

Culture: Persistence and Evolution

Francesco Giavazzi, Ivan Petkov and Fabio Schiantarelli *

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Abstract

This paper presents evidence on the speed of evolution (or lack thereof) of a wide range of values and beliefs of different generations of European immigrants to the US. The main result is that persistence differs greatly across cultural attitudes. Some, for instance deep personal religious values, some family and moral values, and political orientation are very persistent. Other, such as attitudes toward cooperation, redistribution, effort, children independence, premarital sex, and even the frequency of religious practice or the intensity of association with one's religion, converge rather quickly. Moreover, the results obtained studying higher generation immigrants differ greatly from those obtained limiting the analysis to the second generation, and imply lesser degree of persistence. Finally, we show that persistence is "culture specific" in the sense that the country from which one's ancestors came matters for the pattern of generational convergence.

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*Authors' affiliations: Igiier-Bocconi University, MIT, Cepr and Nber; Boston College; Boston College and IZA. We would like to thank Alberto Alesina, Rossella Greco, Luigi Guiso, Guido Tabellini and participants to the BC Macro Lunch for very useful comments. We also thank Julia Schiantarelli for providing inspiration for this paper through her Junior Thesis at Newton North High School.

1 Introduction and Motivation

Are a person's values and beliefs persistent, or do they evolve, possibly rather quickly, in response to the economic and institutional environment? In the literature there are two views on this question. One argues that values and beliefs are deeply rooted in the country or ethnic group to which a person belongs and evolve very slowly over time. For instance, Guiso, Sapienza and Zingales (2006), define culture as "*those customary beliefs and values that ethnic, religious and social groups transmit fairly unchanged from generation to generation*". Roland (2004) defines attitudes as "*slow moving*" institutions, as opposed to "*fast moving*" institutions such as political institutions, which can change overnight. These definitions reflect a view of culture as something quite persistent. Similarly, many other contributions emphasize the fact that cultural traits often originate in political economic and technological features of the distant past, and act as a channel through which that past can affect today's institutions and economic outcomes.¹

Other authors suggest, instead, that cultural attitudes can change rather quickly in response to changes in economic incentives and opportunities, in technology and in institutions.² Both views of culture (slow versus fast moving) have truth in them, in the sense that while some cultural traits certainly go back to the distant past and affect today's economic and institutional outcomes, it is also true that values and beliefs evolve in response to changes in technology, economic environment and in political institutions. These changes can affect attitudes not in historical time, but in the space of a few years or few generations.³

¹Putnam (1993), Guiso, Sapienza and Zingales (2007, 2008), Tabellini (2008a,b) argue that distant political and economic history shapes today's institutions through its effect on cultural norms. Alesina, Giuliano and Nunn (2013) present evidence on the effect of the use of the plough thousands of years ago on current attitudes towards women work, while Durante (2010) documents the effect of climatic conditions over centuries on the level of trust today. See Alesina and Giuliano (2013) for a very recent and thorough review of the relationship between culture and institutions.

²Gruber and Hungerman (2008) show how changes in shopping hours can affect religious practices (church attendance). Alesina and Fuchs-Schundeln (2007) document the effect of German separation and re-unification on the beliefs and preferences of those who found themselves isolated in the DDR. Di Tella, Galliani and Schargrowsky (2006) document the effect of property rights design on a wide set of attitudes, while Giuliano and Splimbergo (2009) present evidence on the effect of growing up in a recession on attitudes. Fernandez (2011) and others discuss the evolution of attitudes towards women work. Fehr (2009) shows that in an experimental game small changes in the institutional setup can have large effects on the participants' trust. Bowles (1998) provides an early account of the channels through which economic institutions and markets affect the formation of preferences and an early review of the ethnographic, experimental, and other empirical evidence.

³As an aside, note that the fact that some attitudes are time-varying is crucial to identify a role of

How persistent are cultural traits and, in particular, whether the degree of persistence varies across traits, is an empirical question that needs further exploration. In this paper we try to make some progress presenting evidence on the speed of evolution (or lack thereof) of a wide range of cultural traits. We do this studying different generations of European immigrants to the US. Immigrants provide a useful laboratory for the study of the evolution of values and beliefs because their cultural attitudes are likely to bear the mark of the country from which they, their parents or their grandparents emigrated, but are also influenced by their exposure to US society and its political and economic institutions, often very different from those of the country of origin. Relying on descendants of immigrants from various countries of ancestry and living in the same country is often referred to as an "epidemiological" approach to the analysis of culture as a determinant of economic or other social outcomes. Just like epidemiologists try to distinguish the effect of genetic and environmental factors as a cause of a disease, similarly economists (see, for instance, Fernandez 2008) have used the experience of immigrants in a country to separate the effect of pre-existent beliefs and values, from the effect of the economic and institutional environment. The analogy is a useful, but at the same time, an imperfect one. The main reason is that, whereas the genetic endowment is very slow moving and changes only through mutation, the initial cultural endowment of immigrants may get modified in the space of just a few generations by being exposed to different economic, institutional and cultural circumstances.

Our paper has a bearing on two related strands of the literature. The first studies the process of cultural transmission and formation and is related to the wider research agenda on the relationship between culture and economic and institutional outcomes. The second analyzes, from an economic and sociological perspective, the cultural and social integration of immigrants. For the US the fundamental question, in this respect, is whether the "melting pot" metaphor is accurate or needs revisiting.⁴

We use data from the General Social Survey (GSS) to analyze the persistence

"culture" in shaping economic outcomes, separately from other time invariant factors. See Giavazzi, Schiantarelli and Serafinelli (2013) for an instrumenting strategy for attitudes towards women work and leisure based on the changing, yet predetermined, nature of attitudes about religion and on the evolution of attitudes of second or higher generation US immigrants from Europe. See also Algan and Cahuc (2010), who use the attitudes of different generations of US immigrants to study the effect of trust on economic development.

⁴See Section 2 for a brief review of the literature on cultural integration and on the formation and transmission of values and beliefs.

or evolution of a number of cultural attitudes about the religion, family, gender, sexuality, cooperation, redistribution, etc., distinguishing between first, second, third and fourth (or higher) generations of European immigrants to the US. The focus on European immigrants is largely imposed on us by the availability of sufficient data for multiple generations distinguished by country of origin. We use data contained in 21 waves (although the exact number varies across attitudes) of the GSS survey collected between the end of the 1970's and 2012. This provides a good coverage of the first, second and third generation of those who emigrated after World War II, and information on the fourth generation or higher of the large immigration waves of the early 20th century.

We are certainly not the first ones to analyze this issue. However, most existing contributions focus on the *persistence* of cultural traits for *second* generation immigrants to the US or to European countries. For instance, Giuliano (2007) presents evidence that cultural heritage is important for living arrangements, Fernandez (2007) for female labor force participation, and Fernandez and Fogli (2009) for female labor force participation and fertility outcomes, all using US census data. Fernandez and Fogli (2006) present evidence supporting an effect of culture on fertility outcomes according to the country of ancestry of US immigrants, using the GSS, but without distinguishing between second and higher generation immigrants. Algan, Bisin and Verdier (2012) and associate authors study the pattern of cultural and economic integration of immigrants in Europe, how they differ by immigrant communities, religious beliefs and host countries: the empirical evidence is based on the European Social Survey, complemented by other data sources, and the focus is on the first and second generation's indicators of social and cultural integration (family arrangements, fertility, education, labor market outcomes, religion, language spoken, etc.). Exceptions, in the sense that they use generations beyond the second, are Antecol (2000) — who finds that culture matters for the gender gap in labor force participation, for both the first and second and higher generations of US immigrants, although less for the latter — and Borjas (1992) who shows that ethnic capital (measured as average ethnic specific education, professional achievement or wages) has a greater effect on children education, occupation and wages for both the second and the third generation, although the effect tends to be higher for the second.⁵

⁵Earlier contributions in the sociological literature use early waves of the GSS, and focus on the assimilation process of specific groups, such as Italian immigrants in Greeley (1974, ch.4) and Alba

We measure the speed of convergence of cultural traits in several ways. We first compute the evolution over generations of the standard deviation of each attitude across countries (σ – *convergence*) and test of equality of country-generation effects. We argue, however, that the number of countries of origin, whose immigrants’ descendants have converged towards the dominant norm, is more informative. More specifically, we focus on the proportion of countries whose immigrants’ descendants, by generation four, have cut at least in half the distance from the norm observed in generation one. We also analyze the change that occurs between the first and second generation.

The paper has three main findings. First we provide evidence of heterogeneity across cultural traits in the speed with which they evolve across generations. Some, for instance deep individual religious values (as reflected for instance in the answers to the questions regarding belief in life after death, frequency of prayer, approval of prayer in public schools) and some family and moral values (ease of divorce, obedience of a child as an important quality, access to abortion for any reason, views of homosexuality) and general political views, are very persistent, so that values of fourth or higher generation immigrants still bear the imprint of their ancestors who migrated to the United States many decades earlier. Other, such as attitudes towards cooperation (the trustworthiness, fairness and helpfulness of others), the importance of effort for one’s success, cultural attitudes towards redistribution, children independence, premarital sex and access to abortion — with restrictions — converge rather quickly, as successive generations adapt to the norms of the new society in which they live. The same is true — namely relative fast convergence — for the frequency of attendance to religious services and the intensity of affiliation with one’s religion, that reflect the social dimension of the religious experience and its role in defining identity. Instead, results concerning the speed of convergence of cultural attitudes towards women’s role outside the home are mixed.

A second important result is that time since the original immigration of the ancestors matters and that the results obtained studying higher generation immigrants

(1985, ch.6). The results in Greeley are based on a sample of males only. Both studies emphasize the change, as opposed to the persistence of cultural attitudes, but do not distinguish among different generations. Rice and Feldman (1997) distinguish the level of civic attitudes for Italian immigrants on the basis of number of grandparents born in the US and reach the surprising conclusion that the descendants of earlier immigrants are more likely to give *less* civic responses than the descendants of later immigrants.

differ from those obtained limiting the analysis to the second generation. Thus the finding, reported in many previous studies, that the attitudes of second generation immigrants still closely reflect those of the country of origin, does not imply *per se* that attitudes are very persistent. Analyzing data on generations that are more distant from the date the ancestors moved to the US, we show that time since the original immigration matters. For instance, the beliefs that shape trust towards other members of society of second generation immigrants still bear the mark of the country of origin and are different for immigrants from different countries of origin. Tabellini (2008b, 2010), studying second generation immigrants, concludes that culture is the missing link between distant history and current institutional performance: trust is higher if the ancestors came from countries that over a century ago had better political institutions. We find that this is correct if one stops at the second generation, but such differences disappear when you consider fourth or higher-generation immigrants. The same — namely lack of convergence after two generations, but convergence at the fourth — is true for attitudes towards individual effort, towards pre-marital sex, attitudes toward women participation in the labor market, or the importance of teaching children to be independent.

Finally, we find that persistence is "culture specific" in the sense that the country from which one's ancestors came matters in defining the pattern of integration (or lack of) with respect to a specific cultural trait. Moreover, the strength of the family in each country of ancestry and the ease or difficulty in learning English for its immigrants is an important determinant of the speed with which cultural traits evolve through generations.

Different speeds of convergence of attitudes can be interpreted in the light of evolutionary models of cultural transmission based on the distinction (see Cavalli-Sforza 1981, 2001) between "vertical" and "horizontal" transmission of values and beliefs, where vertical transmission denotes transmission within the family (and tends to induce persistence), while horizontal transmission refers to values and beliefs that are transmitted through social interactions or respond to incentives such as the need to operate effectively in a new work environment, and thus can change more rapidly. Optimizing models of cultural adoption and transmission (as reviewed for example in Bisin and Verdier 2011) emphasize, on the one hand, the desire by parents to transmit their own cultural values to their children, on the other the importance of the net rewards from adopting a dominant trait.

The plan of the paper is as follows. In section 2 we briefly review the economic and sociological approaches to cultural transmission and integration. In section 3 we describe how we measure cultural attitudes in the GSS, how we define generations and which European countries (or groups of countries) we use in our analysis. In Section 4 we illustrate our measures of cultural "convergence", and in Section 5 we present and discuss our main empirical results. Section 6 concludes.

2 Cultural Integration and Transmission: a Brief Review of Different Perspectives

The issue of how are values and beliefs transmitted and formed and of how, if at all, are immigrants integrated, can be addressed from several perspectives: sociological, evolutionary and economic. Although in the most recent contributions there has been cross fertilization between the various perspectives, they maintain their distinctiveness. We will not provide a full review of the various approaches and only highlight those characteristics that may help interpret our empirical evidence.⁶ Conversely, our evidence highlights some dimensions along which the existing models may be fruitfully expanded.

While the economic perspective on cultural transmission and integration is focused on the incentives and the costs facing an optimizing individual, sociologists do not share this optimization perspective and focus more on group cultural dynamics in response to the social, economic and institutional environment. For a long time the dominant approach to the integration of immigrants has been the *Assimilation Theory*: immigrants are gradually assimilated into the dominant culture through their exposure to the same environment of that of the native population (at least in some dimensions). Faced with the new environment, initial cultural traits start to weaken. The basic idea is that there are psychological and economic gains to be obtained from cultural conformity. Once the process starts, cultural integration continues and leads to full social and economic assimilation.

This description seems to fit well, at least at first sight, with the experience of European immigrants to the US. However, while in many dimensions social and economic integration has proceeded at a fast pace in the space of few generations,

⁶See Algan et al (2012) and associated references for excellent critical reviews of the various approaches to integration and to the dynamics of cultural transmission.

still the descendants of European immigrants have not lost their identity along all cultural dimensions. Culture is multi-faceted and not all cultural traits converge at the same speed, if at all. Providing evidence on this issue is, indeed, one of the main objectives of this paper.

A different approach, *Multiculturalism*, rejects the assimilationist point of view and instead views societies as the US as composed by a dominant group, together with a series of ethnic and racial minorities that maintain their own cultural characteristics, possibly in a state of tension and interaction with the dominant cultural traits. Maintaining cultural distinction reduces the psychological costs associated with cultural differences. Some authors also emphasize how the process of cultural and economic integration depends upon structural aspects of the environment immigrants find themselves in, which affects their ability to integrate, or not.

The issue of the cultural integration of immigrants is intimately related, as mentioned in the introduction, to the more general theme of how values and beliefs are transmitted. A perspective on the transmission of culture derived from evolutionary biology has been provided by Cavalli-Sforza (1981 and 2001, ch.6). The emphasis here is on two different modes of transmission: vertical versus horizontal. Vertical transmission occurs between parents and children and, like genetic inheritance, tends to be conservative, and gives rise to slow evolution of culture. Horizontal transmission occurs between two individuals of the same or different generations that do not have the biological or social relationship that characterizes vertical transmission.⁷ As in an epidemic, the number of people who adopt the new cultural characteristic can change rapidly — particularly if it is attractive to the receiver — and may follow a logistic curve. The distinction between vertical and horizontal transmission is very useful to interpret why certain cultural traits may change at different speeds among immigrants — a point to which we shall return in discussing our results. The formal model by Cavalli-Sforza and Feldman (1981) considers a dichotomous cultural trait, allowing for vertical and horizontal socialization (the former exogenous and the latter determined by random matching) and has the implication that, with different direct socialization probabilities associated to each trait, the stationary state is characterized by cultural homogeneity of the population. Their model, therefore, would lead to predictions similar to those of the assimilation theory and would not support the

⁷It is also possible that transmission occurs from a member of the previous generation who is external to the family to a member of the present generation. This transmission is called oblique.

persistence of different cultural traits. Boyd and Richerson (1985) extend this framework by allowing the vertical socialization probabilities to depend upon the frequency of each trait in the population, in which case the model can generate more complex population dynamics.

Economic theories of cultural integration focus on the individual incentives to adopt, or not, the culture of the majority and are based on the comparison between the marginal gain and the cost of different integration strategies. The seminal contribution is Lazear (1999) who presents a model of the adoption of a common language or cultural trait that increases the benefits from trade between different communities. The model implies that the smaller (or more dispersed) is the minority group, the greater is the probability of assimilation. The probability of assimilation is also increasing in the gains to be obtained by interacting with the majority and decreases in the inefficiency of the interaction if there is not a common language (trait). Konya (2005) extends Lazear (1999) to a dynamic framework in which parents are altruistic and also take into account the gains from assimilation accruing to their children. As in Lazear, the integration choice is dichotomous and individuals are randomly matched. The model results emphasize the importance of the size of the minority group: when it is large, cultural separation will result, while, when it is small, assimilation will occur. For intermediate sizes, different long run distributions are possible. Moreover, in this dynamic world, expectations about the future distribution of cultural groups is also important and contribute to determine the outcome.

Parents may be less than fully altruistic, may care about transmitting to their children their own values, and may imperfectly empathize with their children's choices, in the sense that they consider their children's welfare, but also care about sharing common values with them. Bisin and Verdier (2000, 2001) construct models of cultural transmission under imperfect parental empathy. As in the models derived from evolutionary biology, cultural transmission depends upon conscious parental socialization of their children and upon the process of social imitation and learning outside the family. Differently from those models, however, the level of purposeful vertical socialization is optimally chosen by the parents and it depends upon the marginal benefits of the children retaining the parents' culture, relative to the marginal cost of the implied effort. If directed parental socialization decreases when a cultural trait is more prevalent in the population, this substitutability promotes persistence of cultural differences. More specifically, the model generates a unique stable steady state

characterized by cultural heterogeneity.⁸ When the opposite is true, and direct and indirect socialization are complements, the population converges to cultural homogeneity. The complementarity between family and society in socializing the children to a given trait gives an advantage to the larger dominant group and makes the assimilation of minorities more likely.

In the simpler models, it is assumed that the increment in a parent's utility associated with transmitting one's own trait, is exogenous and independent of the prevalence of a given trait in the population. When this is not the case, it is important whether the utility gain is decreasing in the prevalence of one's trait (strategic substitution) or increasing in it (strategic complementarity). Strategic substitution results in minorities experiencing large gains from integrating, while strategic complementarity generates smaller and even negative gains from transmitting one's trait. In the former case, with cultural substitutability, the models support a stable equilibrium with heterogeneity. In the latter case, depending upon the strength of cultural substitutability, minorities may or may not assimilate. A related group of models allow individuals to act strategically when they are randomly matched (Bisin, Topa, Verdier 2004, Tabellini 2008b). Also, in these models, strategic complementarity generates the result that the gain from socialization to a given norm is higher in a society where such norm is more prevalent.

The models reviewed so far abstract from the fact that individuals play an active role in choosing their own identity. Following the seminal paper by Akerlof and Kranton (2000), introducing social identity in economic models and rationalizing the emergence of oppositional cultures, other authors have extended the analysis of identity formation.⁹ Some have allowed both for identity formation and cultural transmission (for instance Bisin, Patacchini, Verdier and Zenou 2011) and have shown that both cultural substitution and the desire for cultural distinction result in the persistence of minority traits. However, the prevalence of an oppositional culture in the minority group can be sustained only if the group is large enough, the economic cost of the resulting actions is small enough, and there is enough segmentation in role models. The formation of oppositional identities linked to social exclusion and lack of

⁸Bisin and Verdier (2000) allow the effectiveness of the vertical socialization technology to be greater in marriages between individuals with the same cultural trait and show that, with homogamous marriages, cultural substitution applies and cultural heterogeneity characterizes the stationary equilibrium.

⁹See Bisin and Verdier (2010) for a review and references.

economic opportunity is probably not as fruitful a lens for examining the experience of European immigrants in the post WWII period, as it may be for immigrants from other non-European countries. However, the general idea of identity choice may contribute to explain how certain traits may persist also for the descendents of European immigrants, even at an economic or social disadvantage, provided these are not too large.

Finally, another set of models focuses on the evolution of beliefs, as opposed to values. Guiso, Sapienza, and Zingales (2008), for instance, analyze the transmission of beliefs about the trustworthiness of others. They show that the transmission tends to be biased towards excessively conservative priors that will be transmitted unchanged from parents to children, who will, in turn, choose not to invest in learning the true distribution. As a consequence societies can be trapped in low-trust equilibria. On the other hand, a big shock to the benefit from trusting (or to the share of trustworthy people) may shift the equilibrium to one characterized by a high level of trust. Fernandez (2013) models the changes in beliefs that come from a process of learning and applies her framework to the issue of women participation in the labor market. The belief on the long term consequences of women working on their children is updated in a Bayesian fashion on the basis of a private signal and a noisy public signal, and the model gives rise to a logistic curve for women labor force participation, that is consistent with the observed rapid increase in the post war period in the US, and its recent levelling off.

Optimizing models of cultural transmission provide useful insights that can help one in interpreting and understanding the pattern of evolution of values and beliefs across generations of immigrants. However, by their very nature, they are very stylized and abstract from some of the complexities of the transmission of a cultural heritage. In reality, such transmission depends upon the optimizing behavior of a multiplicity of actors (parents and children), is characterized by the possible tension between the desire to pass down one's cultural traits and the concern whether that may hinder the economic opportunities of one's offsprings, and occurs in an environment that is not perfectly known. Moreover, culture is not unidimensional but is characterized by multi-dimensional traits that have different implications for the rewards and costs of cultural integration. Yet, in conjunction with the sociological and evolutionary approaches, such models can provide some guidance in interpreting our findings. Conversely, our empirical exploration of the possibly heterogeneous

evolution of several cultural traits across multiple generations of immigrants can raise interesting questions for future research.

3 Measuring Attitudes and Defining Generations and Country of Origin in the GSS

Our measurement of cultural attitudes is based on the General Social Survey (GSS). We use multiple (25) waves of the GSS, starting in 1978 and ending in 2012. Each wave includes a core set of questions which remain in the survey in each year in which it was conducted. This core includes personal information such as age, income, region of residence and family origin, as well as information on personal views on a variety of topics such as family values, gender equality, religious beliefs, sexual behavior, cooperation, role of government, etc.

One of the advantages of the GSS is that it allows us to analyze a wide variety of attitudes, and to do so over several generations of immigrants. We have selected those attitudes for which data were available over a relatively long span of time, up to three decades (or slightly more). For ease of interpretation, we have grouped attitudes (or questions) into several broad categories. The list of categories is provided in Table A1 in the Appendix. Group A deals with views on social life, social interactions, cooperation. It includes questions about trustworthiness, fairness, and helpfulness of others. Group B includes attitudes regarding government intervention (should the government redistribute income, provide a safety-net for the poor) and regarding overall political views. Group C surveys different religious attitudes such as the belief in after life, the importance of prayer, the strength of religious affiliation, and the frequency of church attendance. Group D includes attitudes about family and children. Questions in this group elicit views on the degree of parental consent in teenage access to birth control, on the restrictiveness of divorce law, on the co-residence of multiple generations — i.e. whether one approves of children living with their parents beyond a certain age. Furthermore, this group includes views on preferred child qualities such as obedience and independence. Group E surveys views on gender roles. Participants in the GSS are asked several questions about their views on the role of women in market work versus the home, on the importance of the presence of the mother in a household for a fulfilling relationship with the child, and

on the suitability and desirability of females in political positions. Group F reports views on legalized abortion. We include the attitudes toward abortion for any reason and towards abortion when the mother is at risk, has been raped or the fetus has serious malformations. Group G covers attitudes towards sexual behavior such as pre-marital and homosexual sex. Finally, Group H includes views on whether social mobility is a result of hard work or help/luck.

The premise of our study is that values and beliefs are formed in part as a result of one's upbringing and in part by factors external to the family such as peers, institutions, and economic circumstances. Consequently, we surmise that values and beliefs depend both on the country of origin of a person's ancestors as well as on her generation (to be defined below). The origin is an important determinant of culture as it encodes the history of a people, encompassing past technological, economic, institutional and cultural environments. The generation of a person is important given that temporal "distance" from the country of ancestry may be associated with a dilution of the original cultural trait because of exposure to a different set of economic and social opportunities, to different institutions and cultural influences.

We consider the evolution of attitudes over multiple generations (up to the fourth). As a result, we are constrained by data availability to focus on immigrants to the US from European countries only. Furthermore, the small number of immigrants from some individual countries forces us to define "country of origin" grouping some countries. Table A2 in the Appendix lists the relevant country of origin as defined in this paper. In grouping countries under the same origin we have been guided by a combination of criteria. In the case of German- and French-origin, we have used the common language shared by the countries in the group. In the case of Scandinavian-, South-, and Eastern European-origin, we were guided by a relatively common cultural background in the respective region.¹⁰

Finally, we follow much of the literature in our definition of the generation to which an immigrant belongs. We define a person to be a first-generation immigrant if they were born outside of the United States. A person is said to be a second-generation immigrant if they are born in the US and at least one of their parents is born abroad. A person is defined as a third-generation immigrant if they are born in the US, all

¹⁰We exclude respondents of Russian origin from the analysis because their number is too small to constitute a separate group and because we did not want to create an heterogeneous Eastern European group. We have included in Eastern European origin only Czechoslovakia and Hungary as possible country of origin. Poland constitutes its own group.

their parents are born in the U.. and at least two of their grandparents are born abroad. Lastly, a person is said to be of forth-generation-or-more if they are born in the US, all their parents are born in the US and at most one grandparent is born abroad. With this definition the last category includes forth generation immigrants as well as people of a higher generation who still declare a specific European country of origin. In defining the country of origin we use the answer to the question "From what countries or part of the world did your ancestors come?" If more than one country is indicated the respondent is asked "Which one of these countries do you feel closer to?" 79% percent of the sample can identify a main country of origin affiliation. The definition could be made tighter by concentrating on the respondents that indicate only one country. However, this would reduce substantially the number of observations. Only 50% percent of the sample chooses just one country.

We identify the effect of the country of origin and of the generation of an immigrant on her/his values and beliefs estimating a probit model. Responses to each of the questions are therefore re-coded to produce a binary outcome. We will also experiment with estimating a linear probability model and an ordered probit model to allow for a gradation in the response. The following model is estimated using the pooled data from the GSS waves that include responses to the particular attitude studied

$$Pr(y_t^i = 1) = \alpha + \sum_O \sum_G \sum_P \beta_{o,g,p} (I_{(Origin^i=o)} \times I_{(Generation^i=g)} \times I_{(Period^i=p)}) + \gamma X_t^i \quad (1)$$

where y_t^i takes the value of 1 if a certain event has occurred for individual i in wave t . $I_{(.)}$ are indicator functions that take the value of 1 if the condition in the subscript is satisfied, 0 otherwise. The sums are defined over three different sets: set O includes all possible countries of origin as defined in Table A2; set G includes each of the four possible generations of immigrants; set P includes the three "decades" that span the GSS waves — the late 70's and 80's, the 90's, and the 00's. X_t^i is a set of individual controls for individual i in the wave t . Controls are included in the specification so that we can identify the origin-generation attitude effect independently of individual circumstances. The set of controls includes: income, education, mother education, father education, age, age², year of the survey, gender, number of children, marital status, work status, regional indicators, urbanization indicators, religion. We hypothesize that even after controlling for personal circumstances, the

origin and the generation of an individual will remain a possibly powerful factor in determining one’s values and beliefs.

As in other contributions such as Algan and Cahuc (2007) and Giavazzi et al (2013), the country-of-origin-generation effect is based on the estimated value of $\beta_{o,g,p}$. For each country of origin $o \in O$ we identify the attitudes of four generations ($G = 1, 2, 3, 4$). Furthermore, country-of-origin-generation effects can move in a different way in each decade. Note that our specification includes a survey-year effect common to all countries and generations. Since we need to exclude one survey-year effect per decade to avoid perfect collinearity, we have done it in such a way that $\beta_{o,g,p}$ captures the country-generation effect in 1986, 1996, 2006, approximately the middle of each decade. We should emphasize that while we allow for full flexibility (by decade) in the effects of origin and generation, we assume that the individual controls have the same impact on attitudes regardless of the decade.

4 Measuring Convergence in Attitudes

In this section we illustrate how we measure and assess whether or not there is convergence in cultural attitudes of different generations of immigrants towards the norm set by the more established and dominant group — which we define as the average of all fourth generation immigrants independently of their origin. We take several approaches in studying convergence. The first approach closely follows the growth literature on *sigma convergence*. In the original context of this approach, the standard deviation of income per capita across countries is calculated at different points in time. If the standard deviation decreases over time, the countries exhibit sigma convergence. The object of interest here is how the dispersion of attitudes across countries of origin varies across generations. Since we condition on a set of personal characteristics, we focus on conditional sigma convergence over generations.

More precisely, we calculate the standard deviation (*s.d.*) of cultural attitudes for countries in set O for each $g \in G$ and each $p \in P$:

$$\sigma_{(g,p)} = \sqrt{\frac{1}{8} \sum_{o \in O} (\beta_{o,g,p} - \bar{\beta}_{.,g,p})^2} \quad (2)$$

where 8 is the number of countries-of-origin minus one. This gives us the *s.d.* of

the attitudes of each generation of European immigrants for each of the decades in the set P . As a summary statistic, we take the average of the *s.d.* over all of the decades to construct a measure of the dispersion of the attitudes of immigrants for each of the generations. We define this measure as $\tilde{\sigma}_g = \frac{1}{3} \sum_{p \in P} \sigma_{(g,p)}$. Higher values of $\tilde{\sigma}_g$ imply that there is significant dispersion in the values or beliefs of immigrants across different origins, while lower values imply that attitudes do not vary a lot as a function of the country-of-origin, once we control for individual characteristics.

Our ultimate goal is to investigate whether the rate of convergence differs across different attitudes. To this end we compute the changes in the *s.d.* of the attitudes and use this as one of the criteria for convergence. We define:

$$\Delta_{(g-g')} = \log(\tilde{\sigma}_g) - \log(\tilde{\sigma}_{g'}) \quad (3)$$

as a first summary measure of the amount of convergence between generation g and g' . Even though the change in *s.d.* at each generation is important in understanding convergence, we focus on $\Delta_{(1-4)}$ and on $\Delta_{(1-2)}$, i.e. the log change in the dispersion of attitudes going from the first generation immigrants to the fourth or from the first to the second (a positive number represents a decrease). This measure provides a first criterion to distinguish between fast and slow changing attitudes. Highly persistent attitudes should show a very modest change in dispersion for different generations and therefore should have a small $\Delta_{(1-4)}$. Notice that we are using the average of the *s.d.* across decades. We can apply the same analysis to each of the decades and examine the evolution of attitudes across generations over time.

The change in dispersion provides a good starting point for our study. Unfortunately, it does not allow us to formally test whether immigrants from all possible origins have attitudes that are significantly different from each other. A possibility is to calculate the F statistic on the equality of country-generation coefficients and study its evolution across generations for immigrants from different countries. The hypothesis we would like to test is:

$$H_0 : \beta_{o,g,p} = \beta_{o',g,p} = \dots = \beta_{o'',g,p} \quad (4)$$

Notice that we keep g and p constant and test whether attitudes for each origin are the same at a given g and p . We can test this hypothesis using a standard F -test and use the percentile of the F statistic as a measure of how "close" attitudes are to each

other. In this case there will be a set of F statistics for each decade. Alternatively we can estimate a more restricted specification of the model where attitudes change over time only because of a common period-effect, while the country-generation effects are time invariant. In this case one would calculate only one F statistic for each generation.

The p -value of the F statistic for the test described above provides useful information on the process of cultural transmission. Unfortunately, this test could be rather misleading given the features of our data. By construction, our approach will tend to classify a bigger proportion of the respondents in the GSS as belonging to the fourth generation. As a result, the distribution of generations in our sample is heavily skewed toward the fourth generation. This implies that the higher number of degrees of freedom will significantly lower the standard errors in the estimation of the attitudes for such a generation. Thus the attitudes for each origin will be more precisely estimated for the fourth generation relative to lower ones. For this reason, the p -value will tend to be very small for the fourth generation, leading to a rejection of the null of equality of country effects, not necessarily because attitudes are quantitatively different but simply as a result of the higher precision of the estimates.

More importantly, relying on the standard deviation as a measure of convergence has the drawback that it is sensitive to the presence of outliers: one may reject convergence on the basis of the F test simply because just one of the countries is very different from the others. Moreover, the standard deviation can miss the clustering of cultural attitudes around more than one focal point (a phenomenon known as club convergence in the growth literature). For this reason, we dig deeper and examine the experience of immigrants from each country of origin separately. We start by doing this graphically, we then summarize the information in an index that is robust to the presence of outliers. For each of the countries of origin we define

$$\tilde{\beta}_{(o,p,g)} = (\beta_{(o,p,g)} - \beta_{(ave,p,4)}) / |\beta_{(ave,p,4)}| \quad (5)$$

$\tilde{\beta}_{(o,p,g)}$ represents the percentage deviation of the country-origin effect, $\beta_{(o,p,g)}$ from the norm ($\tilde{\beta}$'s denote estimated values). To capture the multi-cultural nature of the US, we assume that the "norm" is represented by the weighted average of the attitudes of fourth generation (or higher) European immigrants from all European countries in our sample, $\beta_{(ave,p,4)}$. The weights are the share of each country of ancestry in the

fourth generation. To examine the experience of immigrants from different origins, we examine the relationship between $\beta_{(o,p,1)}$, the country o effect in period p for generation 1, with the corresponding country effect in the same period for generation 4, $\beta_{(o,p,4)}$ (or for generation 2, $\beta_{(o,p,2)}$). This methodology follows and extends the approach proposed by in Algan et al (2012). However, whereas they focus on the changes between the first and second generation, we analyze the process of attitudes evolution over multiple generations. This approach provides a rich, country-of-origin specific, picture of the process of cultural transmission.

We use a graph to characterize the various patterns of convergence or non-convergence. Assume one plots the generation-1 deviation on the horizontal axis and the generation-4 deviation on the vertical axis (i.e. $\tilde{\beta}_{(o,p,1)}$ and $\tilde{\beta}_{(o,p,4)}$), either for each decade or for the entire sample. We can segment the four quadrants in regions by drawing a 45 degree line and a 135 degree line going through the origin. Focusing on Quadrant I, with positive initial and final deviations from the norm, points between the x-axis and the 45 degree line represent *monotonic convergence from above*, in the sense that the deviation is larger in generation 1 than in generation 4, while those between the line and the y-axis capture *monotonic divergence from above*. Points between the 45 degree line and the x-axis in Quadrant III represent *monotonic converge from below*, while points between the 45 degree line and the y-axis *monotonic divergence form below*. In Quadrant II, in which the difference relative to the norm is first positive then negative, the 135 degree line separates points of *convergent regress* (above it) from those representing of *divergent regress* (below the line). Similarly, in Quadrant IV, where the difference from the norm is first negative and then positive, points below the 135 degree line are points of *convergent leapfrogging* and those above the line points of *divergent leapfrogging*. This graph is useful to understand how the pattern of convergence differs for each cultural trait and each country.

We construct an overall index of convergence for each attitude by counting the number of countries that fall in the monotonic convergence from above or below, and in the convergent regress and leapfrogging regions. In other terms we are counting the points outside the hour-glass defined by the 45 and 135 degree lines through the origin that represent a decrease in the absolute value of the distance from the norm going from the 1st to the 4th (or 2nd) generation. We define the proportion of countries within these convergent region as *CI45*. This criterion has an advantage, over the change in the *s.d.* across generations, in that it is not sensitive to the presence of

outliers in the county-of-origin effects.

The drawback of $CI45$ is that it may not be a strict enough criterion. In particular it does not allow to distinguish between slow-converging attitudes that feature country-generation effects close to the 45 degree line (or its reflection), and fast-converging ones clustered closer to the origin, along the y-axis. To this end, we define $CI22.5$ as the proportion of countries situated between the x-axis and the 22.5 degree line (or its reflection). In other terms, we are now squeezing the hour-glass from above and *count as convergent only those countries for which the absolute value of the distance of generation 4 from the norm has been cut at least in half by generation 4* relative to generation 1. This is our preferred measure of convergence. The ranking of attitudes obtained in this way is very similar to that obtained when we require that the absolute value of the distance from the norm for generation 1 is cut by a quarter or three quarters by generation 4 (or 2).

5 Results

In this section we present our results. These should be looked at using the information in the Appendix where we report the questions used to characterize each attitude (Table A1), the definitions we used to group countries (Table A2) and the number of respondents by country and generation (Table A3).

We first investigate in Tables 1a and 1b whether the dispersion of attitudes, as measured by the standard deviation, σ , tends to disappear as we consider generations further and further away from their ancestors (first generation immigrants). The results show the *log change in the standard deviation* of the generation-country effects between generations 1 and 4, 1 and 2, 2 and 3, 3 and 4, respectively. In Figures 1a and 1b we plot the evolution of the (average over decades) of the country-generation effects. Table 2 summarizes these results ranking attitudes by their speed of σ -convergence. We show both the average across waves and the results for each wave: 1980s, 1990s and 2000.

Focusing on this last table we observe that, using the average change between the 4th and the 1st generation, the seven fastest converging attitudes are: *attend*, *eqwlth*, *thinkslf*, *premarx*, *trust*, *abrisk*, and *fair* (the ordering for individual waves is sometimes different, because individual waves are sensitive to outliers. For instance in the 2000 wave, *divlaw* shows fast convergence for Eastern European origin be-

cause Eastern Europe is an outlier—maybe owing to the small size of the sample for this variable.). Notice that two of these attitudes come from the cooperation group (trustworthiness and fairness of others), while others relate to the importance for children to be able to be independent, premarital sex and the frequency of church attendance. The seven slowest converging attitudes are: *fework*, *postlife*, *pillok*, *pray*, *fechild*, *polviews*, *divlaw*. One cultural trait relates one to religion (the frequency of praying), one to family (attitude towards tightness of divorce laws), and two to gender (attitude towards women work). Using the change between the second and the first generation the ranking appears to be different the seven fastest converging ones are: *eqwlth*, *prayer*, *attend*, *homosex*, *abany*, *fechild*, *socrel*. The seven slowest converging are: *fework*, *abrisk*, *polviews*, *postlife*, *reliten*, *helpful*, *gethaead*. Focusing on the second instead of the third generation gives a partly different picture of which attitude is fast versus slow moving. For instance, while attitudes towards cooperation appear fast moving if we focus on the difference between the first and the fourth generation, they are not if one focuses on the second generation. We will return this issue below.

As we discussed before, the σ measure of convergence can be affected by outliers and is not our preferred measure to decide which cultural attitudes are fast (or slow) moving. Neither is the F -test on the equality across countries of country-generation coefficients (see Tables 1a and 1b). In our unrestricted specification, where the F -test is decade specific, the test rejects the equality of coefficients slightly more often for the 4th generation (in 10 out of 78 cases) than for the 1st generation (in 7 out of 78 cases) and is not helpful in detecting significant patterns of generational convergence. When we use the more restricted, and less satisfactory, specification with country-generation effects that change over time only because of a common wave dummy, the frequency of rejection increases and includes five of the seven slowest moving traits we identified on the basis of the change in the standard deviation between the 1st and the 4th generation. Moreover, we reject the equality of coefficients for only one of the fast moving attitudes. However, even in this case, the rejections are more frequent for the 4th generation than for the 1st (13 versus 6 cases out of 26), probably reflecting the higher precision of the 4th generation effects due to larger sample sizes.

We now move to our preferred way to assess the speed of convergence of cultural traits across generations. In Figure 2a and 2b, we plot the percentage deviation from the "norm" of 4th generation immigrants (defined as the weighted average across countries-of-origin of 4th generation immigrants) for the 1st and 4th generation of

each country of origin. We also include the 45 degree and 135 degree lines and their reflections. We summarize the information in these Figures in two ways. First, in Table 3 and 4, we report the percentage of countries moving closer to the norm (columns denoted by *CI45*) and (columns denoted by *CI22.5*) the percentage of countries cutting the initial gap by at least one half. We do this for the *4th* and *2nd* generation for each country of origin, for each wave, and for the entire sample. Table 5 provides a summary picture of the differences in the speed of convergence of various attitudes for generation 2 and 4, using the results in Tables 3 and 4 and comparing the percentage of countries that by generation 2 or 4, respectively, have cut in half the first-generation gap for a particular cultural attitude. In Table 5 we also include the bootstrapped standard errors for the proportion of convergent countries.¹¹ Table 6 presents the results by attitude *and* country for the stricter convergence criterion, using all the three decades (denoted *CI22.5all* in Table 4). This table allows us to assess whether or not there are country specificities in the process of convergence.

Let's consider these results using Cavalli-Sforza's distinction between "vertical" and "horizontal" transmission — where vertical denotes transmission of values and beliefs from parents to children within the family (and is rather slow-moving), while horizontal refers to values and beliefs that are transmitted through social interactions and thus can change more rapidly, particularly when they are beneficial for the receiver. Although results differ slightly depending on the various criteria, a number of common patterns emerge.

Focusing on Table 5, the slow-moving attitudes, those for which less than 2/3 of countries cut their distance from the norm at least in half by generation 4 (reported in the top panel of Table 5), are those that describe personal religious values or beliefs: *pray*, *prayer* and *postlife* (frequency of prayer, approval of prayer in public schools, belief in afterlife), family values and traditions: *divlaw*, *obey* (ease of divorce law, importance of children obeying); two of the gender attitudes: *fehome* and *fechild* (women should take care of running homes, while men run the country; can a working mother have a good relation with her children?); moral values: *abany*, and *homo-sex* (approval of abortion for any reason and of same-sex sexual relations); political views: *helpoor* and *polviews* that distinguish conservative- from progressive-leaning individuals.

¹¹The bootstrapped standard errors have been obtained using 200 replication. There is little change in the standard errors going from 50 to 200 replications.

The fast moving attitudes, for which at least 2/3 of the countries converge by generation four (reported in the lower panel of Table 5), instead are those that are more likely to be shaped by social interactions outside the family.¹² These are all attitudes about cooperation: *trust* and *fair* and *helpful* (are people trustworthy, fair, or helpful?) which are shaped by one’s social relationships; *premarx*, *abrisk* and *pillok* (approval of pre-marital sexual relations, abortion for health/defects/rape reasons, and of contraceptions for young teenager without parental consent) that are also likely to reflect a social norm; *thnkself*, *aged* and *getahead* (children independence, approval of sharing home with grown-up children and effort versus luck) that reflect what it takes for oneself and for one’s kids to succeed in the labor market. Two out of the four gender attitudes converge, *fepol* and *fework* (women suited for politics, women should work even if husband can support them), but *fehome* and *fechild* move more slowly.¹³ Moreover two religious attitudes, *attend* (frequency of religious service attendance) and, to a lesser extent, *reliten* (intensity of association with one’s religion) also converge: note the difference between *attend*, and other more personal religious attitudes, perhaps because *attend* captures the outward manifestation of religious feelings, more likely to be influenced by social pressure and prevalent norms concerning church going. The same argument probably holds for *socrel* (frequency of social evenings with relatives) which also converges by generation 4. Finally, and contrary to other political attitudes, *eqwealth* (should government equalize income between rich and poor) also converges.

Note that our focus on cutting the absolute distance from the norm by half gives rise to a ranking of attitudes which is similar to the one obtained using less or more stringent criteria around a half. In Table A4 we report the rank correlation coefficients obtained for the proportion of convergent countries for each attitude based on reducing the absolute value of the distance from the norm by any amount ($CI45_{all}$), by at least a quarter ($CI33.75_{all}$), by at least half ($CI22.5_{all}$), and by at least three quarters ($CI11.25_{all}$). The rank correlation coefficients between the $CI22.5_{all}$ and

¹²Inglehart and Baker (2000), using the World Value Survey (WVS), suggest that economic development is associated with shifts away from absolute norms and values toward more rational, tolerant, trusting, and participatory ones. However, they argue that cultural change is path dependent and is affected by the broad religious and cultural heritage of a society. Notice that the values and attitudes that we identify as slow moving are considered by Inglehart and Baker (2000) as characteristics that distinguish preindustrial from industrial societies.

¹³Note that the standard error for the proportion of converging countries is rather large for *fehome* and *fework* (as well as for *helpoor*).

the $CI_{33.75_{all}}$ and $CI_{11.25_{all}}$ based proportions are quite high and equal to, .83, and .78, respectively. The rank correlation with the $CI_{45_{all}}$ based proportions is smaller and equal to .60.

In conclusion, it appears that the slow moving attitudes are mostly the ones that can be more easily transmitted directly within the family, while fast-changing ones are those for which social interactions matter more. Moreover, many contributions on cultural assimilation, such as Lazear (1999) and Konya (2005), emphasize that cultural assimilation is more likely the greater the gain from sharing a cultural trait with the majority and the greater the inefficiency of not doing so. Cavalli-Sforza (2001) also suggests that a trait is more likely to spread horizontally if it is beneficial (see also Tabellini 2008b). This mechanism seems to be at work with many of our fast moving attitudes. For instance, even though the value attached to the ability of children to be independent is a family attitude, it has a great impact on the ability of the next generation to profit from interacting with other members of a society, like the US, that greatly values independence. Similarly, in a society based on an ethic of work and self reliance, it pays to conform and to regard hard work as a determinant of one's success.¹⁴ Finally, there is also much to be gained from sharing attitudes towards cooperation. For instance, focusing on trust, the fastest moving attitude, it is true that there could be a short term gain from exploiting widespread trusting attitudes. However, it is likely that the gain would be short term, followed by punishment if one is discovered cheating and non conforming to the social norm.¹⁵

These results can also be interpreted in the light of the distinction between strategic complementarity and substitutability outlined in Bisin and Verdier (2010) and in some of the papers reviewed there. For instance, it is plausible that the attitude towards trust is characterized by strategic complementarity, so that individuals are more willing to trust when the percentage of trusting people is large. As a result the convergence towards the prevalent norm concerning trust is more likely.

The fast evolution of *attend* is consistent with the results in Gruber and Hungerman (2008), who show that changes in shopping hours had a large impact on church attendance. They argue that this validates economic models of religiosity that high-

¹⁴See also Doepke and Zilibotti (2008) for a model of the relationship between economic conditions and preference formation (taste for leisure/work and patience).

¹⁵See Guiso, Herrera and Morelli (2013) on how cultural clashes between countries (including the dimension of trust) may lead to the choice of inefficient policies once the countries join a union, with an application to the policy response to the Greek crisis.

light the importance of economic influences, such as the opportunity cost of church-going for religious participation.

The fact that attitudes towards premarital sex move very fast, but are not the fastest moving, is broadly consistent with the paper by Fernandez-Villaverde, Greenwood, and Guner (2013). Parents are altruistic, worry about the consequences of unwanted pregnancies for their daughters and weigh the gain from direct socialization, that induces a higher level of shame for out-of-wedlock pregnancies, with the cost. Young women weigh the enjoyment of pre-marital sex against the risk of unwanted pregnancies. In equilibrium their overlapping generation model can rationalize the change in sexual practice and the delayed change in sexual mores as a result of improvements in the contraception technology.

Our results have implications for the debate between the views that emphasizes the assimilation of immigrants versus those that highlight the preservation of a separate identity, and for the question whether the melting pot metaphor is accurate for European immigrants to the US. Indeed, by the fourth generation, the majority of cultural attitudes has converged for European immigrants, consistently with *Assimilation Theory*. However, contrary to the prediction of that theory and consistently with *Multiculturalism*, descendants of immigrants from different countries of ancestry have maintained over several generations a degree of cultural distinctiveness along some traits. In other terms, the temperature in the melting pot was mostly hot, but not uniform throughout

Whether a cultural trait is persistent or not crucially depends upon whether one considers the change between the 1st and 2nd or the first and fourth generation. This point is very important: stopping at the 2nd, as the literature has so far typically done, would miss the convergence of a number of attitudes (see Table 5, where attitudes are ordered by speed of convergence from the slowest to the fastest). All the attitudes that converge by the fourth 4th generation (*fepol*, *fework*, *aged*, *socrel*, *premarsex*, *pillok*, *abrisk*, *reliten*, *gethaed*, *fair*, *thksel*, *hepful*, *attend*, *eqth*, *trust*) have not converged yet by the 2nd. Thus limiting the analysis at the 2nd generation would bias the results in favor of the conclusion that cultural attitudes are persistent.

The finding that trust and other attitudes toward cooperation do not converge, when one stops at the 2nd generation, while it does when one considers the change between the 1st and 4th generation, can be interpreted in the light of the Guiso, Sapienza and Zingales (2008) model of learning. Immigrants carry with them the

level of trust of the country of origin and they transmit it to their children. Social interaction with the new environment changes their priors, but the adjustment may take more than two generations. In the case of gender attitudes it is also likely that different forces push in opposite directions and it may take time for people to update their beliefs about the implication for children's welfare of women working outside the home, as in the model by Fernandez (2013).¹⁶

On the issue of redistribution, our results are broadly in line with those of Alesina and Fuchs-Schundeln (2005), who find that this attitude can change rather rapidly, while they differ from those of Lutmer and Singhal (2011) who argue that such attitudes are more "permanent".

It is an interesting question whether the probability that a cultural attitude converges depends upon how spread out is the distribution of the trait in the first generation. Here the arguments may go both ways: countries that are far away from the norm may find it getting closer to it very advantageous; on the other hand, it may be difficult to do and this may foster an attempt to maintain a separate identity with regard to a particular trait. In our case the median standard deviation of the slower moving attitudes is larger than the standard deviation of the fast moving ones (.65 versus .45), suggesting that an initial large divergence of opinions may make convergence harder.

Another important issue we address is whether there are interesting country specificities in the pattern of convergence. The bottom row of Table 6 reports the total number of convergent attitudes by country and the associated bootstrapped standard errors. Ireland, the U.K., Germany, France, and Scandinavia are the countries with the highest number of cases in which attitudes converge over the entire sample period (convergence is here defined by the *CI22.5* criterion between the 1st and the 4th generation). Eastern Europe, Poland, Italy, and Southern Europe are at the opposite end. An interesting question is which factors explain the number of convergent attitudes by country. For instance, one would expect, on average, that in countries of origin

¹⁶Previous results on the evolution of attitudes towards gender roles are mixed. While Alesina, Giuliano and Nunn (2013), studying second generation immigrants, find a persistent impact of traditional plough use on gender norms today, other authors (Goldin 2006, Ross 2008, Albanesi and Olivetti 2009, Iversen and Rosenbluth 2010) find that economic development, medical progress and the production structure of the economy can move those attitudes rather rapidly. Different results are also found for attitudes towards government intervention in redistribution ("*Work, help or luck as a source of social mobility*"): while Lutmer and Singhal (2011) argue that such attitudes are "permanent", Alesina and Fuchs-Schundeln (2005) find that they can change rather rapidly.

in which the family is a weaker social institutions, direct transmission would be relatively less important. Indeed there is a positive and significant correlation ($r = .74$) between the number of convergent attitudes and the country specific average of the standardized family traits (the weighted average of attitudes in the family group) for the 1st generation in the 80's, taken as a proxy for the strength of the family as an institution in the country of ancestry. However, this is not the only factor. The ability to learn English may also matter in acquiring other cultural traits. As a proxy for the ability to acquire English proficiency, we use the average, for each country of origin, of the number of words (out of ten) for which 1st generation immigrants can identify the meaning. The correlation with the number of changing attitudes is also significant (the correlation coefficient is .82). However, when both variables (family and language) are included as explanatory variables in a multiple regression for the number of convergent attitudes, neither is significant at conventional levels, which should not be surprising, given the small number of observations (nine!) and the collinearity between the proxies for weakness of family ties and ability to learn English ($r = .72$)¹⁷. This issue deserves further investigation.¹⁸

Considering different waves, we detect no significant pattern across waves, in the sense that the process of convergence does not appear to speed up, or slow down in a particular wave (see Tables 3 and 4). The passage of time matters in a different dimension. We have shown that some attitudes (for instance *postlife*, belief in life after death) is a very persistent attitude in the sense that differences across-countries-of-origin in this attitude do not disappear even by the 4th generation. This does not mean, however, that people do not change their attitudes over time. In the case of *postlife*, for instance, the last rows of Table 7a tell us that people, on average, believe more in life after death as time goes by. The number -0.28 for $av \Delta_2\beta_{00}$ means that in the 2000, relative to the 1980, average attitudes of all people - generation 2 through 4 - in our sample did change in the sense of becoming stronger believers in after life. Note, in the last three rows of the table, that this is true also for the evolution over time of this particular attitude for the norm, that is for 4th generation

¹⁷When both strength of the family and the ability to learn English are included as explanatory variables in an equation for the number of convergent attitudes for each country, language is significant while family is not.

¹⁸It would also be interesting to explore the convergence for each country of origin according to the size and concentration of the immigrant community. This requires access to geo-coding data. We will pursue this in future work.

Americans, whatever their origin (see $\Delta_2 norm_{00}$ and note that, by and large, the average attitude and the norm move in the same direction). Thus, in this case, although general attitudes change over time, the deviation from the norm does not. The other, religious attitudes (*attend*, *reliten* and *prayer*) suggest a general move towards secularism. Recall that for the first two of them, that capture the practice and identity aspect of religion, we also observe a fast convergence. There is also an evolution towards a more liberal general view concerning premarital sex, abortion with some restrictions, and homosexuality, but while the first two attitudes converge at a fast pace relative to the norm, this is not true for the last one (see table 7b). Finally, attitudes towards gender, for which we had obtained mixed results in term of convergence, become on average more liberal in the mid 90's relative to the mid 80's, but this trend does not continue after the mid 90's.

6 Conclusions

Are cultural traits persistent for very long periods of time or do they evolve rather rapidly? In this paper we have presented new evidence on this question. We have done this by analyzing cultural attitudes of different generations of European immigrants to the US.

We show that persistence is not the same across cultural traits. Some traits are very slow-moving: this is the case, for instance, for deep personal religious values, some family and moral values and political views. Others, instead, show a faster pace of convergence: this is true, for example, for attitudes towards trust, fairness and helpfulness of others, the role of effort in determining one's success, independence as an important trait for children, frequency of church attendance and intensity of identification with one's religion. Results for attitudes towards gender, represented by views on women participation in the labor market and in politics, are mixed. Slow-moving attitudes are mostly the ones for which direct transmission within the family is likely to be more important, while fast-changing ones are those for which social interactions matter relatively more and whose acquisition is more beneficial.

Importantly we show that one would not come to these conclusions if one limited the analysis to just the first two generations of immigrants—as the literature has so far mostly done. Focusing only on the first two generations biases the conclusion in favor of persistence. Finally, we show that persistence is "culture specific" in the

sense that the country from which one's ancestors came matters for the pattern of generational convergence (or lack thereof).

7 Tables and Figures

Table 1a: Log-Change in Standard Deviation, Groups A–C

	Group A – Cooperation			Group B – Government			Group C – Religion				
	trust	fair	helpful	eqwlth	helppoor	polviews	attend	pray	reliten	postlife	prayer
$\Delta_{(1-4)}$	1.20	1.08	0.86	1.25	0.85	0.69	1.27	0.65	0.83	0.36	0.80
$\Delta_{(1-2)}$	0.31	0.54	0.26	1.12	0.46	0.12	0.90	0.51	0.25	0.24	1.02
$\Delta_{(2-3)}$	0.25	0.34	0.65	0.17	0.22	0.58	0.09	0.13	0.80	0.42	-0.20
$\Delta_{(3-4)}$	0.64	0.21	-0.05	-0.04	0.17	-0.01	0.29	0.01	-0.23	-0.30	-0.03
$\Delta_{(1-4),80}$	1.62	1.36	1.33	1.44	0.29	0.31	1.21	0.05	0.63	0.21	0.70
$\Delta_{(1-4),90}$	0.70	0.75	0.80	0.75	1.48	0.40	1.14	0.84	1.01	0.23	0.94
$\Delta_{(1-4),00}$	1.22	1.29	0.57	1.51	0.90	1.64	1.39	1.12	0.84	0.68	0.73
$\Delta_{(1-2),80}$	0.62	0.30	0.64	1.52	0.18	0.05	0.83	0.16	0.49	0.32	0.46
$\Delta_{(1-2),90}$	0.15	0.62	0.46	1.02	0.49	0.18	0.08	0.14	0.00	0.14	1.34
$\Delta_{(1-2),00}$	0.15	0.66	-0.21	0.87	0.68	0.15	1.86	1.14	0.40	0.23	1.19
p-val _{g1}	0.12	0.00	0.00	0.18	0.17	0.68	0.00	0.03	0.00	0.18	0.87
p-val _{g2}	0.00	0.02	0.00	0.89	0.99	0.26	0.62	0.54	0.01	0.11	0.90
p-val _{g3}	0.05	0.07	0.44	0.38	0.03	0.09	0.00	0.54	0.04	0.11	0.00
p-val _{g4}	0.84	0.04	0.16	0.02	0.05	0.00	0.00	0.01	0.02	0.02	0.01
p-val _{g1,80}	0.23	0.24	0.02	0.02	0.52	0.48	0.05	0.71	0.04	0.69	0.80
p-val _{g2,80}	0.03	0.03	0.34	0.92	0.82	0.64	0.49	0.40	0.34	0.05	0.69
p-val _{g3,80}	0.00	0.03	0.17	0.93	0.84	0.57	0.00	0.30	0.01	0.13	0.06
p-val _{g4,80}	0.98	0.83	0.94	0.08	0.30	0.00	0.32	0.22	0.05	0.00	0.02
p-val _{g1,90}	0.62	0.07	0.36	0.38	0.22	0.84	0.41	0.56	0.10	0.86	0.16
p-val _{g2,90}	0.10	0.40	0.03	0.96	0.57	0.30	0.47	0.39	0.00	0.81	0.93
p-val _{g3,90}	0.32	0.15	0.48	0.79	0.08	0.21	0.04	0.31	0.66	0.85	0.05
p-val _{g4,90}	0.48	0.07	0.51	0.20	0.45	0.07	0.33	0.91	0.42	0.10	0.03
p-val _{g1,00}	0.16	0.04	0.34	0.08	0.21	0.57	0.01	0.01	0.51	0.22	0.50
p-val _{g2,00}	0.18	0.26	0.08	0.73	0.95	0.27	1.00	0.98	0.38	0.49	0.98
p-val _{g3,00}	0.35	0.77	0.73	0.41	0.35	0.36	0.96	0.36	0.98	0.40	0.82
p-val _{g4,00}	0.65	0.32	0.09	0.34	0.24	0.42	0.12	0.05	0.21	0.40	0.07

Notes: $\Delta_{(g-g')} = \log(\tilde{\sigma}_g) - \log(\tilde{\sigma}_{g'})$, where $\tilde{\sigma}_g$ is the standard deviation, across countries, of attitudes for generation g averaged across decades. $\Delta_{(g-g',p)} = \log(\sigma_{g,p}) - \log(\sigma_{g',p})$, where $\sigma_{g,p}$ is the standard deviation of origin attitudes for generation g in period p . p-val_{g,p} denotes the p-value of an F test for the hypothesis that all origin attitudes in generation g , period p are not statistically different from each other. p-val_g refers to the p-values of the same test in the restricted specification with time-invariant country-generation effects and common survey-year effects.

Table 1b: Log-Change in Standard Deviation, Groups D–I

	Group D – Family						Group E - Gender Role				Group F		G		H
	thnkself	obey	pillok	aged	divlaw	socrel	fechld	fehome	fepol	fework	abany	abrisk	premarsx	homosex	ahead
$\Delta_{(1-4)}$	1.22	1.03	0.62	0.97	0.73	1.00	0.68	0.85	0.81	0.23	0.93	1.15	1.21	0.79	0.80
$\Delta_{(1-2)}$	0.36	0.33	0.56	0.39	0.47	0.59	0.63	0.48	0.53	0.00	0.67	0.10	0.45	0.82	0.30
$\Delta_{(2-3)}$	0.55	0.33	0.53	0.55	0.43	0.01	0.37	0.23	0.46	0.49	0.57	0.49	0.26	-0.15	0.17
$\Delta_{(3-4)}$	0.31	0.37	-0.47	0.02	-0.16	0.40	-0.32	0.14	-0.18	-0.26	-0.31	0.56	0.49	0.11	0.33
$\Delta_{(1-4),80}$	1.26	1.02	0.43	0.93	-0.16	0.09	1.19	0.85	0.49	-0.12	0.00	1.47	1.44	1.17	0.59
$\Delta_{(1-4),90}$	1.11	0.57	0.53	1.36	0.79	1.40	0.15	0.85	0.63	0.50	1.21	0.83	0.95	0.83	0.81
$\Delta_{(1-4),00}$	1.23	1.36	1.06	0.72	1.55	1.30	0.76	0.00	1.15	0.00	1.14	1.24	1.28	0.44	1.06
$\Delta_{(1-2),80}$	0.41	0.30	0.30	0.25	0.13	0.21	0.74	1.29	-0.09	0.42	0.20	0.51	0.27	0.97	0.11
$\Delta_{(1-2),90}$	-0.19	0.20	0.80	0.93	1.04	0.79	0.39	0.06	0.78	-0.17	0.70	-0.12	0.50	1.44	0.91
$\Delta_{(1-2),00}$	0.72	0.44	0.73	0.15	0.21	0.58	0.72	0.00	0.67	0.00	0.80	-0.01	0.55	0.29	0.01
p-val _{g1}	0.19	0.27	0.77	0.33	0.43	0.40	0.55	0.03	0.26	0.61	0.09	0.14	0.01	0.04	0.53
p-val _{g2}	0.02	0.07	0.46	0.41	0.51	0.97	0.98	0.46	0.78	0.72	0.20	0.02	0.59	0.34	0.11
p-val _{g3}	0.75	0.11	0.44	0.70	0.78	0.13	0.46	0.36	0.29	0.45	0.82	0.01	0.11	0.61	0.00
p-val _{g4}	0.25	0.00	0.04	0.35	0.00	0.01	0.04	0.19	0.14	0.32	0.01	0.15	0.08	0.05	0.20
p-val _{g1,80}	0.33	0.23	0.64	0.14	0.94	0.94	0.52	0.26	0.83	0.89	0.91	0.13	0.12	0.01	0.05
p-val _{g2,80}	0.12	0.29	0.12	0.37	0.23	0.81	0.59	0.95	0.17	0.73	0.85	0.25	0.07	0.55	0.06
p-val _{g3,80}	0.54	0.44	0.57	0.58	0.89	0.49	0.62	0.13	0.59	0.76	0.50	0.02	0.72	0.03	0.05
p-val _{g4,80}	0.57	0.09	0.14	0.43	0.06	0.03	0.72	0.03	0.13	0.40	0.02	0.68	0.80	0.54	0.16
p-val _{g1,90}	0.50	0.87	0.11	0.37	0.20	0.16	0.61	0.41	0.43	0.81	0.10	0.54	0.16	0.10	0.46
p-val _{g2,90}	0.03	0.53	0.34	0.76	0.96	0.48	0.87	0.04	0.63	0.05	0.24	0.18	0.51	0.99	0.85
p-val _{g3,90}	0.88	0.39	0.76	0.34	0.69	0.64	0.92	0.86	0.90	0.42	0.95	0.48	0.19	0.32	0.08
p-val _{g4,90}	0.75	0.10	0.05	0.84	0.04	0.15	0.00	0.81	0.16	0.87	0.12	0.69	0.30	0.01	0.06
p-val _{g1,00}	0.30	0.13	0.65	0.85	0.84	0.59	0.53	0.53	0.03	0.03	0.12	0.22	0.03	0.37	0.73
p-val _{g2,00}	0.67	0.24	0.86	0.19	0.21	0.69	0.91	0.91	0.77	0.77	0.20	0.32	0.58	0.08	0.26
p-val _{g3,00}	0.33	0.25	0.47	0.88	0.31	0.01	0.41	0.41	0.75	0.75	0.61	0.05	0.04	0.83	0.50
p-val _{g4,00}	0.42	0.69	0.26	0.34	0.91	0.60	0.24	0.24	0.04	0.04	0.26	0.58	0.47	0.00	0.33

Notes: $\Delta_{(g-g')} = \log(\tilde{\sigma}_g) - \log(\tilde{\sigma}_{g'})$, where $\tilde{\sigma}_g$ is the standard deviation, across countries, of attitudes for generation g averaged across decades. $\Delta_{(g-g',p)} = \log(\sigma_{g,p}) - \log(\sigma_{g',p})$, where $\sigma_{g,p}$ is the standard deviation of origin attitudes for generation g in period p . p-val_{g,p} denotes the p-value of an F test for the hypothesis that all origin attitudes in generation g , period p are not statistically different from each other. p-val_g refers to the p-values of the same test in the restricted specification with time-invariant country-generation effects and common survey-year effects.

Table 2: Ranking of Attitudes by Speed of Convergence, Using Standard Deviation

		$\Delta_{(1-4)}$	$\Delta_{(1-2)}$	$\Delta_{(1-4),80}$	$\Delta_{(1-4),90}$	$(\Delta_{(1-4),00}$	$\Delta_{(1-2),80}$	$\Delta_{(1-2),90}$	$\Delta_{(1-2),00}$
Group A – Cooperation	trust	5	19	1	19	11	7	18	20
	fair	7	9	5	17	7	15	11	11
	helpful	12	21	6	15	23	6	14	26
Group B – Government	eqwlth	2	1	4	18	3	1	4	4
	helppoor	14	14	20	1	17	21	13	9
	polviews	21	24	19	24	1	25	17	19
Group C – Religion	attend	1	3	8	5	4	4	21	1
	pray	23	11	23	11	14	22	20	3
	reliten	15	22	15	7	18	9	23	15
	postlife	25	23	21	25	22	13	19	17
	prayer	18	2	14	9	20	10	2	2
Group D – Family	thnkself	3	17	7	6	10	12	26	7
	obey	8	18	11	21	5	16	16	14
	pillok	24	8	18	22	16	14	7	6
	aged	10	16	12	3	21	18	5	21
	divlaw	20	13	26	16	2	23	3	18
	socrel	9	7	22	2	6	19	8	12
Group E – Gender Roles	fechld	22	6	9	26	19	5	15	8
	fehome	13	12	13	10	25	2	22	23
	fepol	16	10	17	20	12	26	9	10
	fework	26	26	25	23	26	11	25	24
Group F – Abortion	abany	11	5	24	4	13	20	10	5
	abrisk	6	25	2	12	9	8	24	25
Group G – Sexual Behavior	premarsx	4	15	3	8	8	17	12	13
	homosex	19	4	10	13	24	3	1	16
Group H – Mobility/Success	getahead	17	20	16	14	15	24	6	22

Notes: $\Delta_{(g-g')} = \log(\tilde{\sigma}_g) - \log(\tilde{\sigma}_{g'})$, where $\tilde{\sigma}_g$ is the standard deviation of origin attitudes for generation g averaged across decades. $\Delta_{(g-g',p)} = \log(\sigma_{g,p}) - \log(\sigma_{g',p})$, where $\sigma_{g,p}$ is the standard deviation of origin attitudes for generation g in period p . This table orders different attitudes according to the change in the log of standard deviation between generations one and four and generations one and two. Where a period subscript is missing the measure represent an average over all periods. Lower numbers denote faster convergence.

Table 3: Speed of Convergence, Using Convergence Indices for the 4th Generation

		$CI_{45_{all}}$	$CI_{45_{80}}$	$CI_{45_{90}}$	$CI_{45_{00}}$	$CI_{22.5_{all}}$	$CI_{22.5_{80}}$	$CI_{22.5_{90}}$	$CI_{22.5_{00}}$
Group A – Cooperation	trust	0.93	0.89	0.89	1.00	0.81	0.78	0.89	0.78
	fair	0.89	0.89	0.89	0.89	0.70	0.89	0.44	0.78
	helpful	0.81	1.00	0.78	0.67	0.74	1.00	0.67	0.56
Group B – Government	eqwlth	0.85	0.89	0.89	0.78	0.78	0.67	0.89	0.78
	helppoor	0.74	0.56	0.78	0.89	0.59	0.44	0.67	0.67
	polviews	0.74	0.44	0.78	1.00	0.59	0.44	0.44	0.89
Group C – Religion	attend	0.81	0.89	0.89	0.67	0.74	0.78	0.78	0.67
	pray	0.74	0.56	0.78	0.89	0.59	0.56	0.67	0.56
	reliten	0.89	0.78	1.00	0.89	0.70	0.67	0.78	0.67
	postlife	0.70	0.67	0.67	0.78	0.48	0.56	0.44	0.44
	prayer	0.74	0.56	0.78	0.89	0.52	0.33	0.67	0.56
Group D – Family	thnkself	0.85	1.00	0.78	0.78	0.74	0.78	0.78	0.67
	obey	0.89	0.89	0.78	1.00	0.63	0.56	0.44	0.89
	pillok	0.89	0.78	0.89	1.00	0.70	0.67	0.56	0.89
	aged	0.74	0.89	0.56	0.78	0.67	0.67	0.56	0.78
	divlaw	0.67	0.56	0.67	0.78	0.44	0.22	0.67	0.44
	socrel	0.78	0.67	0.89	0.78	0.67	0.44	0.78	0.78
Group E – Gender	fechld	0.81	0.89	0.67	0.89	0.63	0.78	0.44	0.67
	fehome	0.78	0.78	0.78	0.00	0.56	0.56	0.56	0.00
	fepol	0.85	1.00	0.67	0.89	0.67	0.44	0.67	0.89
	fework	0.83	0.78	0.89	0.00	0.67	0.44	0.89	0.00
Group F – Abortion	abany	0.78	0.67	0.78	0.89	0.63	0.67	0.44	0.78
	abrisk	0.89	0.78	1.00	0.89	0.70	0.67	0.78	0.67
Group G – Sex	premarsx	0.85	0.78	0.89	0.89	0.67	0.56	0.78	0.67
	homosex	0.74	0.89	0.78	0.56	0.63	0.78	0.56	0.56
Group H – Mobility	getahead	0.70	0.78	0.67	0.67	0.70	0.78	0.67	0.67

Notes: CI_{45} ($CI_{22.5}$) denotes the proportion of countries for which the absolute deviation from the weighted average of all the 4th generation immigrants is less than the absolute deviation (half of the absolute deviation) for the 1st generation. Time subscripts refer to the middle of each decade (86, 96, 06). "All" denotes the proportion of country-decade convergent observations out of the total.

Table 4: Speed of Convergence, Using Convergence Indices for the 2nd Generation

		$CI_{45_{all}}$	$CI_{45_{80}}$	$CI_{45_{90}}$	$CI_{45_{00}}$	$CI_{22.5_{all}}$	$CI_{22.5_{80}}$	$CI_{22.5_{90}}$	$CI_{22.5_{00}}$
Group A – Cooperation	trust	0.63	0.67	0.67	0.56	0.44	0.56	0.56	0.22
	fair	0.59	0.56	0.67	0.56	0.33	0.22	0.56	0.22
	helpful	0.48	0.56	0.44	0.44	0.37	0.56	0.33	0.22
Group B – Government	eqwlth	0.74	0.67	0.78	0.78	0.52	0.56	0.44	0.56
	helppoor	0.63	0.56	0.67	0.67	0.41	0.33	0.33	0.56
	polviews	0.59	0.78	0.44	0.56	0.41	0.67	0.22	0.33
Group C – Religion	attend	0.67	0.78	0.56	0.67	0.48	0.44	0.33	0.67
	pray	0.67	0.56	0.67	0.78	0.41	0.44	0.22	0.56
	reliten	0.74	0.67	0.78	0.78	0.52	0.56	0.33	0.67
	postlife	0.74	0.78	0.78	0.67	0.44	0.44	0.44	0.44
	prayer	0.67	0.44	0.78	0.78	0.52	0.44	0.56	0.56
Group D – Family	thnkself	0.74	1.00	0.67	0.56	0.33	0.22	0.22	0.56
	obey	0.67	0.67	0.67	0.67	0.44	0.56	0.33	0.44
	pillock	0.70	0.56	0.78	0.78	0.56	0.44	0.56	0.67
	aged	0.59	0.67	0.56	0.56	0.41	0.56	0.44	0.22
	divlaw	0.48	0.33	0.67	0.44	0.33	0.33	0.44	0.22
	socrel	0.67	0.67	0.67	0.67	0.41	0.33	0.56	0.33
Group E – Gender	fechld	0.70	0.78	0.56	0.78	0.59	0.67	0.56	0.56
	fehhome	0.78	1.00	0.56	0.00	0.56	1.00	0.11	0.00
	fepol	0.70	0.44	0.78	0.89	0.33	0.11	0.56	0.33
	fework	0.61	0.67	0.56	0.00	0.50	0.56	0.44	0.00
Group F – Abortion	abany	0.74	0.78	0.78	0.67	0.56	0.56	0.67	0.44
	abrisk	0.70	0.89	0.67	0.56	0.41	0.33	0.44	0.44
Group G – Sex	premarsx	0.70	0.56	0.78	0.78	0.41	0.33	0.44	0.44
	homosex	0.85	0.89	0.89	0.78	0.41	0.78	0.44	0.00
Group H – Mobility	getahead	0.78	0.78	1.00	0.56	0.44	0.44	0.44	0.44

Notes: CI_{45} ($CI_{22.5}$) denotes the proportion of countries for which the absolute deviation from the weighted average of all the 4th generation immigrants is less than the absolute deviation (half of the absolute deviation) for the 1st generation. Time subscripts refer to the middle of each decade (86, 96, 06). "All" denotes the proportion of country-decade convergent observations out of the total.

Table 5: Convergence by Cultural Attitude: Comparing Generation Two and Four
 % of convergent countries

Attitude	gen 1 → gen 2		gen 1 → gen 4	
divlaw	0.33	(.087)	0.44	(.081)
postlife	0.44	(.086)	0.48	(.075)
prayer	0.52	(.084)	0.52	(.082)
fehome	0.56	(.123)	0.56	(.107)
helppoor	0.41	(.086)	0.59	(.098)
polviews	0.41	(.088)	0.59	(.090)
pray	0.41	(.081)	0.59	(.082)
homosex	0.41	(.103)	0.63	(.083)
obey	0.44	(.082)	0.63	(.080)
abany	0.56	(.098)	0.63	(.086)
fechld	0.59	(.080)	0.63	(.084)
fepol	0.33	(.087)	0.67	(.078)
fework	0.50	(.106)	0.67	(.096)
aged	0.41	(.079)	0.67	(.084)
socrel	0.41	(.094)	0.67	(.079)
premarsx	0.41	(.089)	0.67	(.077)
pillok	0.56	(.097)	0.70	(.088)
abrisk	0.41	(.088)	0.70	(.089)
reliten	0.52	(.086)	0.70	(.079)
getahead	0.44	(.086)	0.70	(.081)
fair	0.33	(.080)	0.70	(.084)
thnkself	0.33	(.079)	0.74	(.091)
helpful	0.37	(.086)	0.74	(.077)
attend	0.48	(.088)	0.74	(.080)
eqwlth	0.52	(.090)	0.78	(.087)
trust	0.44	(.077)	0.81	(.084)

Notes: Percentage of countries that (by generation 2 or 4, respectively) have cut in half the absolute value of the first-generation gap in the attitude indicated along the rows of Tables 3 and 4 (convergence by $CI22.5_{all}$ criterion). Standard errors estimated from a bootstrapping procedure and reported in the parentheses.

Table 6: Convergence by Cultural Attitude and Country

		GER	E.EU	POL	SCA	FRA	IRE	ITA	UK	S.EU	Total
Group A – Cooperation	trust	3	2	2	3	2	3	2	3	2	22
	fair	3	1	2	1	2	3	2	3	2	19
	helpful	2	2	2	3	3	2	2	2	2	20
Group B – Government	eqwlth	3	3	1	3	3	3	3	1	1	21
	helppoor	1	1	2	1	2	2	3	3	1	16
	polviews	2	2	1	2	3	2	1	2	1	16
Group C – Religion	attend	3	2	2	3	1	2	2	3	2	20
	pray	3	1	1	1	3	3	2	2	0	16
	reliten	3	1	3	3	1	3	2	2	1	19
	postlife	3	2	0	2	1	2	0	2	1	13
	prayer	2	1	2	1	1	3	0	2	2	14
Group D – Family	thnkself	3	2	3	0	2	3	2	3	2	20
	obey	1	2	2	2	2	3	2	2	1	17
	pillok	2	2	2	2	3	2	1	3	2	19
	aged	2	3	1	3	2	2	1	2	2	18
	divlaw	1	3	0	1	1	1	2	3	0	12
	socrel	2	3	1	3	2	2	1	3	1	18
Group E – Gender	fechld	2	2	2	3	2	1	2	2	1	17
	fehome	2	1	1	0	2	2	0	1	1	10
	fepol	3	2	1	2	3	2	2	2	1	18
	fework	1	2	0	1	2	2	2	1	1	12
Group F – Abortion	abany	2	2	2	3	1	2	1	3	1	17
	abrisk	2	1	3	3	1	3	1	3	2	19
Group G – Sex	premarsx	2	3	2	2	2	3	0	2	2	18
	homosex	2	0	2	2	3	3	2	2	1	17
Group H – Mobility	getahead	3	1	3	1	3	3	2	3	0	19
	Total	58	47	43	51	53	62	40	60	33	
	s.e.	(3.5)	(4.1)	(3.9)	(3.8)	(4.1)	(3.5)	(4.2)	(3.6)	(3.9)	

Notes: The figures in the table represent the number of times we observe convergence over all time periods for each country and each attitude. Convergence is achieved when the proportional gap is cut at least by half between the first and the fourth generation (*CI22.5* criterion). Observations for *fehome* and *fework* span only two decades – 80s and 90s. The last row reports the standard errors for the total number of convergences for each country. Standard errors are estimated from a bootstrapping procedure.

Table 7a: Variation of Attitudes over Time for Each Country of Origin (Percentage),
Groups A–C

	Group A – Cooperation			Group B – Government			Group C – Religion				
	trust	fair	helpful	eqwlth	helppoor	polviews	attend	pray	reliten	postlife	prayer
$\Delta_2\bar{\beta}_{GER,,00}$	-0.06	-0.14	-0.03	-0.06	-0.09	-0.15	0.05	-3.74	0.20	-0.05	0.03
$\Delta_2\bar{\beta}_{EEU,,00}$	-0.14	-0.19	-0.04	-0.02	-0.16	-0.11	0.17	0.76	0.38	-0.31	0.61
$\Delta_2\bar{\beta}_{POL,,00}$	-0.06	-0.19	0.02	-0.07	-0.12	-0.03	0.32	-0.66	0.10	-0.31	-0.18
$\Delta_2\bar{\beta}_{SCA,,00}$	-0.18	-0.22	-0.02	-0.02	0.04	-0.14	0.04	-1.06	-0.05	-0.64	0.56
$\Delta_2\bar{\beta}_{FRA,,00}$	-0.17	-0.24	-0.07	-0.00	-0.08	-0.49	-0.04	-1.25	0.10	-0.33	-0.21
$\Delta_2\bar{\beta}_{IRE,,00}$	-0.12	-0.27	-0.11	-0.01	-0.05	-0.14	0.06	-0.58	0.18	0.02	0.08
$\Delta_2\bar{\beta}_{ITA,,00}$	-0.04	-0.14	-0.03	-0.05	-0.15	-0.17	0.11	-4.08	0.12	-1.07	-0.16
$\Delta_2\bar{\beta}_{UK,,00}$	-0.07	-0.14	-0.02	0.00	-0.08	-0.04	0.01	.	0.07	-0.19	0.34
$\Delta_2\bar{\beta}_{SEU,,00}$	-0.25	-0.31	-0.03	-0.14	-0.01	-0.02	0.03	-7.77	-0.18	-2.82	0.41
$\Delta_1\bar{\beta}_{GER,,00}$	0.02	-0.07	0.03	0.06	0.05	-0.13	0.03	.	0.06	-0.05	0.12
$\Delta_1\bar{\beta}_{EEU,,00}$	0.01	-0.03	0.06	0.00	0.18	0.00	0.25	-1.61	1.21	-0.08	0.40
$\Delta_1\bar{\beta}_{POL,,00}$	0.01	-0.14	0.04	-0.01	-0.11	-0.19	0.08	-0.81	-0.07	-0.09	0.03
$\Delta_1\bar{\beta}_{SCA,,00}$	-0.04	-0.20	-0.00	0.15	0.03	-0.29	0.07	-1.24	-0.15	-0.23	-0.00
$\Delta_1\bar{\beta}_{FRA,,00}$	-0.01	-0.00	0.01	-0.02	0.07	-0.22	0.06	-2.93	0.50	-0.46	0.12
$\Delta_1\bar{\beta}_{IRE,,00}$	-0.02	-0.11	-0.03	0.08	0.10	-0.12	0.06	.	-0.08	-0.25	0.46
$\Delta_1\bar{\beta}_{ITA,,00}$	0.04	-0.05	0.02	0.06	-0.06	-0.06	0.03	-1.70	-0.03	-0.22	0.37
$\Delta_1\bar{\beta}_{UK,,00}$	0.04	-0.05	0.03	0.07	-0.01	-0.15	-0.00	-4.82	-0.05	-0.12	0.56
$\Delta_1\bar{\beta}_{SEU,,00}$	-0.04	-0.00	0.13	0.20	0.14	0.06	0.00	.	-0.12	0.19	-0.32
$\Delta_1\bar{\beta}_{GER,,90}$	-0.08	-0.07	-0.06	-0.11	-0.14	-0.02	0.02	1.24	0.13	-0.00	-0.08
$\Delta_1\bar{\beta}_{EEU,,90}$	-0.16	-0.16	-0.10	-0.02	-0.29	-0.11	-0.06	1.38	-0.37	-0.22	0.16
$\Delta_1\bar{\beta}_{POL,,90}$	-0.07	-0.04	-0.02	-0.06	-0.01	0.14	0.23	0.82	0.18	-0.19	-0.20
$\Delta_1\bar{\beta}_{SCA,,90}$	-0.13	-0.01	-0.02	-0.14	0.01	0.12	-0.03	-0.77	0.12	-0.33	0.56
$\Delta_1\bar{\beta}_{FRA,,90}$	-0.16	-0.24	-0.08	0.02	-0.15	-0.22	-0.10	2.16	-0.26	0.10	-0.29
$\Delta_1\bar{\beta}_{IRE,,90}$	-0.10	-0.15	-0.08	-0.08	-0.13	-0.02	-0.01	1.04	0.29	0.22	-0.26
$\Delta_1\bar{\beta}_{ITA,,90}$	-0.08	-0.08	-0.05	-0.10	-0.09	-0.10	0.07	-2.14	0.15	-0.70	-0.39
$\Delta_1\bar{\beta}_{UK,,90}$	-0.12	-0.08	-0.05	-0.06	-0.07	0.09	0.01	1.38	0.13	-0.07	-0.14
$\Delta_1\bar{\beta}_{SEU,,90}$	-0.20	-0.30	-0.19	-0.28	-0.13	-0.08	0.02	0.81	-0.07	-3.70	1.08
av $\Delta_2\bar{\beta}_{,,,00}$	-0.09	-0.18	-0.04	-0.03	-0.08	-0.13	0.05	.	0.13	-0.28	0.14
av $\Delta_1\bar{\beta}_{,,,90}$	-0.11	-0.10	-0.06	-0.09	-0.10	0.00	0.01	.	0.13	-0.14	-0.10
av $\Delta_1\bar{\beta}_{,,,00}$	0.01	-0.08	0.02	0.07	0.03	-0.14	0.04	.	0.02	-0.15	0.30
$\Delta_2norm_{,,,00}$	-0.07	-0.17	-0.04	0.00	-0.06	-0.14	0.03	.	0.04	-0.13	0.11
$\Delta_1norm_{,,,90}$	0.03	-0.08	0.02	0.09	0.05	-0.14	0.04	.	-0.03	-0.12	0.29
$\Delta_1norm_{,,,00}$	-0.11	-0.08	-0.06	-0.08	-0.11	0.00	-0.01	.	0.07	-0.01	-0.14

Notes: $\Delta_2\bar{\beta}_{o,,,00} = (\bar{\beta}_{o,,,00} - \bar{\beta}_{o,,,80})/\bar{\beta}_{o,,,80}$ where $\bar{\beta}_{o,,,p}$ is the weighted average of attitude for country o in p across generations 2-4 (weights are the proportion of each generation immigrants for each country). $\Delta_1\bar{\beta}_{o,,,00} = (\bar{\beta}_{o,,,00} - \bar{\beta}_{o,,,90})/\bar{\beta}_{o,,,90}$ and $\Delta_1\bar{\beta}_{o,,,90} = (\bar{\beta}_{o,,,90} - \bar{\beta}_{o,,,80})/\bar{\beta}_{o,,,80}$. av $\Delta_1\bar{\beta}_{,,,p}$ is the weighted average of $\Delta_1\bar{\beta}_{o,,,p}$ across all origins (weights are the proportion of generation 2-4 immigrants from each country relative to the total for all countries). $\Delta_1norm_{,,,p}$ is the proportional change in the norm, defined as the weighted average across countries of the attitudes of the generation 4 only. Dots denote cases in which the denominator is so close to zero that it makes the growth rate uninformative. 36

Table 7b: Variation of Attitudes over Time for Each Country of Origin (Percentage),
Groups D–I

	Group D – Family						Group E - Gender Role				Group F		G		H
	thnkself	obey	pillok	aged	divlaw	socrel	fechld	fehome	fepol	fework	abany	abrisk	premarsx	homosex	ahead
$\Delta_2\bar{\beta}_{GER,,00}$	-0.15	0.10	-0.41	-0.33	-1.80	-0.30	0.06	0.00	-0.29	0.00	-0.04	0.39	0.72	0.21	0.38
$\Delta_2\bar{\beta}_{EEU,,00}$	-0.44	-0.17	-0.88	0.51	-1.55	-0.06	0.55	0.00	0.16	0.00	-0.07	0.33	0.44	0.34	0.18
$\Delta_2\bar{\beta}_{POL,,00}$	-0.01	0.29	-0.71	0.40	-0.23	-0.35	0.36	0.00	0.22	0.00	-0.03	0.26	2.71	0.24	0.61
$\Delta_2\bar{\beta}_{SCA,,00}$	-0.26	-0.77	1.16	-0.24	-2.34	-0.41	0.26	0.00	-0.15	0.00	-0.12	-0.09	0.49	0.08	0.46
$\Delta_2\bar{\beta}_{FRA,,00}$	-0.10	0.20	-0.30	-0.94	-6.58	-0.25	-0.29	0.00	-1.33	0.00	-0.26	0.12	-0.37	0.18	0.76
$\Delta_2\bar{\beta}_{IRE,,00}$	-0.20	0.06	-0.46	-0.21	-1.54	-0.29	-0.00	0.00	0.22	0.00	0.05	0.92	1.10	0.30	0.16
$\Delta_2\bar{\beta}_{ITA,,00}$	0.05	-0.03	-0.74	-0.11	-42.63	-0.50	0.30	0.00	-0.25	0.00	-0.04	0.39	2.63	0.29	0.18
$\Delta_2\bar{\beta}_{UK,,00}$	-0.23	-0.04	-0.34	-0.30	-4.17	-0.46	-0.06	0.00	0.24	0.00	-0.11	0.31	0.97	0.17	0.32
$\Delta_2\bar{\beta}_{SEU,,00}$	-0.11	0.01	-0.91	0.02	-3.87	-0.23	0.10	0.00	-0.18	0.00	-0.16	0.15	0.46	0.35	0.27
$\Delta_1\bar{\beta}_{GER,,00}$	-0.12	0.10	-0.40	-0.53	-0.22	-0.31	-0.04	0.00	-1.26	0.00	-0.04	0.84	0.61	0.15	0.06
$\Delta_1\bar{\beta}_{EEU,,00}$	-0.07	0.10	-0.83	0.55	-1.32	0.13	0.34	0.00	-1.41	0.00	-0.04	0.86	-2.06	0.23	-0.10
$\Delta_1\bar{\beta}_{POL,,00}$	-0.05	0.33	-0.46	0.33	0.11	-0.21	-0.13	0.00	-5.29	0.00	-0.16	0.24	2.12	0.07	0.06
$\Delta_1\bar{\beta}_{SCA,,00}$	-0.12	-0.04	-0.11	-0.22	-1.05	-0.19	0.06	0.00	-0.89	0.00	-0.32	0.05	-8.79	-0.08	0.27
$\Delta_1\bar{\beta}_{FRA,,00}$	-0.16	-0.00	-0.24	-0.51	-1.38	-0.25	-0.24	0.00	-2.64	0.00	-0.22	0.82	0.00	0.03	0.25
$\Delta_1\bar{\beta}_{IRE,,00}$	-0.06	0.12	-0.26	-0.19	-0.56	-0.27	-0.18	0.00	-0.36	0.00	-0.09	1.09	1.23	0.23	-0.11
$\Delta_1\bar{\beta}_{ITA,,00}$	0.02	0.06	-0.72	-0.42	-1.53	-0.52	-0.01	0.00	-1.44	0.00	-0.24	0.38	-0.49	0.10	-0.14
$\Delta_1\bar{\beta}_{UK,,00}$	-0.11	0.05	-0.17	-0.28	-0.47	-0.34	-0.15	0.00	-0.46	0.00	-0.13	0.65	0.95	0.06	-0.03
$\Delta_1\bar{\beta}_{SEU,,00}$	-0.08	-0.25	-0.77	0.05	-0.66	-0.38	0.20	0.00	-0.73	0.00	-0.23	0.60	-0.56	0.14	-0.18
$\Delta_1\bar{\beta}_{GER,,90}$	-0.02	-0.00	-0.02	0.13	-1.29	0.01	0.10	0.57	0.43	-1.35	0.00	-0.24	0.28	0.07	0.31
$\Delta_1\bar{\beta}_{EEU,,90}$	-0.35	-0.31	-0.29	-0.09	-0.10	-0.22	0.32	1.86	0.65	-0.05	-0.03	-0.28	1.52	0.15	0.31
$\Delta_1\bar{\beta}_{POL,,90}$	0.04	-0.06	-0.46	0.10	-0.39	-0.11	0.43	0.32	0.88	-0.96	0.11	0.02	-0.53	0.19	0.52
$\Delta_1\bar{\beta}_{SCA,,90}$	-0.12	-0.71	1.42	-0.02	-0.63	-0.19	0.21	2.04	0.39	0.36	0.15	-0.13	1.07	0.15	0.16
$\Delta_1\bar{\beta}_{FRA,,90}$	0.05	0.20	-0.08	-0.29	-2.19	0.00	-0.04	-0.35	0.36	-0.91	-0.03	-0.38	-0.37	0.16	0.41
$\Delta_1\bar{\beta}_{IRE,,90}$	-0.13	-0.07	-0.27	-0.02	-0.63	-0.01	0.15	0.46	0.42	-1.20	0.13	-0.08	0.56	0.08	0.30
$\Delta_1\bar{\beta}_{ITA,,90}$	0.04	-0.09	-0.07	0.22	-16.27	0.01	0.31	1.74	0.49	-3.48	0.17	0.01	4.18	0.21	0.38
$\Delta_1\bar{\beta}_{UK,,90}$	-0.11	-0.10	-0.20	-0.01	-2.52	-0.09	0.08	0.83	0.48	-0.82	0.02	-0.21	0.39	0.13	0.36
$\Delta_1\bar{\beta}_{SEU,,90}$	-0.03	0.20	-0.61	-0.03	-2.73	0.11	-0.14	0.73	0.32	-6.05	0.06	-0.28	0.66	0.25	0.55
av $\Delta_2\bar{\beta}_{,,,00}$	-0.17	-0.01	-0.35	-0.25	-6.00	-0.36	0.06	0.00	-0.07	0.00	-0.06	0.41	1.01	0.22	0.34
av $\Delta_1\bar{\beta}_{,,,90}$	-0.07	-0.09	-0.06	0.03	-2.69	-0.04	0.14	0.80	0.46	-1.23	0.06	-0.17	0.71	0.12	0.33
av $\Delta_1\bar{\beta}_{,,,00}$	-0.09	0.07	-0.34	-0.30	-0.60	-0.30	-0.08	0.00	-1.11	0.00	-0.13	0.71	-0.01	0.11	0.01
$\Delta_2norm_{,,,00}$	-0.17	-0.02	-0.47	-0.36	-2.81	-0.36	0.03	0.00	0.01	0.00	-0.07	0.40	0.69	0.20	0.38
$\Delta_1norm_{,,,90}$	-0.08	0.03	-0.35	-0.39	-0.47	-0.28	-0.07	0.00	-0.72	0.00	-0.11	0.73	0.42	0.10	-0.01
$\Delta_1norm_{,,,00}$	-0.08	-0.05	-0.19	0.02	-1.59	-0.06	0.09	0.53	0.43	-0.53	0.04	-0.19	0.47	0.12	0.39

Notes: $\Delta_2\bar{\beta}_{o,,00} = (\bar{\beta}_{o,,00} - \bar{\beta}_{o,,80})/\bar{\beta}_{o,,80}$ where $\bar{\beta}_{o,,p}$ is the weighted average of attitude for country o in p across generations 2-4 (weights are the proportion of each generation immigrants for each country). $\Delta_1\bar{\beta}_{o,,00} = (\bar{\beta}_{o,,00} - \bar{\beta}_{o,,90})/\bar{\beta}_{o,,90}$ and $\Delta_1\bar{\beta}_{o,,90} = (\bar{\beta}_{o,,90} - \bar{\beta}_{o,,80})/\bar{\beta}_{o,,80}$. av $\Delta_1\bar{\beta}_{,,,p}$ is the weighted average of $\Delta_1\bar{\beta}_{,,,p}$ across all origins (weights are the proportion of generation 2-4 immigrants from each country relative to the total for all countries). $\Delta_1norm_{,,,p}$ is the proportional change in the norm, defined as the weighted average across countries of the attitudes of the generation 4 only. Dots denote cases in which the denominator is so close to zero that it makes the growth rate uninformative.

Data Appendix

Table A1: List of Attitudes: Groups, Abbreviations, Descriptions

Group A – Cooperation	trust fair helpful	can people be trusted or cannot be too careful (1=yes) will people take advantage of you (1=no) people are mostly helpful or looking out for themselves (1=yes)
Group B – Government	eqwlth helppor polviews	government equalize income between poor and rich (1=yes) government improve the standard of living of the poor (1=yes) political views (1=liberal)
Group C – Religion	attend pray reliten postlife prayer	frequency of religious services attendance (1=less often) frequency of prayer (1=less often) intensity of religious affiliation (1=not strong) belief in life after death? (1=no) approval of prayer in public schools (1=disapprove)
Group D – Family	thnkslf obey pillok aged divlaw socrel	independence of a child is highly important quality (1=important) obidience of a child is a highly important quality (1=not important) birth control available to teenagers without parental consent (1=ok) approval of sharing home with grown children (1=disapproval) should divorce be easier (1=yes) frequency of social evenings with relatives (1=less often)
Group E – Gender Roles	fechild fehhome fepol fework	working mother has a good relationship with children (1=yes) women should take care of running homes (1=no) women not suited for politics (1=no) women should work even if husband can support them (1=yes)
Group F – Abortion	abany abrisk	approval of abortion for any reason (1=yes) approval of abortion for health/defect/rape reasons (1=yes)
Group G – Sexual Behavior	premarx homosex	approval of premarital sex (1=yes) approval of same-sex sexual relations (1=yes)
Group H – Mobility/Success	getahead	work, help, luck as a source of social mobility (1=work)

Notes: The responses from the survey have been recoded to have a binary outcome. We indicate which of the answers is coded as one. Variable *abrisk* does not exist in the GSS. $abrisk = abhlth \cap abrape \cap abdefect$

Table A2: List of Countries of Origin : Country Groups, Code, Individual Countries Included

German origin (GER)	Austria Germany Switzerland
Eastern European origin(E.EU)	Czechoslovakia Hungary
Polish origin (POL)	Poland
Scandinavian origin (SCA)	Denmark Finland Sweden Norway
French origin (FRA)	France Belgium French Canada
Irish origin (IRA)	Ireland
Italian origin (ITA)	Italy
English origin (UK)	England Wales Scotland
South European origin (S.EU)	Spain Portuagal Greece

Table A3: Number of Respondents for the Question on Trust by Period, Origin, and Generation

Period 1: 80's	Gen1	Gen2	Gen3	Gen4	Total
GER	63	154	326	1,003	1,546
E.EU	13	66	50	39	168
POL	26	98	112	41	277
SCA	17	86	134	152	389
FRA	24	60	100	242	426
IRE	18	45	172	734	969
ITA	44	158	173	74	449
UK	68	118	168	1,117	1,471
S.EU	32	26	19	47	124
Period 2: 90's					
GER	62	127	290	1,108	1,587
E.EU	9	36	66	41	152
POL	20	43	108	54	225
SCA	15	52	127	173	367
FRA	27	58	79	275	439
IRE	19	64	178	729	990
ITA	30	104	197	125	456
UK	69	111	119	1,173	1,472
S.EU	50	29	24	39	142
Period 3: 00's					
GER	43	51	166	712	972
E.EU	3	14	39	33	89
POL	13	25	53	51	142
SCA	11	21	67	144	243
FRA	21	33	46	162	262
IRE	15	37	100	624	776
ITA	21	78	135	137	371
UK	38	44	91	798	971
S.EU	47	26	33	60	166

Table A4: Rank Correlation between Convergent Proportions for Different Criteria for the 4th Generation

	<i>CI</i> 22.5	<i>CI</i> 45	<i>CI</i> 33.75	<i>CI</i> 11.25
<i>CI</i> 22.5	1			
<i>CI</i> 45	.60	1		
<i>CI</i> 33.75	.83	.83	1	
<i>CI</i> 11.25	.78	.60	.73	1

Notes: Spearman rank correlation coefficients.

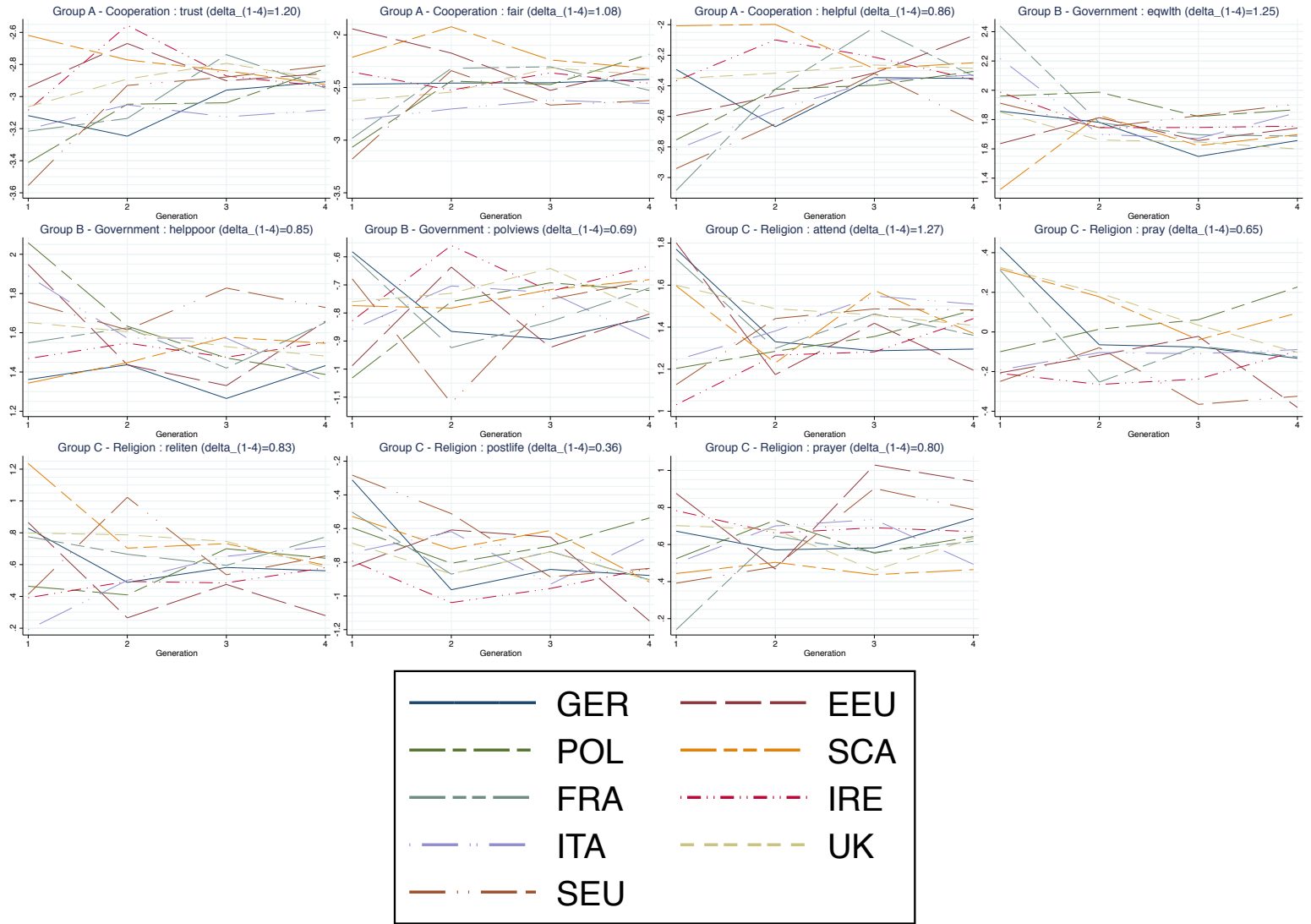


Figure 1a: Evolution of Attitudes across Generations (Weighted Average over Time)
: Groups A–C

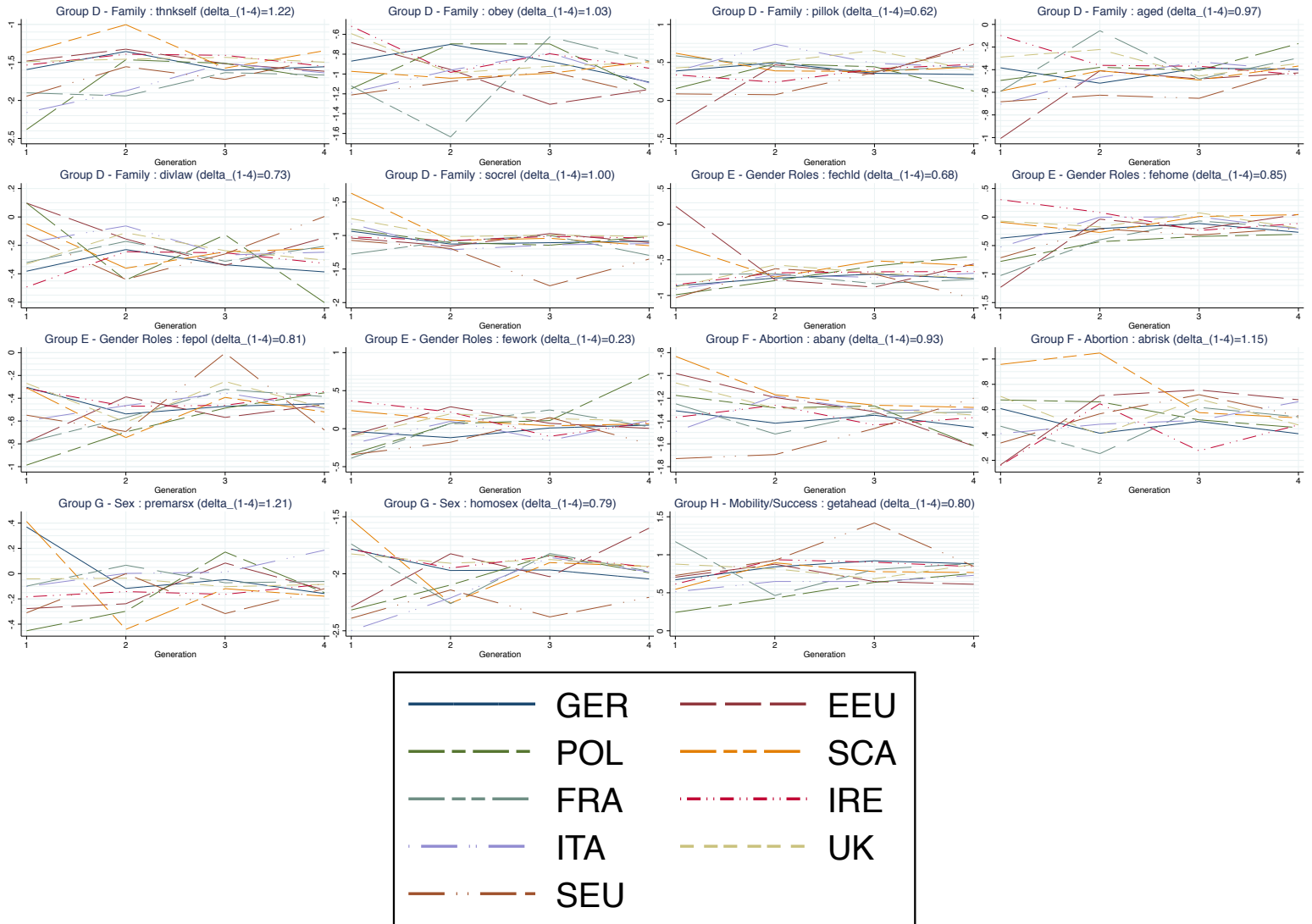


Figure 1b: Evolution of Attitudes across Generations (Weighted Average over Time)
: Groups D–H

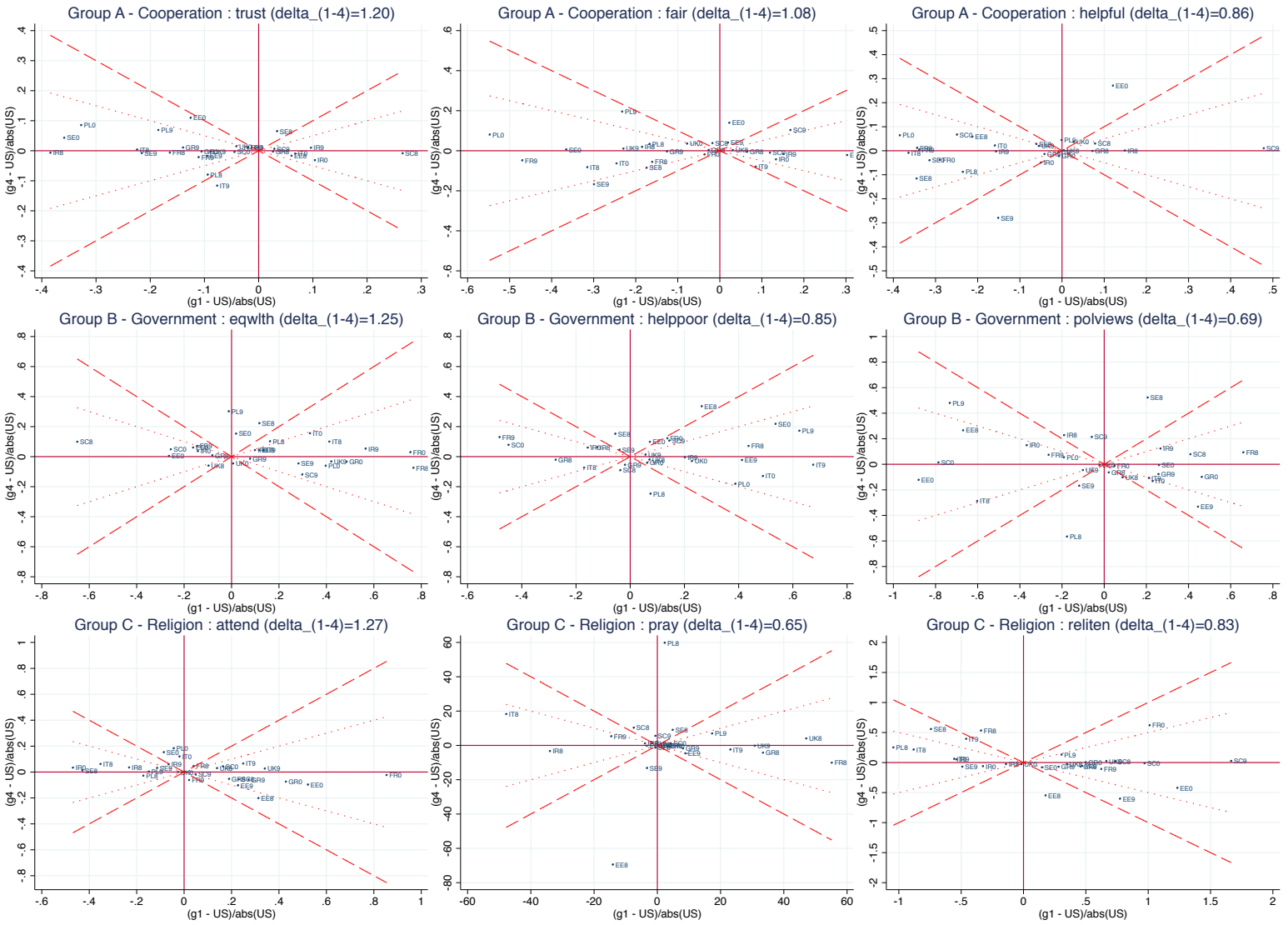


Figure 2a: Individual Countries Percentage Deviation from Norm (Weighted Average across Countries of 4th generation) for Generations 1 and 4, over the Entire Period

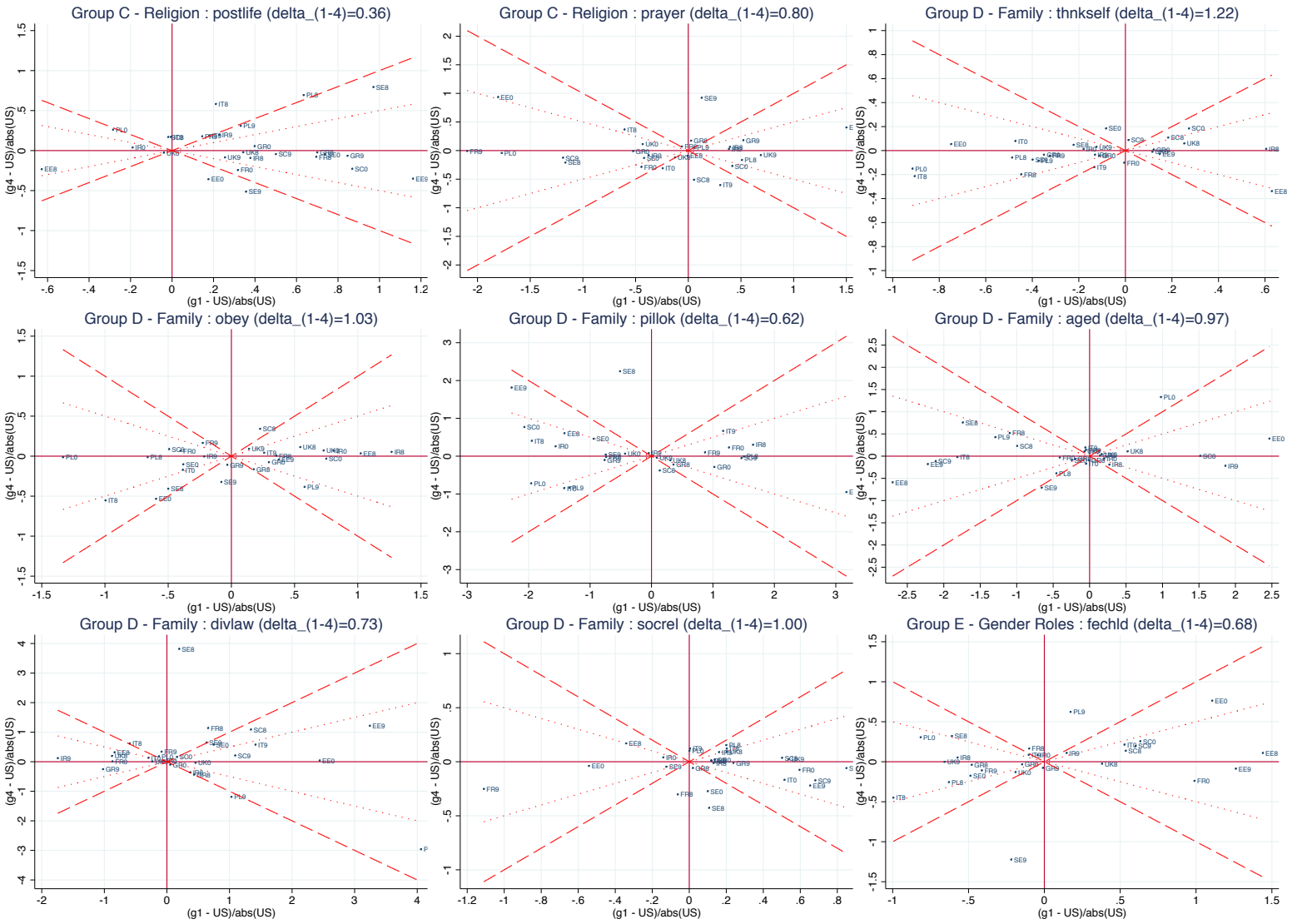


Figure 2b: Individual Countries Percentage Deviation from Norm (Weighted Average across Countries of 4th generation) for Generations 1 and 4, over the Entire Period

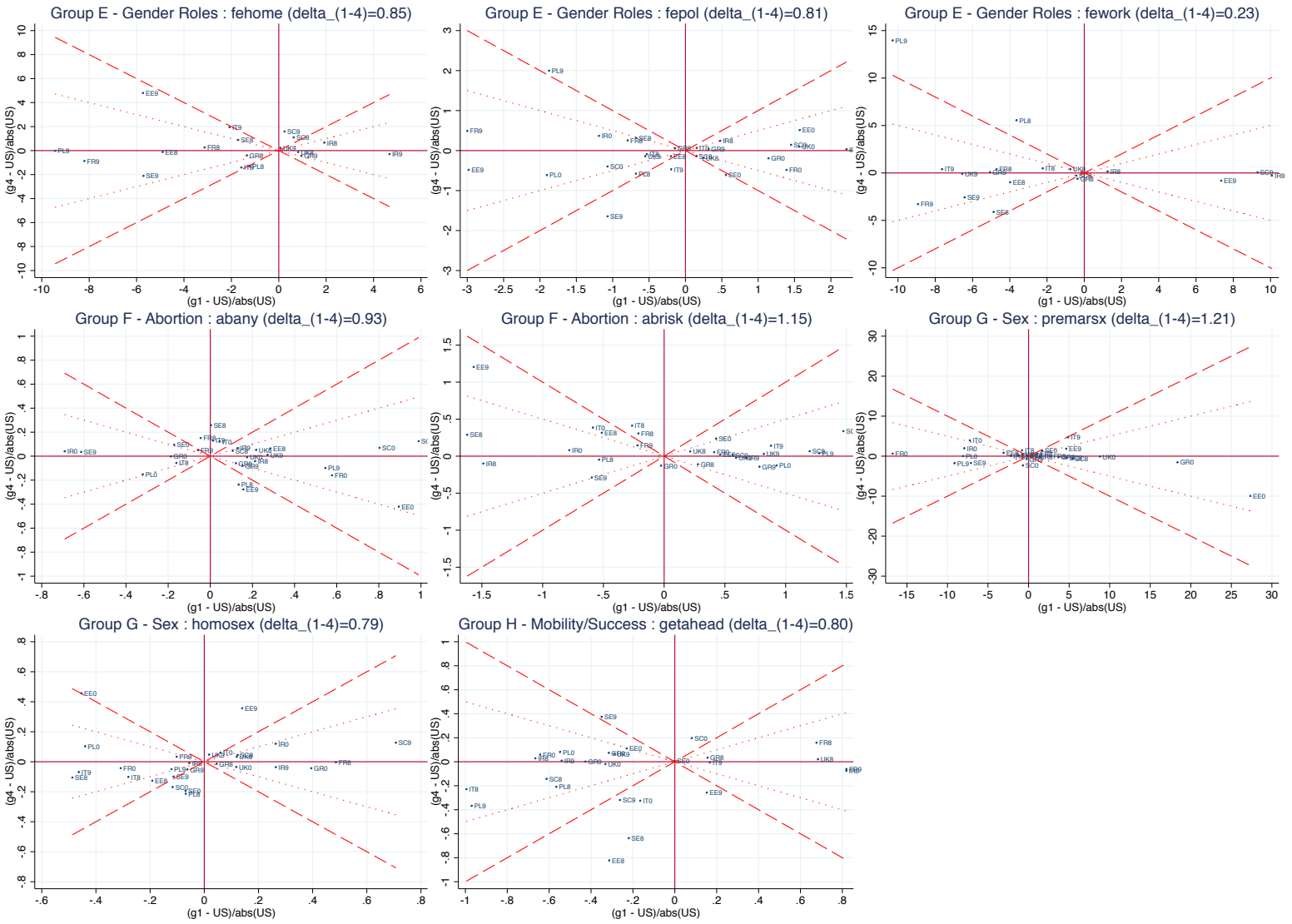


Figure 2c: Individual Countries Percentage Deviation from Norm (Weighted Average across Countries of 4th generation) for Generations 1 and 4, over the Entire Period

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