. Crucially, they now face the possibility that their offspring may acquire the cultural trait of the destination group. Still, cultural transmission of the origin group trait may occur through two channels. First, if individuals want their culture to prevail in the new environment they should invest in family socialization (direct transmission). Second, the cultural transmission may take place through socialization within the migrant group (indirect transmission). We find that the environmental trait is successfully transmitted, either directly or indirectly, if the marginal dis-utility from pollution of migrants is inferior to the marginal dis-utility of the native population. This condition guarantees that the direct transmission of the environmental traits acts as a cultural substitute to indirect transmission. This is the benchmark case examined by Bisin and Verdier [4]. If this condition holds, the likelihood is high that the migrant children will acquire their origin culture through indirect transmission whenever the direct vertical socialization fails. It follows that the population in the destination country ex-post migration will be heterogeneous, because the trait of the migrant population will survive.

The empirical analysis aims to test the broad hypothesis that environmental preferences may be culturally transmitted to future generations. To establish our testable hypothesis we use survey data from the European Values Study (EVS). The EVS dataset comprises 45 European countries and includes information about the attitudes, beliefs and preferences of Europeans towards a range of issues such as the environment, religion, politics, the economy, etc. and allows us to identify first and second generation migrants. As a measure of the environmental preferences of individuals, we focus on the willingness of individuals to pay for the environment.

Our empirical strategy is based on the "epidemiological" approach by Fernández [9], which uses variation associated with international migration flows to identify the causal impact of culture on individual preferences. The focus on immigrants allows us to distinguish the effect of an "environmental culture" (formed and persistent in the country of origin of the migrant), from the effect of the (economic and environmental) incentives the migrants are exposed to in the country of destination. Our empirical approach allows us to account for the endogeneity of culture with respect to individual environmental preferences, which prompts a causal interpretation of our results. Our findings suggest that culture has a persistent and statistically significant impact on the environmental preferences of migrants: differences in environmental attitudes among migrants can be traced to a persistence of social preferences in their country of origin. We also show that environmental attitudes are resilient to the set of incentives that come from the external environment: the environmental conditions migrants were exposed to in their country of origin do not have a significant impact on their preferences in the host country. Our empirical findings are robust to a number of alternative assumptions, and present interesting dimensions of heterogeneity. A first dimension relates to the degree of cultural integration: migrants who appropriate some important aspects of

the host culture (e.g. language or laws) are also more willing to retain the environmental trait that comes from their own culture. This attitude is well known in Sociology and it is denoted as an "integration strategy" i.e. a strong association with both the host and the origin country (Berry [3]). A second heterogeneity dimension regards the cultural transmission process: Immigrant's network and family are both important cultural transmission channels; moreover, the quality of the transmission process (e.g. measured by intra-family relationships) plays a pivotal role, as well as the paternal (relative to maternal) influence.

Our findings have a number of important implications with respect to the formation of public policy both at the local and at the international level. First of all, governments should not only aim at pollution reducing policies but also at social learning activities that foster the emergence of an environmental culture. This issue becomes even more critical in an era where international migration flows are rather vast and therefore the cultural trait of the median voter in a country is likely to be "a weighted average" of several different cultures. International environmental agreements are reached by leaders who represent the social preferences prevailing in their country. Therefore, understanding the driving forces behind the formation of an environmental culture is critical for reaching consensus at all levels.

The paper is organized as follows. Section 2 explores the related theoretical and empirical literature and highlights the contribution of our paper. Section 3 presents a formal model that explores the transmission mechanism. Section 4 presents the empirical analysis. Section 5 concludes.

2 Related literature

Our study adds to a growing economics literature that analyzes cultural transmission mechanisms, initiated by the seminal paper of Bisin and Verdier [4]. In the context of environmental economics, there are few theoretical studies that explore the impact of social norms on the environment. Sethi and Somanathan [17] study the endogenous evolution of social norms in a local common-property resource setting using evolutionary game theory. They find that with a sufficiently large number of individuals that are enforcers, the society can reach and remain in a norm-guided society rather then individualistic one. Schumacher [18] investigates cultural dynamics of environmental preferences, as in Bisin and Verdier [4], including a feedback from pollution to cultural dynamics. Pollution affects the proportion of the two cultural traits that exist - environmentalists (greens) and browns. The dynamic transmission is such that green preferences are less likely to be transmitted inter-generationally for low levels of pollution, whereas they are likely to be transmitted for high levels of pollution. Behadj and Tarola [2] study social norms and their effect on environmental awareness. The authors consider

consumption choices between a green and a brown product made under social norms influence: individuals suffer if they buy a brown product when peers in their social group select a green version. This mechanism allows to build a market demand that embodies social norms that concern the environment. Then, the market equilibrium that arises depends on the extent of such social norms. Authors show that brown firms could exist the market due to such consumption externalities.

Our theoretical analysis provides a simple and intuitive mechanism via which environmental culture can be transmitted across individuals. Building upon the baseline cultural transmission model and by plausibly assuming that individuals may migrate, driven primarily by economic incentives, we capture the conditions under which the environmental culture is transmitted and we generate a clear hypothesis to be tested in the empirical section of the paper. To build our theoretical prior, we use a simple version of Stokey [19] to determine the individual choice of consumption and pollution. This choices are dictated, among other things, by the disutility from pollution that encompasses the environmental culture of a social group. Then, such choices are combined with the hypothesis of Bisin and Verdier [4] that guarantees the cultural transmission of the environmental culture.

The main contribution of our paper is on the empirical side. While the idea that culture affects economic phenomena is quite old and much debated in other fields, such as Anthropology and Sociology, the quantitative analyses of the impact of culture on economic outcomes start only in early nineties. Carroll et al. [7] attempts to identify a cultural component in the propensity to save but fails to find a systematic effect of culture probably due to the data restrictions, as admitted by the authors. More recently, Ottaviano and Peri [15] analyze the economic value of cultural diversity in the US and finds that an increase in the share of foreign-born citizens between 1970 and 1990 in metropolitan areas, produced a significant increase in wage and in the rental price of housing of native US citizens.

An obvious issue in identifying the impact of culture on economic outcomes is that past economic outcomes may determine a country's beliefs and values as well as its current economic outcomes. The development of large-scale survey datasets such as the World Values Survey, or the European Surveys (ESS and EVS) favored the emergence of a literature that tackles the endogeneity of culture relative to economic outcomes. A number of studies adopt an instrumental variables (IV) approach. For instance, Tabellini [20] explore the impact of culture on growth, using historical literacy rates as an instrument for culture. Guiso, Sapienza, and Zingales [11] use religious denomination and ethnic origins as instruments, to identify the impact of culture on various economic outcomes. While it allows to model the process of cultural transmission, the IV approach relies on the strong assumptions that the instrument (i.e. religion, ethnicity, literacy rates) affects economic outcomes only through the specific dimension of culture at stake. Fernández [9] and Fernández and Fogli [10] propose a different approach, which exploits variation associated with international migration flows to isolate

the cultural determinants (that arise in the country of origin) from the local determinants (linked to the economic conditions in the country of destination) of individual preferences. This approach does not model the transmission mechanism from culture to social preferences, but has the advantage of cutting the link between past and current economic outcomes. Applying this approach, Fernández and Fogli [10] analyze the effect of culture on fertility and female labor participation, Alesina and Giuliano [1] identify the causal impact of family ties on economic outcomes, while Luttmer and Singhal [13] establish the cultural transmission of preferences for redistribution. These studies proxy culture by either observed economic outcomes in the country of origin (e.g. female labor market participation rates), or the average set of values and beliefs in the country of origin (e.g. average preferences for redistribution, average strength of family ties). To address concerns of selective migration, they exploit the multilateral movements of migrants from many different origin countries to several different host countries and focus on second generation migrants.

The present paper contributes to this expanding literature by applying this "epidemiological" approach to the analysis of the cultural transmission of environmental attitudes.[2] Even though we use a reduced form empirical specification a là Fernández [9], we are able to gain an interesting insight over some important features of the process of environmental preferences' determination. We are able to check whether the environmental preferences of immigrants are formed only through cultural transmission, or whether they also respond to the environmental conditions prevailing in the country of origin. We are also able to analyze some aspects of the cultural transmission process, i.e. the role of cultural integration of migrants, the type and quality of the cultural transmission as well as the relative maternal and paternal influence.

3 The Model

Inhere, we briefly describe a model à la Bisin and Verdier [4] to explain how environmental preferences are transmitted. Assume two populations of individuals that in period one constitute two within-homogeneous groups.[3] The first group lives in a polluted environment, while the second one enjoys a better environmental quality. Denote these two social groups as B and G, respectively. Each population is assumed to have a specific environmental trait different from the population of the other group. This difference in trait may have been developed through time and the difference between the two has been augmented due to different levels of income, different levels of technology, etc. Denote these two traits as $Brown$ and $Green$.

[2]This approach is called "epidemiological" as it is inspired by Epidemiology. In medical sciences, Epidemiology studies migrants to isolate the genetic from the external causes of a disease (Fernández [9]).

[3]A group is a generic set of individuals (a country, a village, an ethnic group), who share a common cultural trait.

The environmental trait can be seen as the dis-utility from pollution, which determines the marginal willingness to pay for the environment, as defined below. A representative agent's utility function writes as:

$$u(c) - h_i(p) + (P_{ii}V_{ii} + P_{ij}V_{ij}),\ i, j = G, B,\ i \neq j$$

where c is consumption and p is pollution, $u(\cdot)$ is the sub-utility from consumption and $h(\cdot)$ captures the dis-utility from pollution. Both functions are assumed monotonic increasing. The production of the consumption good(s) generates emissions as a by-product. We assume that each unit of consumption good produced emits $f_i(c)$, $i = B, G$ units of pollution. Thus, pollution technology writes as $p = f_i(c)$, $f'(c) > 0$, $i = B, G$. Each individual has an endowment of income M_i, $i = B, G$. Neglecting for the time being the last part of the utility, the optimal choice of consumption yields

$$\frac{h_i'(p)}{u'(c)} = \frac{1}{f_i'(p)},\ i = G, B \tag{1}$$

The expression $\frac{h_i'(p)}{u'(c)}$ captures the marginal willingness to pay of the representative agent for a unit reduction of pollution. The two social groups show different willingness to pay, governed by the shape of the dis-utility from pollution $h_i(p)$. At the optimal choice, the marginal willingness to pay is equal to the inverse of the marginal productivity of the polluting technology. Last, by assumption, $u(c) - h_i(f_i(c))$ is a concave function c. Hence, the marginal increase of consumption always dominates the corresponding dis-utility from the marginal increase in pollution up to a certain level of pollution but once that level of pollution is exceeded dis-utility from pollution exceeds utility from consumption.

The last part of the utility function, $P_{ii}V_{ii} + P_{ij}V_{ij}$, concerns the cultural transmission of the environmental trait. It captures the empathy of the representative agent for her prole, where $V_{ii} \equiv u(c) - h_i(p)$ is the sub-utility function of a parent of type i having a child of type i, and $V_{ij} \equiv u(c) - h_j(p)$ is the sub-utility function of a parent of type i having a child of type j. P_{ii} is the probability that a child from a family with trait i is socialized to trait i; and P_{ij} is the probability that a child from a family with trait i is socialized to trait j. Before any migration takes place and assuming that mutations within an homogeneous social group are absent, the event that a new born within a family of type i has a different trait, namely j, never occurs, i.e., $P_{ij} = 0$. This implies that families need not to invest in within-family socialization, which is a costly activity. Let the cost of this investment, when it takes place, be $I_i(e)$, $I' > 0, I'' > 0$, where e denotes resources devoted to within-family education.

In period 1, countries are in autarchy, so no migration takes place. Then, without loss of generality, it is assumed that the trait *Green* is developed in group G and the trait *Brown* is developed in group B. Hence, group *Green* is made of individuals of type G and group *Brown*

is made of individuals of type B. Our definition of types is determined by the cultural trait (the type of function h). The level of pollution and consumption in each group is determined by the interplay of the cultural trait G or B, income M_i and the polluting technology f_i, which are all assumed to be group-specific variables. Clearly, were income endowments and polluting technologies the same between the groups, the level of pollution in each group will differ only due to cultural difference, $h_i \neq h_j$.

Since before migration, the two populations are homogeneous, then family transmission and the indirect transmission are complementary. Parents can refrain from socializing with their descendants since the process is costly because they will acquire the trait from their friends, hence $I = 0$. This is also known as the *Social Conformity*. The representative agent will maximize

$$\begin{aligned} &\max_c u(c) - h_i(p) + (P_{ii}V_{ii} + P_{ij}V_{ij}) \\ s.t.\ &c \leq M_i \\ &p = f_i(c) \end{aligned} \tag{2}$$

Then, substituting these expressions in (2), the first order condition obtains again as

$$\frac{h_i'(p)}{u'(c)} = \frac{1}{f_i'(p)},\ i = B, G \tag{3}$$

which determines the implicit optimal solutions of consumption and pollution, $c_i^*(M_i)$ and $p^*(M_i)$, respectively. Notice that since $P_{ij} = 0$ in the period that precedes migration, then, the first order condition is the same as in a classical model with no intergenerational transmission of traits (1). At the optimal choice of agents, the marginal willingness to pay to reduce pollution shall equalize the marginal productivity of the polluting technology. As expected, $c_i^*(M_i)$ and $p^*(M_i)$ depend on the shape of h_i and the productivity of the polluting technology.

Assume now that in the second period, migration takes place from population i to j, $i = B, G, i \neq j$. Migration takes place, as explained in the seminal paper of Roy [16], because of income differences: $M_i < M_j$. Now, a fraction q^i, $i = B, G$ of the population in group j shows a trait i which is different from the natives' population trait j. A child born in the migrant family receives the same trait as the parent through the socialization within the family with probability $d^i(q^i)$. If the socialization within the migrant family is not successful, with probability $1 - d_i(q_i)$, then with probability q^i the trait i is acquired by the socialization in the migrant minority, and trait j with probability $q_j = 1 - q_i$. Then, a child of a migrant family shows the trait of his family with probability $d_i(q_i)$, when the trait is acquired at home,

plus $(1 - d_i(q_i))\, q_i$, when the trait is acquired within the migrant minority. Hence,

$$P_{ii} = d_i(q_i) + (1 - d_i(q_i))\, q_i.$$

Then, a second generation migrant will not show the same trait as his family with probability $P_{ij} = 1 - P_{ii}$.

After migration, the migrant families, with trait i, maximize the following utility function

$$\begin{aligned} &\max_e u(c) - h_i(p) + (P_{ii}V_{ii} + P_{ij}V_{ij}) - I_i(e) \\ s.t.\ &c + e \leq M_j \\ &p = f_j(c) \end{aligned} \tag{4}$$

The first order condition now obtains as

$$\frac{(1 + P_{ii}(q_i))\, h_i'(p) + P_{ij}(q_i)h_j'(p)}{u'(c)} - \frac{I_i'(e)}{u'(c)} \frac{1}{f_j'(p)} = \frac{2}{f_j'(p)} \tag{5}$$

When facing an heterogeneous population, at the optimal choice, the marginal willingness to pay for the environment of a migrant of type i changes with respect to the marginal willingness to pay if he had stayed in his own group. This change occurs even though his cultural trait $h_i(p)$ remains the same. After migration, a migrant's marginal willingness to pay for the environment encompasses the effect of pollution on the utility of the child whether he is of type i or j. Secondly, part of the resources is now devoted to within-family education. Furthermore, the migrant family now receives a different income and finally, she recognizes that the polluting technology is different. This first order condition gives the implicit solutions $c_i^*(M_j, q_i), p^*(M_j, q_i)$ and $e^*(M_j, q_i)$. Bisin and Verdier [4] show that if the optimal level of investment $e^*(M_j, q_i)$ depends negatively on q_i, then, the trait is successfully transmitted. In the current setup, we can claim the following

Proposition 1 *Environmental preferences are successfully transmitted either directly or indirectly from one generation to the other and thus environmental preferences have a cultural component if the marginal dis-utilities from pollution satisfy the condition* $h_i'(p) - h_j'(p) < 0$.

Proof. Totally differentiating the first order condition (5) with respect to e and q, yields:

$$\frac{de^*}{dq_i} = -\frac{f_j'(c)\left[d'(q_i) * (1 - q_i) + (1 - d(q_i))\right]\left[h_i'(p) - h_j'(p)\right]}{2u''(c) - (1 + P_{ii})\left[h_i''(p)f_j'(c) + h_i'(p)f_j''(c)\right] - P_{ij}\left[h_j''(p)f_j'(c) + h_j'(p)f_j''(c)\right] - I''}$$

Since the denominator is negative for the concavity condition of the utility function with respect to e, then, the sign of $\frac{de^*}{dq_i}$ is given by the sign of $h_i'(p) - h_j'(p)$. If $h_i'(p) - h_j'(p) < (>)0$ then $\frac{de^*}{dq_i} < (>)0$! ■

Discussion The above proposition will form the basis of our testable hypothesis, i.e., whether differences in environmental attitudes can be traced to differences in cultural attitudes. In the light of the fact that cultural differences can hardly be measured we cannot test all the implications of the proposition therefore we will focus primarily on establishing the presence of a cultural component in environmental attitudes.

Nevertheless our theoretical findings are interesting in several dimensions and thus merit some additional analysis. The proposition shows that the level of investment in family socialization depends crucially on the difference in marginal dis-utility of pollution h_i versus h_j, $i, j = B, G$, $i \neq j$. If the destination group is characterized by individuals with a very high marginal dis-utility from pollution, then the higher the flow of migrants, the lower the investment of families in within-family socialization because children will obtain the trait from indirect transmission.

Two remarks are in order. First, the condition $h_i'(p) \gtrless h_j'(p)$ does not imply that the level of dis-utility from pollution of individuals in group i is higher or lower from the dis-utility from pollution of those in group j. It can well be that individuals in j suffer more pollution with $h_i(p) < h_j(p)$, and vice versa. The condition in Proposition 1 determines a relationship between the *marginal* dis-utility from pollution at the optimal level of pollution in the group j.

Second, totally differentiating the first order condition for c, we find that $\frac{dc}{dq} < 0$ iff $h_j'(p) > h_i'(p)$ holds. Hence, the higher the flow of migrants q_i, who will transmit their trait successfully (as established in Proposition 1), the lower the level of the pollution p_j produced in the destination country by migrants as compared to the level of pollution they would have produced if they had stayed at the origin country. Furthermore, it is worth noticing that the optimization of the native representative agent of group j is similar to (4) . It follows that migration can determine a decrease of the level of pollution in the destination social group depending on the elasticity of the demand for consumption. More precisely, this can happen if the total decline of the per capita consumption ($\frac{dc}{dq} < 0$) dominates the increase of consumption demand due to migrants arrival.

4 Empirical analysis

4.1 Data and empirical strategy

In this section, we estimate the impact of culture on environmental preferences, using data from the European Values Study (EVS). The EVS is a large scale cross national survey, and currently has four waves spanning over the period 1981-2008. We focus on the 2008 wave of the EVS, [4] because this is the only one that traces back first and second generation immigrants. We exclude all people who do not provide information about their country of origin, their parents' country of origin, and who are under the age of 18. We also exclude observations for which environmental preferences or any other individual control are missing. We obtain a final sample of 2855 migrants coming from the 45 countries. Of those migrants, 1674 are first generation migrants whereas 1181 are second generation migrants.

In line with our theoretical analysis, we proxy environmental preferences by individuals' willingness to pay for the environment. The EVS includes an ordered variable, which measures the extent of agreement to the statement "I would give part of my income if I were certain that the money would be used to prevent environmental pollution". The variable takes the value of 1 for "strongly disagree", 2 for "disagree", 3 for "agree" and 4 for "strongly agree".

We follow the recent empirical literature on the economic effects of culture (Luttmer and Singhal [13], Fernández [9], Fernández and Fogli [10]) and estimate the following reduced form specification for immigrant preferences:

$$MWP_{irb} = \beta * \overline{MWP}_b + \gamma * Nitrous_b + \delta * GDPxc_b + \lambda * \mathbf{X}_i + \theta_r + \epsilon_{irb}. \quad (6)$$

MWP_{irb} denotes the marginal willingness to pay (MWP) for the environment of immigrant i, who lives in country r and originates from country b. We follow the literature and define the immigrant's country of origin b as the country of origin of the father.[5] $\overline{MWP}_b$ is the mean value of the MWP for the environment, measured among natives only, in immigrant i's country of origin b. $Nitrous_b$ are Nitrous Oxide emissions (in logs) in immigrant i's country of origin b. This environmental indicator is a good proxy for environmental quality in the origin country for a number of reasons. Nitrous Oxide gas emissions have a relevant environmental

[4] This 2008 wave includes the maximum number of countries. There are 42 countries in the sample: Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iceland, Ireland, Italy, Kosovo, Latvia, Lithuania, Macedonia, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and Ukraine. In addition to these there are data on immigrants from former Czechoslovakia, USSR and Yugoslavia (Socialist Federal Rep.). See Appendix A for details.

[5] In the results' section we check the robustness of our results against alternative definitions of country of origin, based on the country of origin of the mother. We also discuss extensively the role of father and mother in the cultural transmission mechanisms.

impact (with a Global Warming Power 300 times superior than CO2; see EPA, [8] for details), and reflect primarily local (as opposed to trans-boundary) pollution, and over the 40% of emissions are triggered by human behavior. Also, the level of gas emission can be considered as a "stock" pollution variable (Nitrous Oxide survives in the atmosphere for over 100 years), thus it is a good proxy of the pollution that the migrants faced when they left the country. Reassuringly, the robustness section establishes that the use of alternative environmental quality measures yields similar results.[6]

Among the controls, we include per capita GDP in the country of origin, $GDPxc_b$, a vector of extensive individual, spouse, and parental characteristics, X_i, and a fixed effect for the residence country of immigrant i, θ_r. Finally, ϵ_{irb} denotes the error term.

Our coefficients of interest is β. If the preferences towards the environment of the immigrant were only affected by the relevant economic and institutional factors in her country of residence, we should expect $\beta = 0$. However, a β significantly different from 0 signals an effect of culture on the environmental preferences of the immigrant. The identifying assumption in equation (6) is that there are no omitted factors correlated with environmental preferences in the origin country other than culture that affect immigrant's preferences in the country of destination. Based on this assumption, estimates of β by ordinary least squares (OLS) can be given a causal interpretation (Fernández [9], Luttmer and Singhal [13], Fernández and Fogli [10]). We discuss below the validity of our identifying assumption.

Endogeneity issues. A number of endogeneity issues may arise in a specification such as equation (6), and render OLS estimates of β biased and inconsistent. A first potential issue is selective migration, if workers with strong preferences for the environment can migrate from high polluted countries to low polluted ones.[7] We argue that selective migration is not a problem in our estimates for three reasons. *First*, as pointed out by Luttmer and Singhal [13], selective migration is generally not an issue in ESS and EVS type of survey data, as these data consider migration flows from multiple countries and to multiple destinations. *Second*, environmental migration flows are generally triggered by long term trends such as increases in droughts or flooding, which may reduce livelihoods in certain areas, particularly those based in agriculture (see e.g. Martin, [14]). These events are of limited relevance in our sample, which only includes flows between countries characterized by relatively homogeneous

[6]See Table 5 that introduces alternative environmental quality measures such as organic water pollutant (BOD) emissions, agricultural methane emissions, CO2 emissions, particulate matter concentrations and the EPI index which is a composite index of environmental quality reflecting environmental health, ecosystem vitality and climate and energy.

[7]Notice that selective environmental migration from high to low polluted countries would imply that the MWP for the environment of migrants is systematically higher than the average MWP of natives in the origin country. In this case, environmental migration is likely to impose a downward bias to the estimated impact of culture on individual preferences, which implies that our estimates would provide a lower bound of the true effect of culture on migrants' individual preferences.

climatic conditions. Table 1 describes migration flows, and conveys the idea that international migration flows in our sample mostly take place between Southern and Northern European countries or between Eastern and Western European countries. As an example, Poland is an important origin country (see Columns (1)-(4)). It accounts for 83 migrants to 24 different destinations, the most common one being Germany (14 migrants with Polish origin reside in Germany). Conversely, Switzerland is an important destination country (see Columns (5)-(8)). This country hosts 186 migrants coming from 22 countries, with the prevalent origin country being Italy (39 migrants of Italian origin from our sample currently live in Switzerland). This descriptive evidence is consistent with the view that migration flows are mostly determined by income differences. Selection is economically motivated selective migration. This argument is enough to rule out selection for environmental preferences provided that lower income countries are not necessarily the more polluted ones. [8] *Third*, we also look at the impact of culture on environmental preferences of second generation migrants. Following Fernández and Fogli [10], the focus on second generation migrants provides a tool to minimize selective migration, their migration status being determined by parents' migration decision, thus being exogenous with respect to their environmental preferences.[9]

There is a second issue of omitted variable bias in so far as other factors than culture, e.g. low unobserved skills, determine both the migration status (for example unemployment, low income or segregation in the country of origin) and the marginal willingness to pay for the environment. Table 2 reports the demographic characteristics of the sample of migrants, and confirms that unobserved individual characteristics could be a concern, as over the 30% of migrants in the sample only have primary education, and over 50% are females, which may be particularly subject to segregation issues. Following Luttmer and Singhal [13] and Fernández and Fogli [10], we assume that the extensive set of individual, family, parental and spouse characteristics available in the data fully captures the effect of such unobserved factors. We also carry out an extensive set of robustness checks to control for any omitted factor which

[8] **If the poorest countries in our sample are also the most heavily polluted ones it would be impossible to distinguish economically motivated selective migration from environmental migration. However, environmental migration from highly polluted to cleaner countries imposes a downward bias to the estimated impact of culture on environmental preferences: if migrants move specifically to avoid pollution they must care more than the rest of the population in their home country. If this is the case, our estimated coefficient provides the lower bound of the true effect of culture on the MWP for the environment of migrants.** @@DROP THE PARAGRAPH BELOW AS IT SUGGESTS THE OPPOSITE BIAS, WHICH GOES IN THE WRONG DIRECTION Notice however that lower income countries are not necessarily the more polluted ones. It is well-known that income and pollution across countries follows a non-monotonic relationship known as the Kuznets curve. Hence, it is likely that migrants move for income reasons and often they live behind cleaner countries to reside in more polluting ones.@@

[9] Notice that the focus on second generation migrants also allow to attenuate other endogeneity issues, e.g. omitted individual characteristics, correlated with the migration decision, or exposure to non-cultural characteristics of the country of origin, which may also affect migrants' preferences. See below for a discussion.

may confound our baseline estimates.[10]

There is third issue of simultaneity, potentially due to economic conditions in the country of origin, which may determine both the regressors and the dependent variable. We account for it by adding controls for the economic performance and environmental conditions in the country of origin (per capita GDP, Nitrous Oxide emissions). A final concern is reverse causality, which may be triggered by feedback effects from migrants' to natives' preferences. This is also not a concern in our sample, due to the absence of massive flows of return migration in the data. However, we account for this by dropping from the sample all return migrants (i.e. individuals born abroad but resident in the country of birth of their father). [11]

4.2 Empirical Results

Table 3 reports estimates for the impact of culture on immigrants' MWP for the environment. The analysis is undertaken for the full sample of migrants (Columns [1]-[4]), the sample of first generation migrants (Columns [5]-[6]), and the sample of second generation migrants (Columns [7]-[8]). In column [1] we only include the host country dummies. In column [2], we add controls for income in the country of origin (measured by the log of purchasing power parity adjusted GDP in 2000) as well as relevant demographic, socioeconomic and household characteristics (i.e., age, age squared, gender, education, employment status, individual income, marital status, having children). In column [3], we enrich the set of individual controls by adding dummy variables for parental and spouse characteristics (i.e. education, employment status, occupation). The coefficient of the mean MWP in the origin country is positive and statistically significant, suggesting that the native culture has a positive impact on migrant's attitudes. In particular the estimates suggest that one unit increase in the mean level of the marginal willingness to pay for the environment at the origin country is associated with a 0.21 increase in the index of the MWP of the migrant.

Column [4] further explores whether this effect is triggered by the origin culture or whether it is driven by the environmental conditions in the origin country. In particular, we run a horserace regression between the mean MWP for the environment and environmental quality in the country of origin (Nitrous Oxide emissions, in logs). Results in column [4]

[10] Omitted variable bias is also likely impose a downward bias to the estimated impact of culture on individual preferences, as long as individuals with low unobserved abilities tend to report relatively lower MWP for the environment.

[11] An alternative way to address the issue of return migration, would be computing the average preferences of natives, around the time migrants left the country (see e.g. Fernández and Fogli [10]). This would also allow us to identify more precisely the cultural channel. Unfortunately, migration identifiers are only available for the 2008 EVS wave, so we had to use contemporaneous preferences of natives. However, as stressed by Fernandez and Fogli [10], contemporaneous preferences are also a good cultural proxy. In fact, cultural traits present a very persistent component, which is embedded in social preferences and manifests itself at each point in time. Moreover a weaker cultural channel captured by the contemporaneous cultural trait implies that our estimates actually estimate a lower bound of the true effect of culture on migrants' preferences.

confirm the estimated impact of our cultural variable remains largely unaffected, whereas the local pollution variable is insignificant. [12]

[Table 3 here]

In columns [5]-[6] and columns [7]-[8], we report separate estimates for the first and second generation immigrants respectively, while employing the full set of controls (columns [5] and [7]) and running the horse-race regressions between pollution at the origin country and mean attitudes at the origin country (columns [6] and [8]). The coefficients of mean environmental attitudes in the country of origin remain positive and highly significant for both immigrant categories. In particular, the positive and significant coefficient for the second generation immigrants is reassuring as to the fact that a cultural transmission mechanism is at work, and that the results are not driven by selective migration. Also in these estimates the coefficient on pollution does not confer any significant effect on immigrants' preferences.

As our main variables of interest are ordered indicators obtained by survey responses, it is useful to have an insight over the size of the estimated impact of culture on individual preferences. Overall, results in Table 3 indicate that one standard deviation increase in the mean MWP for the environment in the country of origin is associated with a $0.04 - 0.08$ unit increase in immigrants' MWP for the environment i.e. $5\% - 10\%$ of one standard deviation of immigrants' MWP (compare Table 2). These figures are non-negligible considering that they are obtained *ceteris paribus* i.e. all other individual, host and origin country characteristics being the same.

Turning to controls, individuals with secondary or tertiary education have stronger environmental attitudes as compared to individuals that only completed primary education, while unemployment experience adversely affects the willingness to pay. Among the individual controls, age, gender and income do not have a significant impact on individual MWP. The log of purchasing power parity adjusted GDP in the origin country, which is meant to capture economic differences across countries is not statistically significant.

We subject our baseline analysis to a number of sensitivity exercises. We first check whether our results are robust to the adoption of alternative specifications. We then check that our results are not driven by omitted individual attitudes, such as trust, altruism, or political views. We finally turn to some heterogeneity exercises, which allow us to get some insight over some relevant characteristics of the cultural transmission process.

[12] Our results remain qualitatively robust to the use of past values of the pollution variable or to the use of alternative measures of environmental quality (see Table 5).

4.2.1 Alternative Specifications

Table 4 establishes the robustness of our results for first and second generation migrants to the use of alternative specifications. To expositional purposes, we report only the results for the coefficient of interest. The ordered variable used in our baseline specification, mixes the extensive margin of the willingness to pay for the environment (agreement vs. disagreement) with the intensive margin (strong vs. weak agreement or disagreement). It may be argued that the extensive margin is the most relevant one from a cultural point of view, as it better measures social adherence to an environmental norm. Thus, in Rows [1] and [2], we isolate the extensive margin by recoding the ordered MWP variable into a binary variable, which takes the value of 1 if individuals "agree" with allocating part of their income for the environment and 0 otherwise. A similar approach is adopted for the construction of the mean MWP in the origin country. Using the binary variables, we replicate the baseline analysis. Results suggest that a 1 p.p. increase in the average number of people willing to pay for the environment in the country of origin is associated with about a 0.2 p.p. increase in the probability that an individual migrant would be willing to pay for the environment in the host country.[13] With respect to the baseline specification, the significance of the coefficients is somewhat reduced, which suggests that some part of the cultural transmission process is associated with the intensive margin, thus not captured by probability models.

Our baseline specification includes an extensive set of parental and spouse characteristics, to control for the confounding role of any individuals' unobserved factors. In Rows [3] and [4] we get some insight over the direction of the bias imposed by these confounding factors by excluding from the baseline specification parental and spouse characteristics, respectively. Results for first generation migrants are unaffected, which suggests that unobserved individual characteristics do not provide a significant source of bias for our baseline estimates. Conversely, the coefficient of the average MWP in the country of origin becomes not significant after the exclusion of the spouse controls from regressions on second generation migrants. This suggest that there are unobserved features of second generation migrants described by the characteristics of the spouse (e.g. low abilities, or social segregation), which are also negatively correlated with their marginal willingness to pay for the environment.

While our baseline specification includes host country dummies to control for local environmental and economic conditions, there might be other relevant geographical dimensions associated with the host country, such as the region or the city level. Thus, in Row [5] we replace the host country dummies with fixed effects for the NUTS1 region of residence, while in Row [6] we add dummies for the size of the city of residence. Our results remain intact, confirming the persistent effect of the origin culture on environmental attitudes.

[13] Notice that estimated coefficients from the Probit model (Row [2]) do not measure marginal effects, thus are not directly comparable with those from the linear probability model (Row [1]).

[Table 4 here]

Finally, in Table 5 we establish the robustness of the results to a wide range of alternative environmental quality measures. Column [1] employs as a measure of environmental quality a measure of organic water pollutant emissions. Column [2] introduces a measure of agricultural methane emissions. Column [3] controls for CO2 emissions. Column [4] uses the measure of particulate matter concentrations. Column [5] uses an environmental performance index (EPI).[14] Reassuringly, the results remain unaffected to the use of other environmental measures whereas the coefficients retain their magnitude and significance.

[Table 5 here]

4.2.2 The Role of Individual Preferences

The MWP for the environment can be affected by a multitude of other factors besides environmental awareness such as trust, political orientation, or altruism. As these factors may also display a cultural component, not accounting for them may induce a false evidence of cultural transmission of environmental preferences. In Table 6, we address this concern and add to the baseline specification a number of controls for additional individual attitudes. In panel a, we report results for first generation migrants, while in panel b we report results for second generation migrants.

In Columns [1]-[3], we address the issue whether our results are driven by an altruistic motive and add a dummy equal to 1 if an individual belongs to an environmental organization, 0 otherwise (column [1]), a dummy equal to 1 if an individual served some unpaid work for environmental organization, 0 otherwise (column [2]), and a dummy equal to 1 if an individual never served any unpaid work, 0 otherwise (column [3]). The estimated impact of culture remains largely unaffected. Also, results point to a strong impact of altruism on immigrants' MWP for the environment. Migrants that belong to environmental organizations and work unpaid for the environment (particularly second generation), are more willing to spend money on the environment, while lack of unpaid work for any organization has a negative significant impact on the MWP of first generation migrants.

In Column [4], we investigate the role of political views, and add a dummy for left-wing orientation. Also in this case, the estimated impact of culture on immigrants' MWP is unaffected. Left-wing political orientation is not significantly correlated with the MWP of first generation migrants, while it displays a positive association, significant at the 1% level with the MWP of second generation migrants.

[14] EPI is a composite index of environmental quality reflecting environmental health, ecosystem vitality and climate and energy.

In Column [5] and [6], we check whether our results are driven by lack of either generalized distrust, or distrust for environmental organizations. Also in this case, the impact of culture on immigrants' MWP survives, despite of the strong negative impact of distrust measures one the MWP of both first and second generation immigrants.

Finally, in Column [7] we introduce the full set of attitudes. The significance of the impact of the MWP in the origin country reduces somewhat, yet it still confirms the presence of a cultural effect. Results also confirm that lack of altruism and trust reduce immigrants' MWP for the environment.

[Table 6 here]

4.3 Heterogeneous Features of Cultural Transmission

The reduced form nature of our empirical specification makes it difficult any direct inference regarding the features of the cultural transmission process. In this section, we try to gain some insight over this issue, by studying whether the effect of culture on environmental preferences differs, depending on a number of factors i.e. the degree of cultural integration of migrants, the type and quality of the cultural transmission process, and the role played by parents in the transmission of the cultural trait.[15]

4.3.1 Cultural Transmission and Integration of Migrants in the Host Country

We start by exploring whether our findings on the transmission of cultural attitudes manifest heterogeneity driven by differences in the integration process of immigrants in the host country. While it does not include direct questions about individual integration in the home country's culture, there are useful information in the EVS to reconstruct this information. The first is host country's citizenship. Due to the prevalent application of the "Ius Sanguinis" in European countries, an immigrant has to fulfill very strict terms to acquire the citizenship of the host country e.g. by marriage, or naturalization. Furthermore, acquiring the host country's citizenship has a high opportunity cost e.g. in terms of time and requirements devoted to comply all bureaucratic procedures, while relatively limited benefits to immigrants.[16] This

[15] Notice that we carry out these heterogeneity exercises for the entire pool of migrants. In fact, distinguishing between first and second generation would entail a too big reduction of the number of observations available in each cell.

[16] This argument applies to intra-EU immigrants, which are the majority in our sample. EU citizenship is granted to all citizens of a EU member state, regardless of their country of residence. This argument does not apply to EU immigrants coming from the 13 countries in our sample, which are not involved in the process of European integration i.e. Albania, Armenia, Azerbaijan, Bosnia-Herzegovina, Belarus, Georgia, Iceland, Kosovo, Moldova, Macedonia, Russia, Serbia, Turkey. Immigrants from these countries still enjoy substantial benefits (e.g. in terms of free mobility) from getting citizenship of a EU country.

suggests that immigrants who acquire the citizenship of the host country have some intrinsic motivation, which stems from a cultural integration process.

A second important feature is immigrants' own judgment over the possibility of becoming integrated in the host country's culture. The EVS includes a number of questions that go in this direction. Immigrants are asked whether they consider "speaking the host language", "having lived long in a country", "respecting a Host Country's Law" important ways to share a country's national culture. An affirmative answer to each of these questions implies a positive judgment over the possibility that immigrants who comply with the linguistic, temporal, or civic dimension may become integrated in the host country's culture. We argue that such subjective beliefs are good predictors of immigrants' integration effort as well as the effectiveness of their cultural integration process. The EVS also includes a question on whether "having a country's ancestry" is an important way to share a country's national culture. An affirmative answer to this question by immigrants implies their negative judgment over the possibility to be culturally integrated in the host country: if ancestry is the relevant dimension to acquire a country's national culture, cultural integration may never occur, besides any effort to comply with the linguistic, legal, or civic norms of the host country.

We explore whether the effect of MWP in the origin country on individual MWP differs among immigrants, who are heterogeneous in each of the five dimensions of cultural integration specified above i.e. (i) having a host country's citizenship, (ii) attaching importance to speaking the host country's language, (iii) attaching importance to having lived long in the host country, (iv) attaching importance to respecting the host country's laws and (v) attaching importance to having host country's ancestry. To construct the heterogeneous effects of MWP in the origin country, for each dimension (i)-(v) we construct two "yes" and "no" dummy variables, which we interact with the MWP in the origin country. We thus obtain two (heterogeneous) effects: the first is the average effect of MWP in the origin country for those who do hold the host country's citizenship or consider the specified dimension (ii)-(v) important to share the host country's culture, while the second measures the average effect for those who do not hold citizenship or consider the specified dimension (ii)-(v) unimportant to share the host country's culture.

We report results of this set of regression in Table 8. Rows [i]-[v] correspond to single regressions, where the direct homogeneous effect of MWP in the origin country is replaced by the two heterogeneous effects in each of the dimensions described above. For each regression, we also report the p-value on a test of whether the two coefficients in each regression are equal. Estimates in Row [i] suggest that the effect of culture on environmental preferences is concentrated on citizens, with the difference in the cultural transmission process between citizens and non citizens being significant at the 5% level. Also, size and statistical significance of the coefficients estimated in Rows [ii]-[iv] suggests that migrants who attach importance to speaking the host country's language, to having lived long in a country, or to respecting a

country's law are the most affected ones by their origin culture (even though in these cases the p-values do not reject the hypothesis that the two coefficients are equal).

All these results indicate some form of complementarity between environmental culture and cultural integration in the host country: the culture of origin is very important for migrants who are more integrated in the country of destination. Migrants who are more respectful of the host country's culture and ready to appropriate some aspects of it are also more willing to transmit the most relevant traits of their own culture. This is at least the case for the environmental traits. In Sociology, this attitude is documented as the "integration strategy" i.e., a strong identification of the migrants to both the host and the origin country (Berry, [3]).[17] Finally, notice that estimates in Row [v] suggest that migrants who attach importance to ancestry are similarly affected by their origin culture as immigrants who do not attach importance to it. This result provides some indirect support to our complementarity hypothesis: being ancestry clearly beyond immigrants' control, it is not a relevant dimension to evaluate their effort in cultural integration.

[Table 7 here]

4.3.2 Type and Quality of Cultural Transmission

We now turn to the analysis of whether our baseline results manifest any heterogeneity with respect to some characteristics of the cultural transmission process. First, in the theoretical model we stressed that cultural transmission may occur either through family socialization (direct transmission) or through socialization within the migrant group (indirect transmission). While distinguishing the two channels is clearly beyond the scope of the present paper, the EVS provides information that allow us to further explore whether these two channels are both at work in our estimates. Second, immigrants may be subject to adverse family situations (e.g. parents' divorce or death), which may reduce the quality of the cultural transmission process. The EVS also includes a number of questions that allow us to investigate whether the effect of MWP in the origin country on individual MWP differs among immigrants, who are heterogeneous in terms of the quality of the cultural transmission they underwent. As in the previous case, to construct the heterogeneous effects of MWP in the origin country, we construct for each relevant dimension two "yes" and "no" dummy variables, which we interact with the MWP in the origin country. We then replace the homogeneous effect of MWP in the origin country by the corresponding heterogeneous effects in each of the relevant dimensions.

[17]The result that the integration process in the host country does not necessarily entail a cultural assimilation, which weakens the native cultural traits is somewhat surprising and certainly interesting. Fernández [9] comes to a somewhat different conclusion with respect to female labor market participation. A possible way to reconcile the two views is that the immigrant may follow the "integration strategy", only when the cultural trait in the country of origin does not conflict with the set of economic incentives, which prevail in the country of destination.

We report results of this new set of regression in Table 9, Rows [1]-[7]. As in the previous set of estimates, in each row we report estimates of the two heterogeneous effects, as well as the p-value on a test of whether the two coefficients in each regression are equal. As for the type of cultural transmission, our results confirm that both the direct and indirect channel are operating: the effect of culture on environmental preferences is concentrated on individuals that consider friends important (Row [1]), as well as on individuals that consider that family is important in life (Row [2]). As for the quality of cultural transmission, our estimates suggest that family relations play an important role: the effect of culture on environmental preferences is concentrated on individuals whose father likes following the news (Row [4]) and individuals who did not experience parents' divorce (Row [6]), in this case the heterogeneous effects being even significant at the 5% level. These findings suggest that families characterized by both external commitment (i.e. towards the society as a whole) and internal commitment (i.e. towards other family members) are more successful in the transmission of cultural traits. Finally, the effect of culture on environmental preferences is also concentrated on individuals who experienced father's death (Row [7]), the heterogeneous effects being significant at the 5% level. This may indicate that offspring value more parents' teachings after their death. It may also indicate increasing returns from the time spent with the father: individuals who have lost their father are also those who have spent more time with him, as probably the father died at a late age. No significant heterogeneity is envisaged in the other quality dimensions of the cultural transmission process i.e. father's pleasure of reading books (Row [3]), and occurrence of political discussions with the father (Row [4]).[18]

Table 8 here

4.3.3 The Role of Parents for Cultural Transmission

In this section we turn to the role of parental transmission and establish the robustness of our results to alternative specifications where culture is based on different definitions of the country of origin of the migrant.

In Table 9, Panel [A], we present to comparative purposes the results from the baseline specification, i.e., the one where the definition of culture is based upon the country of origin of the father (compare with Table 4, Column [4]). In Row [A.1] we retain a definition of culture based on the country of origin of the father, but allow for heterogeneous effects of father's culture, depending on whether the mother is born in the host country or not. There appears to be no heterogeneous effect in this dimension. The same is true in Column [A.2], where we allow for heterogeneous effects of father's culture, depending on whether the mother is born

[18]Notice that in this section we evaluate the quality of cultural transmission looking at father's side as our baseline definition of culture is based on the country of origin of the father. Below we also check the robustness of our results against alternative definitions of culture based on the country of origin of the mother.

in the origin country (of the father) or not. The interpretation of these results is that the transmission mechanism of the paternal culture is rather strong and independent of the effect of the maternal culture.

Table 9 here

This does not imply though that the maternal culture does not matter for the transmission of cultural traits. To explicitly explore this hypothesis, in Table 9, Panel B we test the robustness of our results when we use a specification where culture is defined by the country of origin of the mother. Reassuringly, the results suggest that even in such a specification our main findings are confirmed. Interestingly though, the point estimate in panel B (0.130) is lower than the point estimate in panel A (0.210) confirming that the paternal culture is stronger than the maternal culture. This result is further reinforced in row [1.B] where we explore the presence of a heterogeneous effect driven by the fact that the father comes from the origin country (of the mother). The results suggest that the effect of culture on environmental preferences is concentrated on individuals whose father come from the country of origin (of the mother).

5 Conclusions

Fertility rate, female labor participation, or preference for redistribution are cultural attributes that frame individual economic behavior and ultimately economic policies. As part of culture, these traits are transmitted across generations from parents to children. Are environmental preferences among these cultural traits? This is the main question we tried to answer in this study.

We first presented a model of transmission of environmental preferences following Bisin and Verdier [4]. We defined the environmental cultural trait as the dis-utility from pollution, which ultimately determines the marginal willingness to pay for the reduction of pollution. Agents live in two homogeneous social groups whose populations mix if migration takes place. We found that under certain assumptions the environmental trait is successfully transmitted to the next generations.

Then, we empirically tested our theoretical result using survey data on environmental preferences for 45 European countries. We found that the average environmental preference in an immigrant's country of birth has a large and significant effect on her own environmental preference. More importantly this results persists till the second generation of migrants thereby confirming that cultural attitudes are partly driven by a cultural component. The analysis is then extended to capture heterogeneous effects. A first interesting finding is that as far as environmental attitudes are concerned, immigrants in our sample seem to adopt

an "integration strategy", i.e., they identify themselves with both the host and the home country. As to the type of cultural transmission both networks and family play a role in the transmission of cultural traits. In the context of the family transmission though, the paternal influence is stronger than the maternal influence. Our empirical findings are robust to a number of alternative assumptions and specifications.

Knowing whether environmental preferences are part of culture improves our knowledge about the status quo of environmental policies and of international economic agreements. As a matter of fact, the difficulties in finding a consensus on greenhouse gas emission targets for the period 2013-2020 could partly reflect the fact that country members of the United Nations Framework Convention on Climate Change manifest highly heterogeneous attitudes towards environmental protection. Similarly in the context of the national policies our findings highlight the fact that the degradation of environmental quality is not sufficient into triggering a shift in the environmental culture. Government should not only adopt policies aimed at improving the environmental quality but also adopting policies that target at changing the culture of individuals towards the environment. According to our findings they have a more direct effect and they persist longer.

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TABLE 1: Migration Flows

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Immigration Flows *from* Country				Immigration Flows *to* Country			
Country	Distinct Host Countries	Number of Immigrants from Host Country	Most Prevalent Host Country	Number of Migrants to Prevalent Host Country	Distinct Origin Countries	Number of Immigrants in Host Country	Most Prevalent Origin Country	Number Immigrants from Most Prev. Country
Albania	5	32	Greece	26	1	2	Kosovo	2
Armenia	7	35	Azerbaijan	28	9	110	Azerbaijan	41
Austria	6	17	Switzerland	11	14	81	Germany	21
Azerbaijan	6	50	Armenia	41	4	33	Armenia	28
Belgium	5	74	Luxembourg	63	20	95	Italy	24
Bulgaria	9	21	Turkey	9	6	20	Greece	7
Bosnia-Herzegovina	12	153	Croatia	54	3	16	Serbia	11
Belarus	7	98	Latvia	46	6	136	Russia	88
Switzerland	3	3	Luxembourg	1	22	186	Italy	39
Czechoslovakia	4	6	Hungary	2				
Cyprus	2	2	Greece	1	6	66	Turkey	59
Czech Republic	11	33	Slovakia	13	9	55	Slovakia	43
Germany	15	169	Luxembourg	47	21	72	Poland	14
Denmark	5	20	Norway	6	13	30	Germany	12
Spain	8	41	France	16	10	281	Romania	12
Estonia	3	9	Sweden	4	8	23	Russia	2
Finland	5	33	Sweden	22	4	5	Russia	2
France	10	93	Luxembourg	59	12	69	Italy	16
Great Britain	14	54	Great Britain	9	3	15	Ireland	8
Georgia	10	30	Armenia	17	2	6	Russia	5

Notes: Migration flows between 42 European countries (plus Czechoslovakia, USSR and Yugoslavia). Data drawn from the European Value Study (EVS), 2008.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Immigration Flows *from* Country				Immigration Flows *to* Country			
Country	Distinct Host Countries	Number of Immigrants from Host Country	Most Prevalent Host Country	Number of Migrants to Prevalent Host Country	Distinct Birth Countries	Number of Immigrants in Host Country	Most Prevalent Origin Country	Number Immigrants from Most Prev. Country
Greece	10	29	Macedonia	9	13	92	Turkey	46
Croatia	13	67	Russia	19	5	71	Bosnia	54
Hungary	12	46	Slovakia	18	8	22	Russia	8
Ireland	3	7	Great Britain	4	3	12	Great Britain	8
Iceland	3	4	Norway	2	9	17	Germany	4
Italy	13	160	Luxembourg	55	1	1	Great Britain	1
Kosovo	6	16	Macedonia					
Latvia	3	13	Estonia	9	10	192	Russia	92
Lithuania	7	24	Latvia	14	5	40	Russia	18
Luxembourg					26	417	Portugal	122
Moldova	6	15	Russia	9	5	55	Ukraine	29
Macedonia	12	29	Ukraine	11	5	18	Greece	9
Netherlands	7	35	Belgium	14	12	27	Germany	10
Norway	4	6	Sweden	3	17	44	Denmark	6
Poland	24	83	Germany	14	4	14	Russia	5
Portugal	7	155	Luxembourg	122				
Romania	14	50	Spain	12	7	67	Moldova	2
Russia	22	600	Estonia	205	5	35	Ukraine	21
Serbia	18	101	Montenegro	30	7	73	Montenegro	31
Slovakia	5	54	Czech Republic	43	7	39	Hungary	18
Slovenia	5	13	Croatia	6	14	66	Bosnia-Herz.	22
Sweden	7	15	Norway	6	22	72	Finland	22
Turkey	16	195	Cyprus	59	3	13	Bulgaria	9
Ukraine	20	165	Belarus	39	9	150	Russia	120

Notes: Migration flows between 42 European countries (plus Czechoslovakia, USSR and Yugoslavia). Data drawn from the European Value Study (EVS), 2008.

TABLE 2: Sample Summary Statistics

	(1)	(2)	(3)	(4)	(5)
Variable	Number of Obs	Mean	Standard Deviation	Min	Max
MWP for the Environment	2855	2.751	0.881	1	4
Mean MWP for the Environment (Origin)	2855	2.676	0.289	2.115	3.377
Age	2855	47.556	16.611	18	95
Secondary Educational Level	2855	0.492	0.500	0	1
Primary Educational Level	2855	0.339	0.474	0	1
Monthly Income Household	2855	6.868	1.015	3.203	9.211
Female	2855	0.566	0.496	0	1

Notes: European Value Study (EVS), 2008.

TABLE 3: Predictors of Marginal Willingness to Pay for the Environment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Marginal Willingness to Pay for the Environment (MWP)							
	All Immigrants				First Generation		Second Generation	
Mean WTP (Origin Country)	0.148**	0.210***	0.216***	0.209***	0.271***	0.258***	0.176**	0.179**
	(0.060)	(0.054)	(0.054)	(0.052)	(0.087)	(0.085)	(0.083)	(0.086)
Log GDP per Capita (Origin Country)		0.002	0.005	0.010	0.031	0.035	-0.033	-0.034
		(0.018)	(0.019)	(0.020)	(0.031)	(0.032)	(0.032)	(0.030)
Nitrus Oxide Emissions				-0.011		-0.015		0.003
				(0.009)		(0.016)		(0.017)
Age		0.004	0.002	0.002	-0.006	-0.006	0.013*	0.013*
		(0.005)	(0.006)	(0.006)	(0.010)	(0.010)	(0.006)	(0.006)
Age Square		-0.000	-0.000	-0.000	0.000	0.000	-0.000*	-0.000*
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female		0.002	-0.004	-0.004	-0.004	-0.001	0.019	0.020
		(0.031)	(0.036)	(0.036)	(0.048)	(0.048)	(0.051)	(0.051)
Secondary Education		-0.135***	-0.091*	-0.091*	-0.117*	-0.117*	-0.034	-0.034
		(0.043)	(0.050)	(0.050)	(0.069)	(0.069)	(0.064)	(0.064)
Primary Education		-0.240***	-0.186***	-0.187***	-0.205*	-0.205*	-0.147*	-0.147*
		(0.048)	(0.068)	(0.068)	(0.103)	(0.102)	(0.081)	(0.081)
Log Individual Income		0.039	0.021	0.022	-0.021	-0.021	0.052	0.052
		(0.030)	(0.035)	(0.035)	(0.038)	(0.038)	(0.046)	(0.046)
Unemployed		-0.154**	-0.173**	-0.173**	-0.250**	-0.251**	-0.080	-0.080
		(0.076)	(0.077)	(0.077)	(0.103)	(0.103)	(0.093)	(0.093)
Host Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other individual controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Parental and Spouse Controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.089	0.114	0.123	0.123	0.124	0.124	0.183	0.183
Observations	2855	2855	2855	2855	1674	1674	1181	1181

Notes: other individual controls include employment status, occupation, marital status, a dummy equal to 1 for children in the family. Parental/Spouse controls include parental/spouse education, employment status, and occupation. Standard errors clustered at the country of origin level in parentheses. ***: 1% **:5% *:10%

TABLE 4: Robustness: Alternative Specifications

		First Generation				Second Generation			
		MWP coef. (Origin)	(SE)	R sq.	Obs	MWP coef. (Origin)	(SE)	R sq.	Obs
		First Generation				Second Generation			
(1)	Linear Probability Model	0.188*	(0.101)	0.113	1674	0.228*	(0.100)	0.134	1181
(2)	Probit Model	0.563*	(0.321)	0.084	1647	0.655**	(0.316)	0.111	1165
(3)	Without Parental Controls	0.257***	(0.084)	0.121	1674	0.179**	(0.083)	0.179	1181
(4)	Without Spouse Controls	0.282***	(0.080)	0.109	1674	0.120	(0.087)	1181	1181
(5)	Controls for City Size	0.268***	(0.090)	0.128	1631	0.196**	(0.089)	0.189	1160
(6)	NUTS 1 FE (Host Country)	0.228**	(0.097)	0.159	1668	0.180*	(0.103)	0.217	1174

Notes: In Row (1) and (2) we include the same set of controls as in our preferred specification (compare Table 3 columns (4),(6),(8)). In Row (3) and (4) we exclude parental and spouse controls, respectively. In Row (5), we add controls for residence city size. In Row (6) we replace host country dummies with host NUTS1 regional dummies. Standard errors clustered at the country of origin level in parentheses. ***: 1% **:5% *:10%

TABLE 5: Predictors of Marginal Willingness to Pay for the Environment

	(1)	(2)	(3)	(4)	(5)
	Marginal Willingness to Pay for the Environment (MWP)				
	All Immigrants				
Mean WTP (Origin Country)	0.191***	0.203***	0.203***	0.224***	0.246***
	(0.069)	(0.051)	(0.057)	(0.056)	(0.058)
Organic Water Pollutant Emissions (Or. C)	-0.000				
	(0.001)				
Agricultural Methane Emissions (Or. C)		0.001			
		(0.000)			
CO2 Emissions (Origin Country)			-0.000		
			(0.000)		
Particulate Matter Concentrations (PM10)				-0.000	
				(0.001)	
Environmental Performance Index (EPI)					0.002
					(0.002)
Host Country FE	Yes	Yes	Yes	Yes	Yes
Full Set of Controls	Yes	Yes	Yes	Yes	Yes
R-Squared	0.123	0.123	0.126	0.126	0.128
Observations	2402	2855	2748	2748	2712

Notes: Column 1 employs as environmental measure organic water pollutant emissions. Column (2) a measure of agricultural methane emissions. Column (2) CO2 emissions. Column (4) uses the measure PM10 and Column (5) uses an environmental performance index. All environmental measure are measured at the origin country. All specifications include the usual set of controls. Standard errors clustered at the country of origin level in parentheses. ***: 1% **:5% *:10%

TABLE 6: The Role of Individual Preferences

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(a) First Generation Immigrants							
Mean WTP (Origin Country)	0.266***	0.263***	0.230***	0.263***	0.276***	0.198*	0.181*
	(0.083)	(0.085)	(0.083)	(0.084)	(0.084)	(0.102)	(0.103)
Belong to Environmental Organizations	0.255**						0.234
	(0.116)						(0.143)
Work Unpaid for the Environment		0.019					–0.212
		(0.134)					(0.176)
No Unpaid Work (Any Organization)			–0.141***				–0.107*
			(0.045)				(0.058)
Distrust Other People				–0.129**			–0.109**
				(0.062)			(0.045)
Left Wing Political Orientation					0.085		0.017
					(0.054)		(0.055)
Distrust Environmental Organizations						–0.198***	–0.178***
						(0.030)	(0.029)
R-squared	0.127	0.127	0.131	0.125	0.123	0.151	0.161
Observations	1664	1648	1596	1633	1694	1582	1454
(b) Second Generation Immigrants							
Mean WTP (Origin Country)	0.206**	0.210**	0.187*	0.186*	0.161*	0.176*	0.22*
	(0.080)	(0.089)	(0.095)	(0.098)	(0.087)	(0.090)	(0.11)
Belong to Environmental Organizations	0.385***						0.26*
	(0.115)						(0.15)
Work Unpaid for the Environment		0.403**					0.14
		(0.154)					(0.15)
No Unpaid Work (Any Organization)			–0.108				–0.09
			(0.066)				(0.07)
Distrust Other People				–0.116*			–0.09*
				(0.060)			(0.05)
Left Wing Political Orientation					0.186***		0.17***
					(0.046)		(0.05)
Distrust Environmental Organizations						–0.163***	–0.16***
						(0.039)	(0.04)
R-squared	0.19	0.19	0.19	0.19	0.19	0.21	0.24
Observations	1169	1156	1116	1146	1189	1125	1013

Notes: All specifications include the usual set of controls. Standard errors clustered at the country of origin level in parentheses. ***: 1% **:5% *:10%

TABLE 7: Heterogeneity: Cultural Integration of Migrants

	All Migrants			
	MWP coef. (Origin)	(SE)	R sq.	Obs
(i) By Citizenship				
Citizen in the Host Country	0.255***	(0.060)	0.125	2855
Non-Citizen in the Host Country	0.097	(0.071)		
p-value on test of equal coefficients		0.037		
(ii) By Importance Attached to Speaking the Host Language				
Language is Important	0.205***	(0.055)	0.124	2855
Language is not Important	0.165	(0.149)		
p-value on test of equal coefficients		0.798		
(iii) By Importance Attached to Having Lived Long in a Country			0.124	2855
Living Long in a Country is Important	0.225***	(0.056)		
Living Long in a Country is not Important	0.150*	(0.080)		
p-value on test of equal coefficients		0.484		
(iv) By Importance Attached to Respecting a Country's Law				
Respecting a Country's Law is Important	0.221***	(0.055)	0.125	2855
Respecting a Country's Law is not Important	–0.029	(0.195)		
p-value on test of equal coefficients		0.205		
(v) By Importance Attached to Ancestry				
Ancestry is Important	0.247***	(0.080)	0.124	2855
Ancestry is not Important	0.171**	(0.068)		
p-value on test of equal coefficients		0.798		

Notes: All specifications include the usual set of controls. Standard errors clustered at the country of origin level in parentheses. ***: 1% **:5% *:10%

TABLE 8: Heterogeneity: Type and Quality of Cultural Transmission

	All Migrants			
	MWP coef. (Origin)	(SE)	R sq.	Obs
(1) By Importance Attached to Friends				
Friends are Important	0.198***	(0.054)	0.125	2855
Friends are not Important	0.223	(0.189)		
p-value on test of equal coefficients		0.901		
(2) By Importance Attached to Family				
Family is Important	0.209***	(0.056)	0.126	2855
Family is not Important	0.074	(0.150)		
p-value on test of equal coefficients		0.394		
(3) By Father's Pleasure of Reading Books				
Father Likes Reading Books	0.224**	(0.092)	0.128	2855
Father Dislikes Reading Books	0.202**	(0.092)		
p-value on test of equal coefficients		0.878		
(4) By Occurrence of Political Discussions with Father				
Discuss Politics with Father	0.194**	(0.094)	0.125	2855
Never *Discuss Politics with Father*	0.225**	(0.092)		
p-value on test of equal coefficients		0.828		
(5) By Father's Pleasure about Following the News				
Father Likes Following the News	0.197***	(0.062)	0.125	2855
Father Likes Following the News	0.292	(0.282)		
p-value on test of equal coefficients		0.751		
(6) By Experience of Parent's Divorce				
Experienced Divorce of Parents	–0.162	(0.150)	0.125	2855
Did not Experience Divorce of Parents	0.266***	(0.056)		
p-value on test of equal coefficients		0.010		
(7) By Experience of Father's Death				
Experienced Death of Father	0.308***	(0.072)	0.125	2855
Did not Experience Death of Father	0.083	(0.081)		
p-value on test of equal coefficients		0.048		

Notes: All specifications include the usual set of controls. Standard errors clustered at the country of origin level in parentheses. ***: 1% **:5% *:10%

TABLE 9: Heterogeneity: Parental Birth Place

	All Migrants			
	MWP coef. (Origin)	(SE)	R sq.	Obs
(A) Baseline Specification (Origin Country=Father's Birth Country)	0.210***	(0.052)	0.125	2855
(A.1) By Mother's Birth in the Host Country				
Mother is Born in the Host Country	0.287**	(0.110)	0.126	2855
Mother is not Born in the Host Country	0.186***	(0.053)		
p-value on test of equal coefficients		0.403		
(A.2) By Mother's Birth in the Origin Country				
Mother is Born in the Origin Country	0.156**	(0.061)	0.126	2855
Mother is not Born in the Origin Country	0.366*	(0.185)		
p-value on test of equal coefficients		0.310		
B. Baseline Specification (Origin Country=Mother's Birth Country)	0.130**	(0.056)	0.114	2855
1. By Father's Birth in the Origin Country				
Father is Born in the Origin Country	0.140**	(0.064)	0.114	2150
Father is not Born in the Origin Country	0.058	(0.160)		
p-value on test of equal coefficients		0.659		

Notes: All specifications include the usual set of controls. Standard errors clustered at the country of origin level in parentheses. ***: 1% **:5% *:10%

Appendix A (Variable Definitions and Sources

Appendix A.1 EVS Variables

Main definitions and variables of interest

Marginal Willingness to Pay for the Environment. Respondents are given the statement "I am now going to read out some statements about the environment. For each one read out, can you tell me whether you agree strongly, agree, disagree or strongly disagree? I would give part of my income if I were certain that the money would be used to prevent environmental pollution". The variable takes values from 1-4 with 1 denoting "Strongly Disagree", 2-"Disagree", 3-"Agree" and 4-"Strongly Agree".

Marginal Willingness to Pay for the Environment (Origin Country). The variable is constructed by computing the mean marginal willingness to pay at the origin country. Migrants are excluded from the sample. Moreover individual weights are taken into account. Respondents are given the statement "I am now going to read out some statements about the environment. For each one read out, can you tell me whether you agree strongly, agree, disagree or strongly disagree? I would give part of my income if I were certain that the money would be used to prevent environmental pollution". The variable takes values from 1-4 with 1 denoting "Strongly Disagree", 2-"Disagree", 3-"Agree" and 4-"Strongly Agree".

In our sample there are some migrants that declare as country of origin (or parental origin) countries that do not currently exist in the same format. In these case we have assigned to them the mean value of the marginal willingness to pay (MWP) for the environment of the political successor of the origin country. Migrants coming from Czechoslovakia are assigned the mean MWP of the Czech Republic and Slovakia. Migrants coming from Kosovo are assigned the MWP of Albania. Migrants coming from the Soviet Union are assigned the mean MWP of Russia. Migrants stating that they come from the German Democratic Republic are assigned the mean MWP of Germany. Migrants denoting that they are of Yugoslavian origin are assigned the MWP in Serbian. Return migrants i.e. migrants born in a foreign country but resident in the country of origin of the father are excluded from the sample

First Generation Migrants. First generation migrants are identified using the question "Were you born in [COUNTRY]?". The variable is binary with 1 denoting "yes" and 0 denoting "no".

Second Generation Migrants. Second generation migrants are identified using the questions "Was your father/mother born in [COUNTRY]?". The variable is binary with 1 denoting "yes" and 0 denoting "no"

Origin Country. To identify the origin country of the first and second generation migrants the following questions are used "In which country was your father (mother) born?". The migrant is associated with his father's (mother's) country of origin.

Country of Origin: other controls

Income per Capita. GDP per capita is gross domestic product divided by midyear population. GDP (current 2000%$) is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. The data comes from the 2000 World Development Indicators dataset.

Nitrus Oxide Emissions. Nitrous oxide emissions is measured as thousand metric tons of CO2 equivalent. It measures emissions from agricultural biomass burning, industrial activities, and livestock management. The data comes from the 2000 World Development Indicators dataset.

Individual Controls

Age. The age of the respondent.

Female. A binary variable taking the value of 1 if the individual is a female and 0 if the individual is a man.

Education. Education is an ordered variable taking values from 1-3 with 1 denoting "tertiary completed", 2 denoting "secondary completed" and 3 denoting"primary completed". The same classification is used for the controls of paternal, maternal and spouse education.

Income. Denotes the monthly household income (x1000), corrected for ppp in euros

Employment Status. The employment status of the respondent is a categorical variable taking values from 1-4 as follows: 1-"full-time", 2–"part-time or self-employed", 3-"not participant (student, hw, retired, other)", 4-"unemployed".

Occupation Status. The occupation status of the respondent is a categorical variable taking values from 1-4 as follows: 1-"managers, professionals, technical wks" 2-"clerks" 3-"service" 4-"skilled manuals" 5-"unskilled". The same classification is used for the controls of paternal, maternal and spouse education.

Marital Status. The marital status of the respondent is categorical variable taking values from 1-3 classified as follows: 3 "married", 2 "divorced/separated/widowed" and 1 "single".

Child. Child is a binary variable taking the value 1 if there is "at least one child in the household" and 0 otherwise.

Employment Status. The employment status of the respondent is an ordered variable taking values from 1-4 as follows: 1 "full-time" 2 "part-time or self-employed" 3 "not participant (student, hw, retired, other)" 4 "unemployed".

Town Size. The variable denotes the town size in thousand inhabitants classified as follows: 1-"below 5", 2-"5-20" , 3-"20-100" ,4 -100-500" ,5-"over 500".

Years Since Migration. Denotes the year since the migrant moved to the host country.

Individual Preferences Controls

Belong to Environmental Organization. The variable is derived from the question "Do you belong to an environmental organization?". The variable is binary and takes the value 1 if the answer is "yes" and 0 otherwise.

Work Unpaid for the Environment. The variable is derived from the question "Do you work unpaid for the environment ". The variable is binary and takes the value 1 if the answer is "yes" and 0 otherwise.

Work Unpaid for any Organization. The variable is derived from the question "Do you work unpaid for any organization? ". The variable is binary and takes the value 1 if the answer is "yes" and 0 otherwise.

Trust. The variable is derived from the question "Do you think most people can be trusted or one can't be too careful? ". The variable is binary and takes the value of 0 if the answer is "most people can be trusted" and 1 if the answer is "cannot be too careful".

Left-Right Orientation. The variable is constructed based on the question "Which political party would you vote for? Left/right scale". The variable takes values from 1-10 with 1 denoting "left" and 10 denoting "right".

Distrust in Environmental Organizations. The variable is derived from the question "Please look at this card and tell me, for each item listed, how much confidence you have in them, is it a great deal, quite a lot, not very much or none at all? Environmental Organizations". The variable takes values from 1-4 with 1 denoting "A great deal", 2-"quite a lot", 3-"not very much" and 4-"None at all".

Heterogeneity

Citizenship. A binary variable that takes the value 1 if the individual is a citizen of the host country and 0 otherwise.

Importantce Attached to Speaking the Host Language. The variable is derived from the question "Some people say the following things are important for being truly [NATIONALITY]. Others say they are not important. How important do you think each of the following is? To be able to speak [THE NATIONAL LANGUAGE]". The variable takes values from 1–4 with 1 denoting "Very Important", 2-"Quite Important", 3-"Not Important", and 4-"Not Important at All".

Importantce Attached to Having a Country's Ancestry. The variable is derived from the question "Some people say the following things are important for being truly [NATIONALITY]. Others say they are not important. How important do you think each of the following is? To have been born in [COUNTRY]". The variable takes values from 1–4 with 1 denoting "Very Important", 2-"Quite Important", 3-"Not Important", and 4-"Not Important at All".

Importantce Attached to Having Lived Long in a Country. The variable is derived from the question "Some people say the following things are important for being truly [NATIONALITY]. Others say they are not important. How important do you think each of the following is? To have lived for a long time in [COUNTRY]". The variable takes values from 1–4 with 1 denoting "Very Important", 2-"Quite Important", 3-"Not Important", and 4-"Not Important at All".

Importantce Attached to Respecting a Host Country's Law. The variable is derived from the question "Some people say the following things are important for being truly [NATIONALITY]. Others say they are not important. How important do you think each of the following is? To respect [COUNTRY]'s political institutions and laws". The variable takes values from 1–4 with 1 denoting "Very Important", 2-"Quite Important", 3-"Not Important", and 4-"Not Important at All".

Importance Attached to Friends. The variable is constructed based on the question "Please say, for each of the following, how important it is in your life. Friends and Acquaintances". The variable is classified as follows: 1-"very important", 2-"quite important", 3-"not important", 4-"not important at all".

Importance Attached to Family. The variable is constructed based on the question "Please say, for each of the following, how important it is in your life. Family". The variable is classified as follows: 1-"very important", 2-"quite important", 3-"not important", 4-"not important at all".

Father Reading Books. The variable is constructed based on the question "When you think about your parents when you were about 14 years old, could you say whether these statements correctly describe your parents? My father liked to read books". The variable is classified as follows: 1-"yes", 2-"to some extend", 3-"don't know", 4-"no".

Occurence of Political Discussions with Father. The variable is constructed based on the question "When you think about your parents when you were about 14 years old, could you say whether these statements correctly describe your parents? I discussed politics at home with my father". The variable is classified as follows: 1-"yes", 2-"to some extend", 3-"don't know", 4-"no".

Father's Pleasure about Following the News. The variable is constructed based on the question "When you think about your parents when you were about 14 years old, could you say whether these statements correctly describe your parents? My father liked to follow the news". The variable is classified as follows: 1-"yes", 2-"to some extend", 3-"don't know", 4-"no".

Experience a Parent's Divorce. The variable is derived from the question "Did you even experience a parent's divorce? ". The variable is binary and takes the value 1 if the answer is "yes" and 0 otherwise.

Experience a Father's Death. The variable is derived from the question "Did you even experience a father's death? ". The variable is binary and takes the value the value 1 if the answer is "yes" and 0 otherwise.

Atlernative Environmental Quality Measures

Organic Water Pollutant (BOD) Emissions (kg per day). Emissions of organic water pollutants are measured by biochemical oxygen demand, which refers to the amount of oxygen that bacteria in water will consume in breaking down waste. This is a standard water-treatment test for the presence of organic pollutants. Source: World Bank Indicators (2000).

Agricultural methane emissions. Agricultural methane emissions are emissions from animals, animal waste, rice production, agricultural waste burning (nonenergy, on-site), and savannah burning. Source: World Bank Indicators (2000).

CO2 Emissions (kt). Carbon dioxide emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring. Source: World Bank Indicators (2000).

PM10-Particulate Matter Concentrations Particulate matter concentrations refer to fine suspended particulates less than 10 microns in diameter (PM10) that are capable of penetrating deep into the respiratory tract and causing significant health damage. Data for countries and aggregates for regions and income groups are urban-population weighted PM10 levels in residential areas of cities with more than 100,000 residents. The estimates represent the average annual exposure level of the average urban resident to outdoor particulate matter. The state of a country's technology and pollution controls is an important determinant of particulate matter concentrations. Source: World Bank Indicators (2000).

EPI Index It is a composite index of environmental quality reflecting environmental health, ecosystem vitality and climate and energy. We use the 2002 index which is the earliest available index. Source: http://epi.yale.edu.

Appendix B Summary Statistics

TABLE APPENDIX B.1: Classification of Migrants

	(1)	(2)	(3)
Country of Origin	All Migrants	First Gen. Migrants	Second Gen. Migrants
Albania	32	28	4
Armenia	35	20	14
Austria	17	8	8
Azerbaijan	50	36	14
Belarus	98	60	38
Belgium	74	53	21
Bosnia-Herzegovina	153	95	56
Bulgaria	21	14	6
Croatia	67	42	24
Cyprus	2	2	15
Czech Republic	33	17	3
Czechoslovakia	6	3	9
Denmark	20	11	6
Estonia	9	3	14
Finland	33	19	30
France	93	63	12
Georgia	30	18	56
Germany	168	107	61
Great Britain	54	14	9
Greece	29	14	15
Hungary	46	15	31
Iceland	4	3	1
Ireland	7	7	0

Summary: The table presents the number of migrants coming from each EVS country.

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