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CULTURE: PERSISTENCE AND EVOLUTION

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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 converge very slowly to the prevailing US norm. Other, such as attitudes toward cooperation, redistribution, effort, children's independence, premarital sex, and even the frequency of religious practice or the intensity of association with one's religion, converge rather quickly. The results obtained studying higher generation immigrants differ greatly from those found when the analysis is limited to the second generation, as typically done in the literature, and they imply a lesser degree of persistence than previously thought. 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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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 are *"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 ("culture") 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]

[1] Putnam (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.

[2] Gruber 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, Galiani and Schargrowsky (2007) 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.

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

How persistent are cultural traits and, more specifically, does the degree of persistence vary across different traits? These are empirical questions that need further exploration. In this paper we investigate empirically the speed of evolution (or lack thereof) of a wide range of cultural attitudes for 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. They thus provide an interesting quasi-experiment for the effect on cultural attitudes of a change in the economic and social environment. Relying on the experience of descendants of immigrants from various countries of ancestry who live in the same country, in order to assess the effect of culture on economic or other social outcomes is often referred to as the "epidemiological" approach to the analysis of culture. Just like epidemiologists try to distinguish the effect of genetic and environmental factors as causes of a disease, similarly economists have used the experience of immigrants to a country to separate the effect of pre-existent beliefs and values, from the effect of the technological and institutional environment.[4] We share the focus on immigrants to the same country, but our emphasis is not on outcomes, but on the differential evolution of the cultural traits themselves.

Our paper builds and 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. We will use the insights provided by theoretical models of cultural transmission to interpret the differences we observe in the speed of convergence of various cultural traits. The second strand analyzes, from an economic and sociological perspective, the cultural and social integration of immigrants. For the US the fundamental and long debated question is whether the "melting pot" metaphor is accurate or needs revisiting.[5] Our new evidence contributes to providing an answer to this question for European immigrants.

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

of different generations of US immigrants to study the effect of trust on economic development.

[4]See Fernandez (2008) for a review. The analogy with the approach of epidemiologists is a useful, but at the same time, an imperfect one. One 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.

[5]See Section 2 for a brief review of the literature on the formation and transmission of values and beliefs, and on cultural integration.

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.[6] However, most existing contributions focus on the *persistence* of cultural traits for *second* generation immigrants and on their effect on economic and social outcomes. 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's (2006) results, using the GSS, are also supportive of an effect of the culture of the country of ancestry on fertility outcomes for US immigrants, although no distinction is made between second and higher generation immigrants.[7] 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's education, occupation and wages for both the second and the third generation, although the effect tends to be higher for the second.[8]

We measure the speed of convergence of cultural traits over multiple generations in several ways. We first compute the evolution over generations of the standard deviation of each attitude across countries (*sigma 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

[6]Earlier 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 (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.

[7]See also Algan, Bisin, Manning and Verdier (2012) and associated authors for a study of the pattern of cultural and economic integration of immigrants in Europe, and 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.).

[8]Rice and Feldman (1997) distinguishe 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.

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 are very persistent, for instance, deep individual religious values (as reflected in the answers to the questions regarding belief in life after death, frequency of prayer, approval of prayer in public schools), 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. As a result of such persistence, values of fourth or higher generation immigrants still bear the imprint of their ancestors who migrated to the United States many decades earlier and have not converged yet to the prevailing US norm. 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's 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. The former reflects the social dimension of the religious experience and the latter its role in defining identity. Interestingly, they both differ from the personal religious values mentioned above. Finally, results concerning the speed of convergence of cultural attitudes towards women's role outside the home are mixed, with attitudes towards women in the workplace converging faster than those related to general women's role in society .

A second important result is that time since the original immigration of the ancestors matters and that the results obtained studying higher generation immigrants differ from those obtained limiting the analysis to the second generation. Thus, finding 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. 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 is true for virtually all the fast-converging attitudes.

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, the ease or difficulty in learning English for its immigrants, and the degree of residential segregation are important determinants of the speed with which cultural traits evolve through generations.

We interpret the different speeds of convergence of attitudes in the light of evolutionary models of cultural transmission based on the distinction (see Cavalli-Sforza and Feldman 1981, 2001 and the review by Bisin and Verdier, 2011) between "vertical" and "horizontal" transmission of values and beliefs. Vertical transmission denotes transmission within the family, its intensity may be purposefully chosen by parents, and tends to induce persistence. Horizontal transmission refers to the mechanism through which values and beliefs are transmitted via social interactions with peers or with adults external to the family, responding to incentives such as the net reward from adopting a dominant trait, and thus may change more rapidly. Indeed we find that the attitudes that converge more quickly across generations are those for which horizontal transmission is likely to be more important, while those for which differences tend to persist are those for which transmission within the family is likely to be comparatively more effective.

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 six contains robustness exercises and extensions, while Section 7 concludes the paper.

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

The issue of how values and beliefs are transmitted and formed and of how, if at all, are immigrants integrated, can be addressed from several perspectives: evolutionary, economic, and sociological. 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.[9] Conversely, our evidence highlights some dimensions along

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

which the existing models may be fruitfully expanded.

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.[10] 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. 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 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) the minority group, the greater the probability of assimilation. The probability of assimilation is also increasing in the gains to be obtained by interacting with the majority and decreasing 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:

[10]The transmission that occurs from a member of the previous generation who is external to the family to a member of the present generation is often called oblique. We consider it as a part of horizontal transmission.

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.

Zilibotti and Doepke (2008) develop a model of endogenous preference formation in which altruistic parents strive to shape their children's preferences, taking account of their future material circumstances and opportunities. Their focus is on parental investment in patience and in work ethics: parents who expect their children to be laborers will tend to instill in them a strong work ethic. They will also have an incentive to teach them patience if children are expected to enter a profession characterized by delayed rewards. In contrast, parents who anticipate their children to be rentiers will teach them to appreciate leisure and will put less emphasis on patience. Thus the choices of a specific occupation and of preferences suitable for that occupation are mutually reinforcing, and society, even if the population is initially homogeneous, is endogenously stratified into "social classes" defined by occupations and their associated values.

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. However, differently from those models, the level of purposeful vertical socialization is optimally chosen by the parents and it depends upon the marginal benefits for parents of children retaining their 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.[11] 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

[11] Bisin 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 homogamnous marriages, cultural substituion applies and cultural heterogeneity characterizes the stationary equilibrium.

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.[12] 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 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

[12]See Bisin and Verdier (2010) for a review and references.

characterized by a high level of trust[13]. 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 interpret and understand 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), it 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 it 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, optimizing 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.

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 distinctive cultural traits start to weaken and then dissolve in the melting pot of US society. 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

[13]See also 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.

has proceeded at a fast pace in the space of few generations, 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, the main objectives of this paper.

A different approach, *Multiculturalism,* rejects the assimiliationist 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. The new evidence we provide on the evolution of a wide variety of attitudes contributes to a deeper and more nuanced understanding of the extent to which the melting pot metaphor is accurate (or not) in describing the experience of European immigrants to the US.

3 Measuring Cultural 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 that 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 over several generations of immigrants. We have selected the 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 (*trust)*, fairness (*fair)*, and helpfulness of others *(helpful)*. Group B includes attitudes regarding government intervention (should the government redistribute income (*eqwlth*), provide a safety-net for the poor (*helppor*)), and overall political views (*polviews*). Group C surveys different religious attitudes such as the belief in afterlife (*postlife*), the frequency of prayer

(*pray*), the approval of prayer in public schools (*prayer*), the strength of religious affiliation with one's religion (*religen*), and the frequency of religious services attendance (*attend*). 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 (*pillok*), on the restrictiveness of divorce law (*divlaw*), on the co-residence of multiple generations (*aged*) — i.e. whether one approves of children living with their parents beyond a certain age, and on the frequency of evenings with relatives (*socrel*). Furthermore, this group includes views on preferred qualities in children such as obedience (*obey*) and independence (*thnkself*). Group E surveys views on gender roles. Participants in the GSS are asked to express their position concerning various views describing the role of women in the labor market, in politics, and at home: a woman working even if the husband can support her (*fework*); working mothers can have a warm relationship with their children (*fechild*); women should take care of running the home while men run the country (*fehome*); women are not suited for politics (*fepol*). Group F reports views on legalized abortion for any reason (*abany*) or restricted to cases of risk for mother's health, defects in the fetus, or rape (*abrisk*). Group G covers attitudes towards sexual behavior such as pre-marital sex (*premarsx*) and homosexual sex (*homosex*). Finally, Group H includes views on whether social mobility is a result of hard work or help/luck (*getahead*).

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, 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 the 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 (GER) and French (FRA) origin, we have used the common language shared by the countries in the group. In the case of Scandinavian (SCA), Southern European (S. EU), and Eastern European (E.EU) origin, we were guided by a relatively common cultural background in the respective region. The other single countries included are the United Kingdom (UK),

Poland (POL), Ireland (IRE), and Italy (ITA)[14]

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 he/she was born outside of the United States. Immigrants are defined to be second-generation if they are born in the US and at least one of their parents is born abroad, and third-generation if they are born in the US, all of their parents are born in the US and at least two of their grandparents are born abroad. Lastly, a person is said to be of forth-generation-or-more if he/she is born in the US, all his/her 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 reduces substantially the number of observations, as only 50% percent of the sample chooses just one country. We explore the consequences for our results of adopting a tighter definition of country of origin in Section 6.

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. The following model is estimated using the pooled data from the GSS waves that include responses to the particular attitude studied

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

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

[14]We 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.

country-of-origin-generation effect on attitudes independently of individual circumstances. The set of controls includes: income, education, mother's education, father's education, age, age^2, year of the survey, gender, number of children, marital status, work status, religion, regional indicators, and urbanization indicators. 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-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 Cultural 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, defined as the weighted average of all fourth generation country-of-origin effects. 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 $p \in P$:

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

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:

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

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 $\triangle \log \tilde{\sigma}_{(1-4)}$ and on $\triangle \log \tilde{\sigma}_{(1-2)}$, i.e. the change in the natural log of the dispersion of attitudes going from the first generation immigrants to the forth 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 $\triangle \log \tilde{\sigma}_{(1-4)}$. Notice that, in addition to analyzing the log change in the average of the standard deviation for all decades, we can do the same for each decade and examine whether the evolution of attitudes across generations changes 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:

$$H_0 : \beta_{o,g,p} = \beta_{o',g,p} = \beta_{o'',g,p} = ... \tag{4}$$

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.

Although the F statistic could provide useful information on the process of cultural transmission, it not likely to be very informative, or could be even misleading in our case, given the features of our data. Since the distribution of generations in our sample is heavily skewed in favor of the fourth generation, the country (or country-wave) effect for each origin will be more precisely estimated for the fourth generation relative to lower ones. For this reason, the $p-$value of the test will tend to be comparatively smaller 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 of convergence that is robust to the presence of outliers. For each of the countries of origin we define

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

$\widetilde{\beta}_{(o,p,g)}$ represents the percentage deviation of the country-origin effect, $\beta_{(o,p,g)}$, from the norm ($\beta's$ here denote estimated values)[15]. 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, and 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).[16] 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

[15]Division by $|\beta_{(ave,p,4)}|$ is simply a normalization. We use absolute values because $\beta_{(ave,p,4)}$ can be negative.

[16]See, in particular, Figure 1.4 on p. 25.

deviation on the vertical axis (i.e. $\widetilde{\beta}_{(o,p,1)}$ and $\widetilde{\beta}_{(o,p,4)}$), 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 (see Figure 1a). 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 (continuation of 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 negative then positive, the 135 degree line separates points of *divergent leapfrogging* (above it) from those representing *convergent leapfrogging* (below the line). Similarly, in Quadrant IV, where the difference from the norm is first positive and then negative, points below the (continuation of the) 135 degree line are points of *divergent regression* and those above the line points of *convergent regression*. 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, in this case, the points *outside the hourglass* 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 1^{st} to the 4^{th} (or 2^{nd}) generation. We define the proportion of countries within these convergent region as π_{45}. Using π_{45} as a criterion for convergence 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 π_{45} 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 $\pi_{22.5}$ 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 country-wave observations for which the absolute value of the distance from the norm in generation 1 has been cut at least in half by generation 4* (see Figure1b). This is our preferred measure of convergence. One could use a somewhat tighter or looser criterion. However, as a robustness exercise, we will document in Section 6 that the ranking of attitudes obtained using the $\pi_{22.5}$ criterion 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.

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 choice we made to group countries (Table A2), and the number of respondents by country and generation (Table A3). We will focus first on *sigma convergence* and on testing the equality of the country-of-origin effects for different generations. We then move on to our preferred approach based on the convergent regions described in Section 4.

5.1 Sigma Convergence and F-tests

We first investigate briefly in Tables 1a and 1b whether the dispersion of attitudes, as measured by the standard deviation 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 average standard deviation* of the generation-country effects between generations 1 and 4, 1 and 2, 2 and 3, and 3 and 4 for each decade. In Figures A1a and A1b in the appendix we plot the evolution of the (average over decades of the) country-generation effects for all attitudes.

Focusing on this table we observe that, using the average change between the 4^{th} and the 1^{st} generation, the seven fastest converging attitudes are: *attend, eqwlth, thinkslf, premarsx, trust, abrisk,* and *fair*. 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, polviews, fechild, divlaw.* One cultural trait relates to religion (the frequency of praying), one to family (attitude towards strictness 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 very different. The seven fastest converging attitudes are: *eqwlth, prayer, homosex, attend, fechild, abany, socrel*. The seven slowest converging are: *fework, abrisk, polviews, reliten, postlife, helpful*, and *getahead.* Focusing on the second instead of the forth generation gives a partly different picture of which attitudes are 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, at the 5% significance level, more often for the 4^{th} generation (in 11 out of 78 cases) than for the 1^{st} generation (in 9 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 of the null for the fourth generation increases and includes six of the seven slowest moving traits we identified on the basis of the change in the standard deviation between the 1^{st} and the 4^{th} generation. Moreover, we reject the equality of coefficients for only three of the fast moving attitudes. However, even in this case, the rejections are more frequent for the 4^{th} generation than for the 1^{st} (14 versus 8 cases out of 26), probably reflecting the higher precision of the 4^{th} generation effects due to larger sample sizes.

5.2 Convergence Using the Hourglass

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 4^{th} generation immigrants (defined as the weighted average across countries-of-origin of the 4^{th} generation effects) for the 1^{st} and 4^{th} generation of each country of origin. We summarize the information in these Figures in two ways. First, in Table 2 and 3, we report the percentage of country-wave observations that represent a decrease in the distance from the norm (columns denoted by π_{45}) and the percentage of country-wave observations for which the initial gap has been cut at least in half (columns denoted by $\pi_{22.5}$). We do this for the 4^{th} and 2^{nd} generation for each country of origin, for each wave, and for the entire sample. Table 4 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 2 and 3 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. We order the attitudes from the slowest moving (top rows) to the fastest moving (bottom rows), using $\pi^{all}_{22.5}$ for generation 4. In Table 4 we also include the bootstrapped confidence intervals for the change between generation 4 and generation 2 in the proportion of convergent observations[17] Table 5 presents the results by attitude *and*

[17]The bootsrapped confidence intervals have been obtained using 1000 replications.

country for the stricter convergence criterion, using all the three decades (denoted by $\pi^{all}_{22.5}$ in Table 2). 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 4, the slowest-moving attitudes, those for which less than two thirds of countries cut their distance from the norm at least in half by generation 4, are those that describe personal religious values or beliefs: *pray*, *prayer* and *postlife*, family values and traditions: *divlaw, obey*; moral values concerning unrestricted abortion and homosexuality: *abany,* and *homosex*; political views: *helpoor* and *polviews* that distinguish conservative-from progressive-leaning individuals; finally one of the gender attitudes, *fehome,* that capture the general view of women's role in society (the role of women is running the home, while men run the country).[18]

The fastest moving attitudes, for which at least 70% of the countries converge by generation four, instead are those that are more likely to be shaped by social interactions outside the family. These are all the attitudes about cooperation: *trust*, *fair*, and *helpful* which are shaped by one's social relationships; *premarsx, abrisk* (approval of abortion with restrictions) that are also likely to reflect a social norm; *thnkself* and *getahead,* reflecting the value attached to children's independence, and to the role of effort versus luck in achieving success. Moreover two religious attitudes, *attend* (frequency of religious service attendance) and, *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 convergence of *reliten* reflects, in all likelihood, the diminishing role of religion in defining one's identity, as the process of integration proceeds.

There is also fast convergence for *fework* (approval disapproval of women working even if

[18]Inglehart 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.

the husband can support them), which is the question that addresses more directly the role of women in the labor market. The suitability of women for politics (*fepol*) and the ability of a working mother to establish a warm relationship with her children (*fechild)* occupy an intermediate role in the speed distribution with two thirds of the country-wave observations converging. This is also true for *socrel*, *aged,* that reflect the frequency of evenings with relatives and the attitude towards grown children sharing the house with parents, and *pillok*, that reflects both attitudes towards contraception and the desired degree of parental control on this issue.

In conclusion, it appears that the slower 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.[19] 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 an initial 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.[20]

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.

[19]See also the Doepke and Zilibotti (2008) model of endogenous preference formation, in which the taste for leisure/work and patience respond to economic incentives (and, in turns, shape economic outcomes).

[20]There is also an extensive literature on the role of schools in shaping attitudes towards cooperation. See, for instance, Algan, Cahuc, and Shleifer (2013) on the effect of teaching methods on beliefs underlining cooperation, and the references there on the effect of the quantity of schooling on social capital. Note that in deriving the country-generation effects we control for education of the respondent and of his/her parents.

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 hot, but not uniform throughout.

Whether a cultural trait is persistent or not crucially depends upon whether one considers the change between the 1^{st} and 2^{nd} or the 1^{st} and 4^{th} generation. This point is very important: stopping at the 2^{nd}, as the literature has so far typically done, would miss the convergence of a number of attitudes. These can be seen easily comparing the percentage of country wave-observations converging by generation 2 (column 1) and by generation 4 (column 2) reported in Table 4, where attitudes are ordered according to the speed of convergence by generation 4 (from the slowest to the fastest). For instance, all the attitudes for which at least 70% of the country-wave observations converge by the 4^{th} generation display convergence percentages no greater than 52%.

Note also that the 95% bootstrapped confidence intervals for the difference between the proportion of convergent observations for generation 4 and generation 2 allow us to reject the hypothesis of no change for nine of the attitudes: all those regarding cooperation, *reliten*, *thnkself*, *aged*, *abrisk*, and *premarsx* (see column 3). With one exception (*divlaw*), these are the attitudes that we have identified as having a high speed of convergence. Using the 90% confidence intervals, we can, instead, reject the no change hypothesis for two thirds of the attitudes.

Summarizing, limiting the analysis at the 2^{nd} generation would bias the results in favor of the conclusion that cultural attitudes are persistent, while many of them display substantial and often significant further evolution from the 2^{nd} to the 4^{th} generation.

The finding that trust and other attitudes toward cooperation do not converge, when one stops at the 2^{nd} generation, while they do when one considers the change between the 1^{st} and 4^{th} 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.

The mixed results concerning gender role attitudes, with those towards the role of women in the labor market changing faster than those that have to do with women general role in

society versus the home, may be due to the complex forces acting on gender norms. Many authors (for instance, Goldin 2006 and Albanesi and Olivetti 2009) emphasize that technological innovations, structural change accompanying economic development, and medical improvements have had a powerful effect on gender roles. Alesina, Giuliano and Nunn (2013), instead, find a persistent impact of traditional plough use on gender norms today, even after accounting for the other factors mentioned above. The intermediate speed of convergence of fechild, between that of fework and fehome, may reflect the fact that it takes time for people to update their beliefs about the implication for children's welfare of women working outside the home, as suggested by the model of belief formation in Fernandez (2013).

The fact that attitudes towards premarital sex move very fast when considering the 4^{th} generation, but not when considering the 2^{nd} generation, 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.

The fast evolution of *attend* by the 4^{th} generation 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 highlight the importance of economic influences, such as the opportunity cost of church-going for religious participation. 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 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 faster moving attitudes is larger than the median standard deviation of the slower moving ones (.29 versus .25). The difference in the standard deviation suggests that an initial large divergence of opinions may lead to faster convergence.

Another important issue we address is whether there are interesting country specificities in the pattern of convergence. The bottom row of Table 5 reports the total number of convergent

attitudes by country and the associated 95% bootstrapped confidence intervals.[21] Ireland, the U.K., Germany, France, and Scandinavia are the country groupings with the highest number of cases in which attitudes converge over the entire sample period (convergence is here defined by the $\pi_{22.5}$ criterion between the 1^{st} and the 4^{th} 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 in which the family is a weaker social institutions, direct transmission would be relatively less important. Indeed there is a positive and significant correlation ($r = .61$) between the number of convergent attitudes and the country specific average of the family traits for the 1^{st} generation (the weighted by size of 1^{st} generation in each decade), taken as a proxy for the weakness 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 1^{st} generation immigrants can identify the meaning[22]. The correlation with the number of changing attitudes is also significant (the correlation coefficient is .66). Finally, the number of convergent attitudes by country is negatively correlated ($r = -.71$) with a measures of residential segregation (See Borjas (1995))[23]. This is what one would expect since a neighborhood characterized by a high concentration of individuals from the same ancestry is likely to contribute to perpetuating the culture of the country of origin and to a slowing down of the process of cultural integration. All these results should be taken with a grain of salt given the small number of countries in our sample.

Considering different periods, we detect no significant differences 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 2 and 3). 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 4^{th} 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 6a tell us that people, on average, believe more in life after death as time goes by. The number -0.28 for $av\ \Delta_2\overline{\beta}_{.,.,00}$ 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 direction of a more

[21] We also report the confidence intervals for the total number of country-wave convergent observations.

[22] GSS includes a series of questions that identify the respondent's vocabulary ability.

[23] More precisely, see Borjas (1995) , Table 2. We use the percentage of first and second generation immigrants in the neighborhood of the same ethnicity as a first-generation immigrants. Similar results are obtained using figures for the second generation.

widespread belief in afterlife. Note that, in the last three rows of the table, this is true also for the evolution over time of the norm for this particular attitude for the norm, that is for 4^{th} generation 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 overall attitudes for each country of origin change over time, the deviation from the norm does not change much. 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 6b). Finally, most of the 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 Robustness and Extensions

In this section we discuss two robustness exercises. Are our result robust to a change in the boundaries of the hour-glass used to define convergence? Are they robust when we limit the sample to individuals who declare a single ethnicity — rather than including also those that declare more than one ethnicity and then select the country of origin they feel "closer" to? Finally, in the last subsection we investigate an issue that is important, though not directly related to our main result. In the paper we have investigated the convergence to the dominant norm of attitudes across generations of immigrants, but how do such attitudes relate, for succeeding generations, to those of individuals who have not migrated and kept living in the country of origin ? The two questions are related, but different: convergence (non convergence) to the norm in the US does not imply, and is not necessarily implied by an increasing distance (non increasing distance) from the culture of the country of origin. For instance, differences in attitudes across immigrants of distinct ethnicity (the issue investigated in this paper) could persist, and still the attitudes of immigrants could drift away from those prevailing in the country from which their ancestors came. Alternatively, one's cultural traits may remain close to those of the country of origin, but values across countries may converge. With this caveats in mind, it is, however, interesting to present some evidence on the issue.

6.1 Changing the Shape of the Hourglass

In our baseline results we have measured convergence focusing, for each attitude, on the index we called $\pi_{22.5}$, which measures the proportion of countries that have cut the absolute value of the distance of generation 4 from the norm in at least half relative to generation 1. We have also presented detailed results using a less strict criterion, based on reducing that distance by any amount (see π_{45}). In addition, we have experimented with $\pi_{11.25}$, a more restrictive criterion requiring a decrease of at least three quarters, and an intermediate case, $\pi_{33.75}$, requiring a decrease of at least a quarter.[24] The (Spearman) rank correlation coefficients between the proportions of converging country-wave observations (by generation 4) in the baseline and those using these alternative criteria range from 0.60 for π_{45} to 0.78 for $\pi_{33.75}$ and .83 for $\pi_{11.25}$. In other words the ranking of attitudes reported in our baseline results 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, one half or three quarters by generation 4, and similar even when the absolute distance is cut by any amount.

6.2 Using a Stricter Definition of Origin

In defining the country of origin we have used 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?*", and we use the answer to this question to identify the country of origin. One may wonder what would happen if we use a stricter definition of origin, for instance limiting ourselves to those respondents that list only one country of origin. By using this criterion we loose a substantial fraction (37%) of the sample, since only 50% of the total sample indicate a single origin, while 79% indicate either a single origin or can identify a main country of origin, when more than one is indicated. In the restricted sample we essentially limit ourselves to those respondents whose parents, grandparents or grand-grand parents are more likely to belong to the same country of origin. In other terms, we select those individuals characterized by a smaller incidence of intermarriage in previous generations. We would expect in this case more persistence of attitudes and less convergence by the 4^{th} generation. This is indeed the case for most attitudes (see Table A5 that reproduces Table 4 for the sample of respondents indicating a single origin).[25] However, even in this case, we observe convergence in 57% of the cases, versus 65% for the entire sample of respondents, using the $\pi_{22.5}$ criterion. Moreover, the

[24] See Table A4 in the Appendix.

[25] As one would expect, the change between the 2^{nd} and the 4^{th} generation is significantly different from zero for a smaller number of attitudes, compared to that obtained for the larger sample (5 cases instead of 9, using the 95% bootstrapped confidence interval, and 12 instead of 18 cases for the 90% interval).

Spearman rank correlation coefficient between the proportion of convergent country-wave observations (by generation 4) in the larger sample, and in the sample restricted to single origin is .42. Many of our conclusions remain unchanged, such as those concerning the faster convergence of attitudes towards cooperation and church attendance, and the slower convergence of deep religious attitudes, attitudes towards politics, and the general role of women in society. There are, however, some changes in the ranking, for instance concerning attitudes towards unrestricted abortion (now it converges faster) and the role of effort versus luck as a determinant of success (now converging more slowly).[26] Finally, the ranking of countries according to the number of convergent attitudes is quite similar for the single origin sample to the results obtained when using the entire sample (see Table A6).

6.3 Immigrants' Attitudes and Attitudes in the Country of Origin

As we have remarked in the introduction to this section, the relationship between the attitudes of succeeding generations of immigrants and those of individuals who have not migrated and kept living in the country of origin is related, but distinct from the main question investigated in this paper. A weakening (non weakening) link with the original culture is neither a necessary nor sufficient condition for convergence (non convergence) to the US prevailing norm. However, it is a very interesting issue and one the literature has often addressed.[27] We measure attitudes in the countries of origin using the European Value Survey (EVS) and the World Value Survey (WVS) which ask largely identical questions, some of which coincide or, more often, are similar to those asked in the GSS and used in our baseline results. There is very close match for the questions regarding some of the cultural attitudes we have used in our empirical work, such as *trust, attend, postlife,* and *homsex,* and a fairly close (but not perfect) one for *pray, thnkself, obey, divlaw, fechild, fehome, fework,* and *abany.* The match is not close for the remaining attitudes we have examined. Another issue is the fact that the survey years do not coincide. We have pooled the EVS and WVS data for all the relevant countries for the following periods: 1978-83, 1987-96, 1998-2002, and 2004-2010. In

[26] In the sample restricted to respondents who list only one country of origin we capture (and exclude) instances of intermarriage in previous generations. A respondent's attitudes, however, could be influenced not only by having parents, or grandparents from different countries of origin, but also from her, or his being married to someone from a different ethnicity. In other words, what could matter is not only intermarriage in previous generations (which in this robustness exercise we have excluded), but also intermarriage in the respondent's generation. And this we have not excluded. data for intermarriage is only available for a few waves, those running from 1984 to 1994. When we consider these (limited) data we detect a positive correlation between one's decision to intermarry and her response "More then one" to the question "*From what countries or part of the world did your ancestors come?*". In other words, people whose ancenstors are more likely to have intermarried, are also more likely to intermarry themselves. Thus, by excluding the first, as we do in this robustness exercise, we increase the probability of excluding the second.

[27] See the discussion and references in the Introduction,

the first stage, for each of these periods, we have estimated the coefficient of country specific dummies in a Probit model for each attitude, controlling for age, age squared, gender, and marital status.[28] In the second stage, we have then associated these country-specific effects with each individual GSS survey within the periods defined above and we require that the match is successful for at least two of the period intervals. We have then estimated the Probit models for each cultural attitude on the GSS data, as we did before, but replacing the period-country-of-origin-generation dummies with the time varying and country specific cultural proxy obtained in the first stage, interacted with generation dummies. We continue to control for all the individual specific variables used before and for common year effects. Essentially, we are assuming that the country of origin and time specific movements in culture for US immigrants are proportional to the cultural proxy estimated in the first stage, *and* that its effect may vary across generations. In particular, we are interested in assessing the significance of the generation-specific coefficients and whether the effect of the culture of origin decreases (or not) going from the 1^{st} to the 4^{th} generation. The results are reported in Table 7. First, considering all attitudes, in eight out of twelve cases the coefficients of the culture of the country of origin for the first generation are significant at the 5% level in a one sided test. For those attitudes for which there is closer correspondence in the questions asked, the first generation coefficients are significant in four cases out of five, at the 5% level, even with a two sided test. This emphasizes the fact that an imperfect match between the EVS-WVS and the GSS questions is likely to lead us to underestimating the strength of the association with the culture of the country of origin. Most interestingly, from our point of view, the value of the generation specific coefficients decreases in most cases as we go from the first to higher generations, implying a weakening of the effect of the culture of the country of origin, as one would expect. For instance, in the case of *trust,* the coefficient decreases from .80 to .43, .146, .01 as we go from the 1^{st} to the 4^{th} generation, and it is significant only for the 1^{st} and 2^{nd} generations. It is also interesting to note that the coefficient for *postlife* is the only significant one for any of the attitudes by the 3^{rd} generation, and it has decreased less than the coefficient for *trust*.

In the specification of Table 7 we have assumed that the culture of the country of origin has the same effect on the immigrants to the US, independently from such origin. We have also experimented with allowing the generation specific coefficients to depend upon country characteristics, such as family strength, or the overall number of convergent attitudes by country. However the interaction with country specific variables is largely non significant and we, therefore, do not report detailed results here.

[28]The results that follow are not sensitive to the choice of the controls.

7 Conclusions

Do cultural traits persist relatively unchanged over long periods of time or do they evolve rather rapidly? In this paper we have presented new evidence on this question 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 converge slowly to the prevailing norm: this is the case, for instance, for deep personal religious values, some family and moral values, and political views. Other traits, instead, show a faster pace of convergence: this is true, for example, for attitudes towards trust, fairness and helpfulness of others, attitudes towards premarital sex, 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. The results for attitudes towards gender are mixed, with attitudes towards the role of women in the labor market changing faster than those that have to do with women general role in society versus the home. 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).

The implication of our results for the debate about the "melting pot" is that the latter was certainly at work for European immigrants for many cultural traits and beliefs. However, descendants of immigrants from different countries of ancestry have maintained over several generations a degree of cultural distinctiveness along some other traits. Thus, the temperature in the melting pot was hot, but not uniform throughout.

Finally, one may ask whether the evidence provided in this paper has any relevance for the question concerning the likelihood of success of reforms that change rules within a country. For instance, are such reforms doomed because a country's culture cannot be changed, or can they succeed because they can change cultural attitudes by altering incentives? This paper neither intends to, nor can provide an answer to this question. What we have shown, however, is that the large shock represented by the new social and economic environment faced by immigrants can eventually lead to a change in many cultural traits. We have also found that the process of change depends upon cultural characteristics of the country of origin, so that

any answer is likely to be country specific. These issues could be fertile ground for future research.

8 Tables and Figures

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

	Group A – Cooperation			Group B – Government			Group C – Religion				
	trust	fair	helpful	eqwlth	helppoor	polviews	attend	pray	reliten	postlife	prayer
$\triangle \log \tilde{\sigma}_{(1-4)}$	1.21	1.06	0.93	1.26	0.83	0.69	1.28	0.67	0.82	0.37	0.81
$\triangle \log \tilde{\sigma}_{(1-2)}$	0.34	0.53	0.31	1.13	0.42	0.15	0.83	0.55	0.22	0.27	0.99
$\triangle \log \tilde{\sigma}_{(2-3)}$	0.20	0.36	0.69	0.17	0.24	0.47	0.13	0.09	0.84	0.38	-0.17
$\triangle \log \tilde{\sigma}_{(3-4)}$	0.67	0.17	-0.07	-0.05	0.17	0.07	0.31	0.04	-0.23	-0.29	-0.01
Rank $\triangle \log \tilde{\sigma}_{(1-4)}$	3	7	11	2	16	22	1	23	17	25	19
Rank $\triangle \log \tilde{\sigma}_{(1-2)}$	18	12	21	1	14	24	4	10	23	22	2
$\triangle \log \sigma_{(1-4),80}$	1.65	1.37	1.36	1.42	0.29	0.28	1.24	0.07	0.63	0.23	0.70
$\triangle \log \sigma_{(1-4),90}$	0.75	0.71	0.79	0.87	1.41	0.39	1.16	0.84	1.02	0.24	0.94
$\triangle \log \sigma_{(1-4),00}$	1.19	1.24	0.76	1.47	0.91	1.67	1.36	1.15	0.83	0.67	0.74
$\triangle \log \sigma_{(1-2),80}$	0.64	0.32	0.68	1.56	0.19	0.06	0.69	0.19	0.43	0.36	0.43
$\triangle \log \sigma_{(1-2),90}$	0.24	0.55	0.38	1.18	0.43	0.21	0.06	0.13	-0.02	0.20	1.33
$\triangle \log \sigma_{(1-2),00}$	0.13	0.68	-0.01	0.77	0.62	0.19	1.97	1.25	0.36	0.24	1.15
p–val$_{g1}$	0.08	0.00	0.00	0.26	0.17	0.74	0.00	0.02	0.00	0.16	0.83
p–val$_{g2}$	0.00	0.02	0.00	0.90	0.98	0.26	0.62	0.54	0.00	0.14	0.90
p–val$_{g3}$	0.07	0.09	0.55	0.39	0.03	0.08	0.00	0.51	0.04	0.10	0.00
p–val$_{g4}$	0.79	0.02	0.16	0.02	0.07	0.00	0.00	0.01	0.03	0.02	0.01
p–val$_{g1,80}$	0.14	0.21	0.01	0.02	0.54	0.54	0.06	0.67	0.05	0.63	0.78
p–val$_{g2,80}$	0.02	0.03	0.33	0.94	0.81	0.69	0.38	0.38	0.31	0.06	0.65
p–val$_{g3,80}$	0.00	0.05	0.20	0.93	0.86	0.55	0.00	0.28	0.01	0.15	0.04
p–val$_{g4,80}$	0.97	0.82	0.93	0.08	0.31	0.00	0.35	0.21	0.05	0.00	0.01
p–val$_{g1,90}$	0.57	0.09	0.43	0.25	0.33	0.86	0.38	0.60	0.10	0.86	0.15
p–val$_{g2,90}$	0.12	0.37	0.03	0.97	0.57	0.35	0.39	0.41	0.00	0.85	0.93
p–val$_{g3,90}$	0.39	0.17	0.51	0.82	0.07	0.15	0.04	0.31	0.63	0.84	0.05
p–val$_{g4,90}$	0.45	0.07	0.53	0.21	0.46	0.08	0.31	0.92	0.43	0.09	0.03
p–val$_{g1,00}$	0.19	0.05	0.21	0.11	0.21	0.47	0.01	0.01	0.55	0.23	0.52
p–val$_{g2,00}$	0.18	0.28	0.10	0.68	0.93	0.26	1.00	0.99	0.36	0.49	0.98
p–val$_{g3,00}$	0.22	0.81	0.74	0.41	0.35	0.32	0.97	0.33	0.99	0.38	0.86
p–val$_{g4,00}$	0.66	0.26	0.09	0.36	0.27	0.43	0.14	0.04	0.29	0.40	0.11

Notes: $\triangle \log \tilde{\sigma}_{(g-g')} = log(\tilde{\sigma}_g) - log(\tilde{\sigma}_{g'})$, where $\tilde{\sigma}_g$ is the standard deviation, across countries, of attitudes for generation g averaged across decades. $\triangle \log \sigma_{(g-g',p)} = log(\sigma_{g,p}) - log(\sigma_{g',p})$, 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. Rank $\triangle \log \tilde{\sigma}_{(1-i)}$ ranks the attitudes by the size of the change in standard deviation between generation 1 and i.

Table 1b: Log-Change in Standard Deviation and F-tests, 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	getahead
$\triangle \log \tilde{\sigma}_{(1-4)}$	1.21	1.03	0.59	0.95	0.72	1.00	0.71	0.88	0.84	0.18	0.86	1.11	1.20	0.88	0.81
$\triangle \log \tilde{\sigma}_{(1-2)}$	0.36	0.31	0.56	0.37	0.46	0.60	0.70	0.53	0.58	-0.05	0.61	0.07	0.40	0.91	0.33
$\triangle \log \tilde{\sigma}_{(2-3)}$	0.53	0.37	0.47	0.56	0.37	-0.01	0.31	0.22	0.38	0.56	0.57	0.49	0.32	-0.13	0.14
$\triangle \log \tilde{\sigma}_{(3-4)}$	0.32	0.35	-0.43	0.02	-0.11	0.41	-0.30	0.14	-0.12	-0.33	-0.32	0.54	0.48	0.10	0.34
Rank $\triangle \log \tilde{\sigma}_{(1-4)}$	4	8	24	10	20	9	21	12	15	26	14	6	5	13	18
Rank $\triangle \log \tilde{\sigma}_{(1-2)}$	17	20	9	16	13	7	5	11	8	26	6	25	15	3	19
$\triangle \log \sigma_{(1-4),80}$	1.23	1.02	0.45	0.95	-0.14	0.22	1.25	0.92	0.64	-0.21	-0.10	1.43	1.39	1.25	0.71
$\triangle \log \sigma_{(1-4),90}$	1.15	0.57	0.51	1.35	0.77	1.38	0.17	0.85	0.63	0.47	1.17	0.77	0.95	0.83	0.77
$\triangle \log \sigma_{(1-4),00}$	1.21	1.34	0.96	0.67	1.51	1.26	0.78	0.00	1.15	0.00	1.08	1.22	1.29	0.65	0.99
$\triangle \log \sigma_{(1-2),80}$	0.41	0.25	0.37	0.25	0.09	0.30	0.92	1.61	0.13	0.35	0.20	0.57	0.12	1.13	0.30
$\triangle \log \sigma_{(1-2),90}$	-0.10	0.24	0.81	0.87	1.08	0.78	0.38	0.01	0.82	-0.21	0.59	-0.17	0.48	1.35	0.85
$\triangle \log \sigma_{(1-2),00}$	0.65	0.41	0.60	0.12	0.19	0.59	0.75	0.00	0.65	0.00	0.75	-0.08	0.56	0.47	-0.06
p–val$_{g1}$	0.16	0.31	0.75	0.30	0.43	0.28	0.57	0.01	0.16	0.72	0.09	0.14	0.01	0.04	0.36
p–val$_{g2}$	0.02	0.09	0.54	0.42	0.51	0.97	0.98	0.35	0.79	0.73	0.22	0.02	0.48	0.33	0.14
p–val$_{g3}$	0.74	0.11	0.35	0.76	0.74	0.14	0.36	0.38	0.32	0.55	0.85	0.01	0.14	0.67	0.00
p–val$_{g4}$	0.26	0.00	0.04	0.39	0.00	0.01	0.04	0.18	0.13	0.31	0.01	0.17	0.10	0.05	0.22
p–val$_{g1,80}$	0.33	0.23	0.63	0.12	0.92	0.86	0.52	0.09	0.65	0.94	0.95	0.14	0.15	0.00	0.04
p–val$_{g2,80}$	0.12	0.27	0.14	0.36	0.24	0.80	0.66	0.98	0.20	0.74	0.92	0.28	0.04	0.63	0.12
p–val$_{g3,80}$	0.59	0.47	0.55	0.69	0.83	0.45	0.49	0.14	0.59	0.83	0.57	0.03	0.74	0.03	0.05
p–val$_{g4,80}$	0.50	0.09	0.16	0.43	0.06	0.04	0.74	0.03	0.12	0.41	0.02	0.63	0.76	0.52	0.17
p–val$_{g1,90}$	0.46	0.87	0.11	0.37	0.20	0.16	0.64	0.42	0.43	0.82	0.11	0.57	0.19	0.10	0.53
p–val$_{g2,90}$	0.04	0.61	0.37	0.72	0.97	0.48	0.86	0.03	0.70	0.05	0.18	0.17	0.50	0.97	0.83
p–val$_{g3,90}$	0.87	0.36	0.68	0.34	0.75	0.63	0.89	0.86	0.89	0.48	0.92	0.43	0.25	0.39	0.07
p–val$_{g4,90}$	0.76	0.11	0.06	0.84	0.05	0.13	0.01	0.81	0.15	0.88	0.13	0.70	0.31	0.02	0.06
p–val$_{g1,00}$	0.31	0.13	0.57	0.87	0.84	0.60	0.48	0.48	0.03	0.03	0.21	0.24	0.02	0.10	0.79
p–val$_{g2,00}$	0.61	0.22	0.82	0.20	0.22	0.71	0.90	0.90	0.74	0.74	0.17	0.27	0.56	0.08	0.27
p–val$_{g3,00}$	0.28	0.27	0.35	0.86	0.24	0.00	0.50	0.50	0.64	0.64	0.59	0.05	0.07	0.80	0.47
p–val$_{g4,00}$	0.41	0.65	0.19	0.31	0.91	0.53	0.24	0.24	0.04	0.04	0.27	0.62	0.54	0.00	0.35

See notes to Table 1a.

Table 2: Speed of Convergence, Using the Proportion, π, of Convergent Observations for the 4^{th} Generation

		π_{45}^{all}	π_{45}^{80}	π_{45}^{90}	π_{45}^{00}	$\pi_{22.5}^{all}$	$\pi_{22.5}^{80}$	$\pi_{22.5}^{90}$	$\pi_{22.5}^{00}$
Group A – Cooperation	trust	0.93	0.89	0.89	1.00	0.81	0.67	0.89	0.89
	fair	0.89	0.89	0.89	0.89	0.74	0.89	0.44	0.89
	helpful	0.78	1.00	0.67	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	0.70	0.56	0.78	0.78	0.63	0.56	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	0.85	1.00	0.89	0.67	0.78	0.89	0.78	0.67
	pray	0.70	0.56	0.78	0.78	0.59	0.56	0.67	0.56
	reliten	0.93	0.78	1.00	1.00	0.70	0.67	0.78	0.67
	postlife	0.67	0.67	0.56	0.78	0.48	0.56	0.44	0.44
	prayer	0.74	0.56	0.78	0.89	0.59	0.44	0.67	0.67
Group D – Family	thnkself	0.85	1.00	0.78	0.78	0.70	0.67	0.78	0.67
	obey	0.89	0.89	0.78	1.00	0.63	0.56	0.44	0.89
	pillok	0.93	0.78	1.00	1.00	0.67	0.67	0.44	0.89
	aged	0.74	0.89	0.67	0.67	0.67	0.67	0.67	0.67
	divlaw	0.70	0.67	0.67	0.78	0.41	0.11	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	0.85	1.00	0.67	0.89	0.67	0.89	0.44	0.67
	fehome	0.78	0.78	0.78	-	0.56	0.56	0.56	-
	fepol	0.85	1.00	0.67	0.89	0.67	0.44	0.67	0.89
	fework	0.83	0.78	0.89	-	0.78	0.67	0.89	-
Group F – Abortion	abany	0.78	0.67	0.78	0.89	0.63	0.44	0.56	0.89
	abrisk	0.93	0.89	1.00	0.89	0.70	0.67	0.78	0.67
Group G – Sex	premarsx	0.85	0.89	0.78	0.89	0.78	0.78	0.78	0.78
	homosex	0.74	0.89	0.67	0.67	0.59	0.78	0.44	0.56
Group H – Mobility	getahead	0.70	0.78	0.67	0.67	0.70	0.78	0.67	0.67

Notes: π_{45} ($\pi_{22.5}$) denotes the proportion of country-wave observations for which the absolute value of the deviation from the norm has been cut (at least in half) between generation 1 and generation 4. Time superscripts (80, 90, 00) refer to the middle of each decade (86, 96, 06). "All" denotes the proportion of country-decade convergent observations out of the total.

Table 3: Speed of Convergence, Using the Proportion, π, of Convergent Observations for the 2^{nd} Generation

		π_{45}^{all}	π_{45}^{80}	π_{45}^{90}	π_{45}^{00}	$\pi_{22.5}^{all}$	$\pi_{22.5}^{80}$	$\pi_{22.5}^{90}$	$\pi_{22.5}^{00}$
Group A – Cooperation	trust	0.59	0.67	0.78	0.33	0.44	0.56	0.56	0.22
	fair	0.59	0.56	0.67	0.56	0.37	0.22	0.56	0.33
	helpful	0.52	0.67	0.44	0.44	0.41	0.67	0.33	0.22
Group B – Government	eqwlth	0.78	0.67	0.89	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	0.67	0.44	0.67	0.44	0.67	0.22	0.44
Group C – Religion	attend	0.67	0.78	0.56	0.67	0.52	0.44	0.44	0.67
	pray	0.63	0.44	0.67	0.78	0.44	0.44	0.22	0.67
	reliten	0.74	0.67	0.78	0.78	0.48	0.56	0.22	0.67
	postlife	0.78	0.78	0.78	0.78	0.41	0.44	0.44	0.33
	prayer	0.67	0.44	0.78	0.78	0.48	0.33	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	0.63	0.67	0.56	0.67	0.44	0.56	0.33	0.44
	pillok	0.67	0.56	0.67	0.78	0.48	0.33	0.56	0.56
	aged	0.59	0.67	0.67	0.44	0.41	0.56	0.44	0.22
	divlaw	0.48	0.33	0.67	0.44	0.26	0.11	0.44	0.22
	socrel	0.67	0.67	0.67	0.67	0.44	0.44	0.56	0.33
Group E – Gender	fechld	0.74	0.89	0.56	0.78	0.67	0.78	0.44	0.78
	fehome	0.72	1.00	0.44	-	0.56	1.00	0.11	-
	fepol	0.70	0.44	0.78	0.89	0.37	0.22	0.56	0.33
	fework	0.56	0.67	0.44	-	0.50	0.56	0.44	-
Group F – Abortion	abany	0.74	0.78	0.78	0.67	0.44	0.44	0.56	0.33
	abrisk	0.67	0.89	0.67	0.44	0.44	0.44	0.44	0.44
Group G – Sex	premarsx	0.78	0.78	0.78	0.78	0.37	0.33	0.33	0.44
	homosex	0.85	0.89	0.89	0.78	0.44	0.67	0.44	0.22
Group H – Mobility	getahead	0.74	0.78	1.00	0.44	0.44	0.44	0.44	0.44

Notes: π_{45} ($\pi_{22.5}$) denotes the proportion of country-wave observations for which the absolute value of the deviation from the norm has been cut (at least in half) between generation 1 and generation 2. Time superscripts (80, 90, 00) 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: Convergence by Cultural Attitude: Comparing Generation 2 and 4

Attitude	gen 2 $\pi_{22.5}$	gen 4 $\pi_{22.5}$	(gen 4 $\pi_{22.5}$ - gen 2 $\pi_{22.5}$)		
divlaw	0.26	0.41	0.15	[0.04, 0.48]	{.07, .41}
postlife	0.41	0.48	0.07	[-0.07, 0.33]	{-.04, .30}
fehome	0.56	0.56	0.00	[-0.11, 0.39]	{-.06, .33}
polviews	0.44	0.59	0.15	[-0.04, 0.37]	{.00, .33}
pray	0.44	0.59	0.15	[0.00, 0.41]	{.04, .37}
homosex	0.44	0.59	0.15	[-0.04, 0.37]	{.00, .33}
prayer	0.48	0.59	0.11	[-0.07, 0.35]	{.00, .33}
helppoor	0.41	0.63	0.22	[-0.04, 0.37]	{.00, .33}
obey	0.44	0.63	0.19	[0.00, 0.41]	{.04, .39}
abany	0.44	0.63	0.19	[0.00, 0.41]	{.04, .37}
fepol	0.37	0.67	0.20	[0.00, 0.44]	{.04, .41}
aged	0.41	0.67	0.26	[0.07, 0.46]	{.11, .44}
socrel	0.44	0.67	0.23	[0.00, 0.41]	{.04, .37}
pillok	0.48	0.67	0.19	[0.00, 0.43]	{.04, .41}
fechld	0.67	0.67	0.00	[0.00, 0.39]	{.00, .37}
thnkself	0.33	0.70	0.37	[0.07, 0.48]	{.11, .44}
getahead	0.44	0.70	0.26	[0.00, 0.41]	{.04, .37}
abrisk	0.44	0.70	0.26	[0.07, 0.52]	{.11, .48}
reliten	0.48	0.70	0.22	[0.07, 0.48]	{.11, .44}
fair	0.37	0.74	0.37	[0.07, 0.48]	{.11, .44}
helpful	0.41	0.74	0.33	[0.11, 0.50]	{.15, .44}
premarsx	0.37	0.78	0.41	[0.07, 0.48]	{.11, .44}
fework	0.50	0.78	0.28	[0.00, 0.44]	{.06, .44}
attend	0.52	0.78	0.26	[0.00, 0.41]	{.04, .37}
eqwlth	0.52	0.78	0.26	[-0.04, 0.33]	{.00, .33}
trust	0.44	0.81	0.37	[0.11, 0.52]	{.15, .48}

Notes: Percentage of country-wave observations for which the absolute value of the deviation from the norm has been cut at least in half between generation 1 and generation 2 or 4. 95% (90%) bootstrapped confidence interval for the test gen 4 $\pi_{22.5}$ = gen 2 $\pi_{22.5}$ in the square (curly) brackets.

Table 5: Convergence by Cultural Attitude and Country

		GER	E.EU	POL	SCA	FRA	IRE	ITA	UK	S.EU	Total	95% CI
Group A – Cooperation	trust	3	2	2	3	3	3	2	2	2	22	[14, 23]
	fair	3	1	2	1	3	3	2	3	2	20	[14,23]
	helpful	2	2	2	3	3	2	2	2	2	20	[14. 23]
Group B – Government	eqwlth	3	3	1	3	3	3	3	1	1	21	[13, 21]
	helppoor	1	1	2	1	2	3	3	3	1	17	[10, 20]
	polviews	2	2	1	2	3	2	1	2	1	16	[11, 20]
Group C – Religion	attend	3	2	2	3	2	2	2	3	2	21	[14, 22]
	pray	3	1	1	1	3	3	2	2	0	16	[12, 20]
	reliten	3	1	3	3	1	3	2	2	1	19	[13, 22]
	postlife	3	2	0	2	1	2	0	2	1	13	[11, 19]
	prayer	2	1	2	1	3	3	0	2	2	16	[12, 21]
Group D – Family	thnkself	3	2	3	0	1	3	2	3	2	19	[12, 22]
	obey	1	2	2	2	2	3	2	2	1	17	[12, 20]
	pillok	2	2	2	2	3	2	1	2	2	18	[12, 21]
	aged	2	3	1	3	2	2	1	2	2	18	[13, 22]
	divlaw	1	2	0	1	1	1	2	3	0	11	[11, 21]
	socrel	2	3	1	3	2	2	1	3	1	18	[12, 21]
Group E – Gender	fechld	2	2	2	3	2	1	2	2	2	18	[12, 21]
	fehome	2	1	1	0	2	2	0	1	1	10	[8, 15]
	fepol	3	2	1	2	3	2	2	2	1	18	[12, 21]
	fework	1	2	0	2	2	2	2	2	1	14	[7, 14]
Group F – Abortion	abany	1	2	2	2	2	2	1	3	2	17	[13, 21]
	abrisk	2	1	3	3	2	3	1	3	1	19	[12, 22]
Group G – Sex	premarsx	2	3	3	2	3	3	1	2	2	21	[14, 22]
	homosex	2	0	2	2	2	3	2	2	1	16	[10, 20]
Group H – Mobility	getahead	3	1	3	1	3	3	2	3	0	19	[13, 21]
	Total	57	46	44	51	59	63	41	59	34		
	95% CI	[52, 65]	[30, 47]	[28, 44]	[44, 59]	[47, 61]	[55, 67]	[32, 47]	[53, 66]	[21, 36]		

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 absolute value of the deviation from the norm has been cut at least in half between generation 1 and generation 4 ($\pi_{22.5}$ criterion). Observations for *fehome* and *fework* span only two decades – 80s and 90s. The last row and column reports also the bootstrapped 95% confidence intervals in square brackets.

Table 6a: 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
$\triangle_2\bar{\beta}_{GER,.,00}$	-0.06	-0.14	-0.02	-0.06	-0.09	-0.19	0.05	-4.39	0.18	-0.05	0.03
$\triangle_2\bar{\beta}_{EEU,.,00}$	-0.16	-0.18	-0.04	-0.02	-0.15	-0.16	0.17	0.75	0.38	-0.28	0.73
$\triangle_2\bar{\beta}_{POL,.,00}$	-0.07	-0.17	0.03	-0.06	-0.12	-0.07	0.29	-0.60	0.07	-0.26	-0.20
$\triangle_2\bar{\beta}_{SCA,.,00}$	-0.19	-0.21	-0.02	-0.02	0.04	-0.18	0.03	-1.07	-0.06	-0.60	0.80
$\triangle_2\bar{\beta}_{FRA,.,00}$	-0.18	-0.26	-0.08	0.00	-0.09	-0.59	-0.04	-1.23	0.07	-0.32	-0.26
$\triangle_2\bar{\beta}_{IRE,.,00}$	-0.12	-0.26	-0.11	-0.01	-0.05	-0.19	0.05	-0.60	0.16	0.02	0.08
$\triangle_2\bar{\beta}_{ITA,.,00}$	-0.04	-0.13	-0.03	-0.05	-0.14	-0.21	0.10	-4.21	0.11	-0.95	-0.18
$\triangle_2\bar{\beta}_{UK,.,00}$	-0.07	-0.13	-0.02	-0.00	-0.08	-0.06	0.00	-9.28	0.06	-0.19	0.42
$\triangle_2\bar{\beta}_{SEU,.,00}$	-0.27	-0.30	-0.03	-0.14	-0.01	-0.05	0.02	-7.39	-0.18	-2.22	0.53
$\triangle_1\bar{\beta}_{GER,.,00}$	0.02	-0.06	0.03	0.05	0.04	-0.15	0.03	.	0.06	-0.04	0.15
$\triangle_1\bar{\beta}_{EEU,.,00}$	0.01	-0.02	0.06	-0.00	0.16	-0.00	0.23	-1.64	1.11	-0.08	0.47
$\triangle_1\bar{\beta}_{POL,.,00}$	0.01	-0.13	0.06	-0.01	-0.12	-0.25	0.07	-0.78	-0.08	-0.07	0.06
$\triangle_1\bar{\beta}_{SCA,.,00}$	-0.05	-0.20	0.00	0.14	0.02	-0.34	0.06	-1.29	-0.15	-0.23	0.01
$\triangle_1\bar{\beta}_{FRA,.,00}$	-0.03	-0.02	0.00	-0.02	0.07	-0.25	0.09	-2.99	0.51	-0.45	0.17
$\triangle_1\bar{\beta}_{IRE,.,00}$	-0.02	-0.10	-0.03	0.08	0.09	-0.13	0.06	.	-0.07	-0.22	0.60
$\triangle_1\bar{\beta}_{ITA,.,00}$	0.03	-0.05	0.02	0.06	-0.06	-0.07	0.03	-1.74	-0.03	-0.20	0.50
$\triangle_1\bar{\beta}_{UK,.,00}$	0.04	-0.05	0.03	0.06	-0.02	-0.17	-0.00	-4.81	-0.05	-0.10	0.72
$\triangle_1\bar{\beta}_{SEU,.,00}$	-0.05	-0.00	0.13	0.20	0.13	0.05	0.01	.	-0.10	0.18	-0.36
$\triangle_1\bar{\beta}_{GER,.,90}$	-0.09	-0.07	-0.06	-0.11	-0.13	-0.03	0.01	1.40	0.11	-0.01	-0.10
$\triangle_1\bar{\beta}_{EEU,.,90}$	-0.17	-0.16	-0.10	-0.02	-0.27	-0.16	-0.05	1.39	-0.35	-0.19	0.18
$\triangle_1\bar{\beta}_{POL,.,90}$	-0.08	-0.04	-0.02	-0.06	-0.00	0.15	0.21	0.80	0.17	-0.18	-0.24
$\triangle_1\bar{\beta}_{SCA,.,90}$	-0.14	-0.01	-0.02	-0.15	0.01	0.12	-0.03	-0.75	0.10	-0.31	0.78
$\triangle_1\bar{\beta}_{FRA,.,90}$	-0.15	-0.23	-0.08	0.02	-0.15	-0.27	-0.12	2.12	-0.29	0.09	-0.37
$\triangle_1\bar{\beta}_{IRE,.,90}$	-0.10	-0.15	-0.08	-0.08	-0.12	-0.05	-0.01	1.05	0.25	0.19	-0.32
$\triangle_1\bar{\beta}_{ITA,.,90}$	-0.08	-0.08	-0.05	-0.10	-0.09	-0.13	0.07	-2.17	0.15	-0.63	-0.45
$\triangle_1\bar{\beta}_{UK,.,90}$	-0.12	-0.08	-0.05	-0.06	-0.07	0.09	0.00	1.17	0.12	-0.08	-0.18
$\triangle_1\bar{\beta}_{SEU,.,90}$	-0.21	-0.30	-0.18	-0.29	-0.12	-0.11	0.01	0.94	-0.09	-2.94	1.38
ave $\triangle_2\bar{\beta}_{.,.,00}$	-0.09	-0.18	-0.04	-0.03	-0.08	-0.13	0.05	.	0.13	-0.28	0.14
ave $\triangle_1\bar{\beta}_{.,.,90}$	-0.11	-0.10	-0.06	-0.09	-0.10	0.00	0.01	.	0.13	-0.14	-0.10
ave $\triangle_1\bar{\beta}_{.,.,00}$	0.01	-0.08	0.02	0.07	0.03	-0.14	0.04	.	0.02	-0.15	0.30
$\triangle_2 norm_{.,.,00}$	-0.07	-0.17	-0.04	0.00	-0.06	-0.14	0.03	.	0.04	-0.13	0.11
$\triangle_1 norm_{.,.,90}$	0.03	-0.08	0.02	0.09	0.05	-0.14	0.04	.	-0.03	-0.12	0.29
$\triangle_1 norm_{.,.,00}$	-0.11	-0.08	-0.06	-0.08	-0.11	0.00	-0.01	.	0.07	-0.01	-0.14

Notes: $\triangle_2\bar{\beta}_{o,.,00} = (\bar{\beta}_{o,.,00} - \bar{\beta}_{o,.,80})/\bar{\beta}_{o,.,80}$ 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). $\triangle_1\bar{\beta}_{o,.,00} = (\bar{\beta}_{o,.,00} - \bar{\beta}_{o,.,90})/\bar{\beta}_{o,.,90}$ and $\triangle_1\bar{\beta}_{o,.,90} = (\bar{\beta}_{o,.,90} - \bar{\beta}_{o,.,80})/\bar{\beta}_{o,.,80}$. ave $\triangle_1\bar{\beta}_{.,.,p}$ is the weighted average of $\triangle_1\bar{\beta}_{.,.,p}$ across all origins (weights are the proportion of generation 2-4 immigrants from each country relative to the total for all countries). $\triangle_i norm_{.,.,p}$ 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.

Table 6b: 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	getahead
$\triangle_2\bar{\beta}_{GER,.,00}$	-0.14	0.11	-0.35	-0.26	-3.71	-0.35	0.05	0.00	-0.32	0.00	-0.05	0.41	0.90	0.22	0.45
$\triangle_2\bar{\beta}_{EEU,.,00}$	-0.41	-0.16	-0.82	0.41	-3.27	-0.06	0.48	0.00	0.18	0.00	-0.09	0.36	0.56	0.35	0.23
$\triangle_2\bar{\beta}_{POL,.,00}$	0.02	0.32	-0.67	0.28	-0.46	-0.40	0.29	0.00	0.32	0.00	-0.04	0.24	3.58	0.25	0.77
$\triangle_2\bar{\beta}_{SCA,.,00}$	-0.24	-0.83	0.77	-0.19	-9.85	-0.48	0.20	0.00	-0.17	0.00	-0.17	-0.10	0.52	0.07	0.56
$\triangle_2\bar{\beta}_{FRA,.,00}$	-0.10	0.17	-0.09	-0.83	.	-0.26	-0.19	0.00	-1.58	0.00	-0.30	0.04	-1.33	0.15	0.81
$\triangle_2\bar{\beta}_{IRE,.,00}$	-0.19	0.08	-0.41	-0.16	-3.21	-0.35	-0.01	0.00	0.25	0.00	0.05	0.93	1.33	0.31	0.20
$\triangle_2\bar{\beta}_{ITA,.,00}$	0.04	-0.02	-0.68	-0.10	-5.48	-0.61	0.26	0.00	-0.30	0.00	-0.04	0.40	4.80	0.30	0.24
$\triangle_2\bar{\beta}_{UK,.,00}$	-0.22	-0.02	-0.31	-0.23	.	-0.56	-0.05	0.00	0.26	0.00	-0.13	0.30	1.28	0.18	0.39
$\triangle_2\bar{\beta}_{SEU,.,00}$	-0.11	0.00	-0.87	0.02	-2.23	-0.26	0.08	0.00	-0.19	0.00	-0.20	0.13	0.56	0.37	0.32
$\triangle_1\bar{\beta}_{GER,.,00}$	-0.12	0.11	-0.33	-0.42	-0.31	-0.39	-0.05	0.00	-1.50	0.00	-0.05	0.88	0.84	0.16	0.09
$\triangle_1\bar{\beta}_{EEU,.,00}$	-0.07	0.11	-0.76	0.43	-3.07	0.13	0.28	0.00	-1.87	0.00	-0.06	0.90	-1.57	0.24	-0.09
$\triangle_1\bar{\beta}_{POL,.,00}$	-0.02	0.36	-0.44	0.21	0.07	-0.25	-0.13	0.00	-8.83	0.00	-0.18	0.23	2.46	0.07	0.11
$\triangle_1\bar{\beta}_{SCA,.,00}$	-0.12	-0.03	-0.11	-0.18	-1.79	-0.24	0.04	0.00	-1.01	0.00	-0.41	0.03	-3.78	-0.09	0.33
$\triangle_1\bar{\beta}_{FRA,.,00}$	-0.20	-0.09	-0.03	-0.49	-2.58	-0.31	-0.18	0.00	-3.57	0.00	-0.22	0.90	0.72	0.02	0.25
$\triangle_1\bar{\beta}_{IRE,.,00}$	-0.06	0.14	-0.21	-0.17	-0.85	-0.35	-0.14	0.00	-0.42	0.00	-0.11	1.18	1.94	0.25	-0.10
$\triangle_1\bar{\beta}_{ITA,.,00}$	0.02	0.06	-0.67	-0.35	-3.08	-0.65	-0.02	0.00	-1.82	0.00	-0.29	0.40	-0.43	0.11	-0.14
$\triangle_1\bar{\beta}_{UK,.,00}$	-0.12	0.07	-0.14	-0.24	-0.69	-0.44	-0.13	0.00	-0.55	0.00	-0.15	0.68	1.56	0.06	-0.01
$\triangle_1\bar{\beta}_{SEU,.,00}$	-0.08	-0.25	-0.68	0.03	-1.22	-0.46	0.18	0.00	-0.86	0.00	-0.27	0.66	-1.15	0.15	-0.18
$\triangle_1\bar{\beta}_{GER,.,90}$	-0.02	-0.00	-0.03	0.11	-2.60	0.02	0.09	0.77	0.47	-0.32	0.00	-0.25	0.35	0.07	0.33
$\triangle_1\bar{\beta}_{EEU,.,90}$	-0.32	-0.31	-0.28	-0.05	-0.05	-0.23	0.28	2.54	0.71	0.01	-0.03	-0.28	1.77	0.15	0.35
$\triangle_1\bar{\beta}_{POL,.,90}$	0.04	-0.06	-0.41	0.08	-0.58	-0.11	0.37	0.39	0.93	-0.67	0.12	0.01	-0.76	0.19	0.61
$\triangle_1\bar{\beta}_{SCA,.,90}$	-0.11	-0.78	1.00	-0.02	-2.89	-0.20	0.17	4.44	0.42	0.13	0.17	-0.13	1.17	0.15	0.17
$\triangle_1\bar{\beta}_{FRA,.,90}$	0.08	0.24	-0.06	-0.23	-5.32	0.04	-0.01	-0.31	0.44	-0.47	-0.07	-0.45	-2.19	0.14	0.44
$\triangle_1\bar{\beta}_{IRE,.,90}$	-0.12	-0.07	-0.26	0.01	-1.27	0.00	0.11	0.87	0.47	-0.45	0.14	-0.12	0.65	0.08	0.33
$\triangle_1\bar{\beta}_{ITA,.,90}$	0.02	-0.09	-0.05	0.18	-2.10	0.02	0.28	3.30	0.54	-0.46	0.19	0.00	7.70	0.21	0.44
$\triangle_1\bar{\beta}_{UK,.,90}$	-0.10	-0.11	-0.20	0.01	-99.15	-0.08	0.07	1.22	0.52	-0.42	0.02	-0.22	0.49	0.13	0.40
$\triangle_1\bar{\beta}_{SEU,.,90}$	-0.03	0.20	-0.58	-0.01	-1.56	0.14	-0.11	0.91	0.36	-1.25	0.05	-0.32	0.79	0.26	0.61
ave $\triangle_2\bar{\beta}_{.,.,00}$	-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
ave $\triangle_1\bar{\beta}_{.,.,90}$	-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
ave $\triangle_1\bar{\beta}_{.,.,00}$	-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
$\triangle_2 norm_{.,.,00}$	-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
$\triangle_1 norm_{.,.,90}$	-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
$\triangle_1 norm_{.,.,00}$	-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: $\triangle_2\bar{\beta}_{o,.,00} = (\bar{\beta}_{o,.,00} - \bar{\beta}_{o,.,80})/\bar{\beta}_{o,.,80}$ 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). $\triangle_1\bar{\beta}_{o,.,00} = (\bar{\beta}_{o,.,00} - \bar{\beta}_{o,.,90})/\bar{\beta}_{o,.,90}$ and $\triangle_1\bar{\beta}_{o,.,90} = (\bar{\beta}_{o,.,90} - \bar{\beta}_{o,.,80})/\bar{\beta}_{o,.,80}$. ave $\triangle_1\bar{\beta}_{.,.,p}$ is the weighted average of $\triangle_1\bar{\beta}_{.,.,p}$ across all origins (weights are the proportion of generation 2-4 immigrants from each country relative to the total for all countries). $\triangle_i norm_{.,.,p}$ 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.

Table 7: The Impact of European Attitudes on US Immigrants across Generations

	$Cult_o \times I_{(g=1)}$	$Cult_o \times I_{(g=2)}$	$Cult_o \times I_{(g=3)}$	$Cult_o \times I_{(g=4)}$
trust	0.80	0.43	0.15	0.01
	(3.09)	(2.55)	(1.40)	(0.16)
attend	0.34	0.02	0.04	-0.04
	(3.65)	(0.31)	(1.17)	(-2.15)
pray	0.40	0.13	0.08	-0.09
	(2.35)	(1.20)	(1.15)	(-1.99)
postlife	0.47	0.09	0.19	-0.08
	(2.55)	(0.67)	(2.40)	(-1.58)
thnkself	0.41	0.45	-0.06	0.03
	(2.40)	(3.53)	(-0.69)	(0.50)
obey	-0.28	0.32	-0.11	-0.17
	(-1.17)	(1.62)	(-0.87)	(-3.03)
divlaw	0.38	0.37	-0.09	0.04
	(1.68)	(2.20)	(-0.86)	(0.63)
fechld	0.04	-0.05	0.01	-0.03
	(0.22)	(-0.43)	(0.11)	(-0.55)
fehome	1.73	0.38	0.02	-0.16
	(3.20)	(1.04)	(0.08)	(-0.93)
fework	0.78	0.45	0.16	-0.08
	(2.20)	(1.68)	(0.88)	(-0.70)
abany	-0.04	0.03	0.08	0.00
	(-0.21)	(0.30)	(1.21)	(0.10)
homosex	0.29	0.19	-0.02	-0.13
	(1.30)	(1.32)	(-0.21)	(-1.90)

Notes: $Cult_o$ denotes the culture of the country of origin. Generation specific coefficients are reported. z statistics in parentheses.

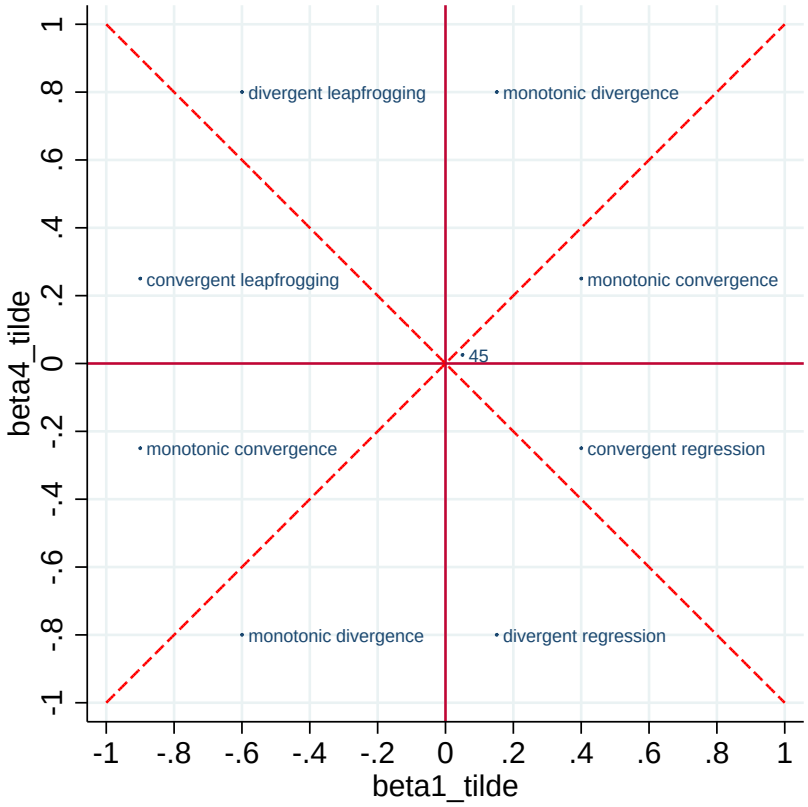

Figure 1a: Convergence/Divergence Regions for the Inter-generational Evolution of Attitudes

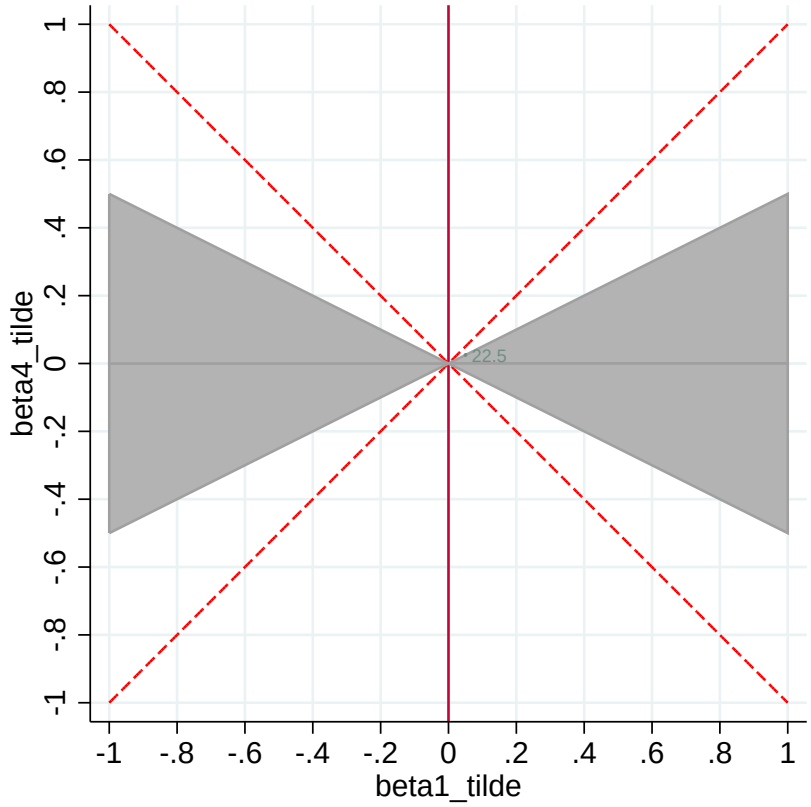

Figure 1b: Convergence Region (shaded) Based on Cutting the Abolute Distance at Least in Half

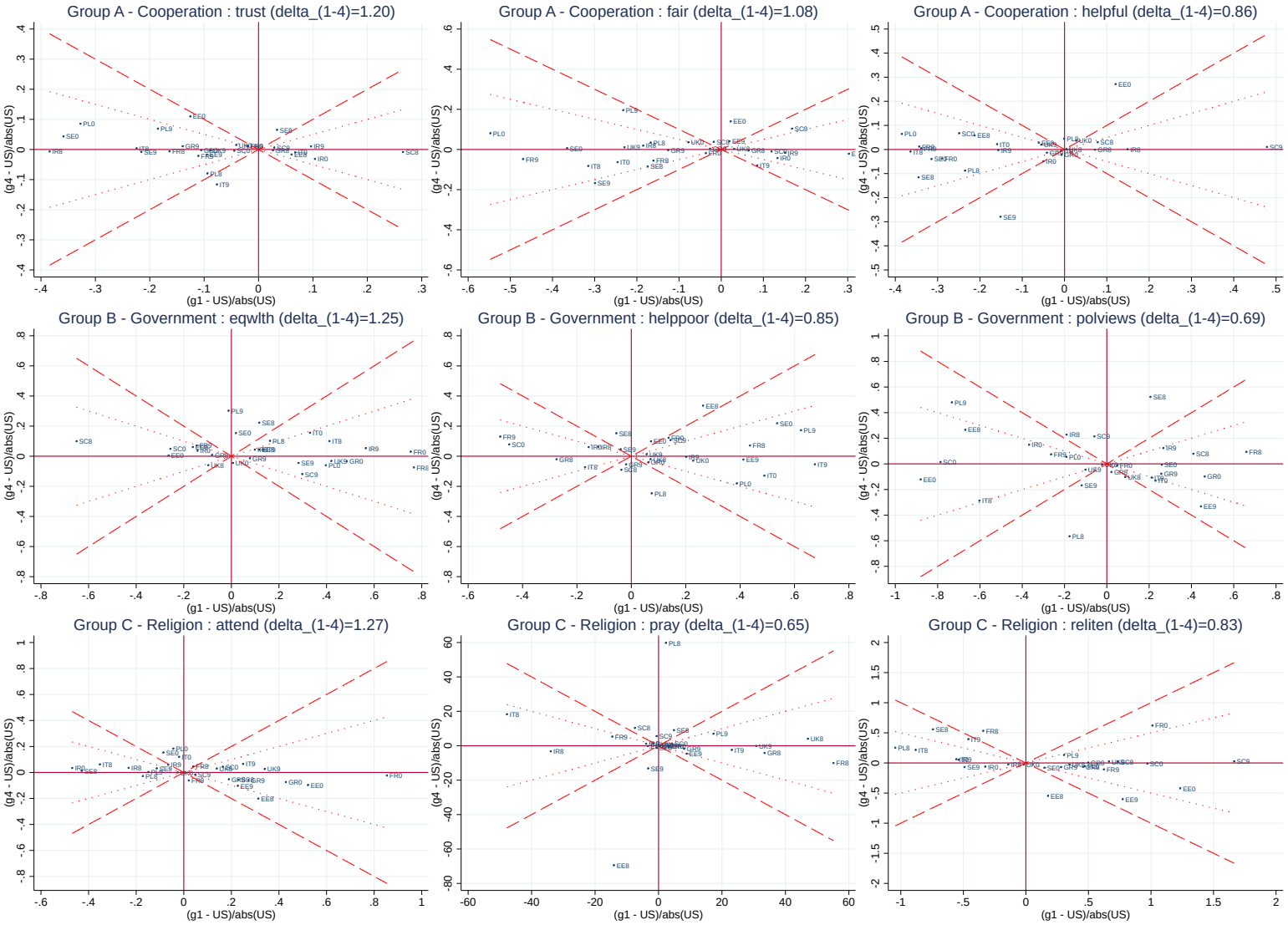

Figure 2a: Individual Countries Percentage Deviation from Norm (Weighted Average across Countries of 4^{th} generation) for Generations 1 and 4, over the Entire Period

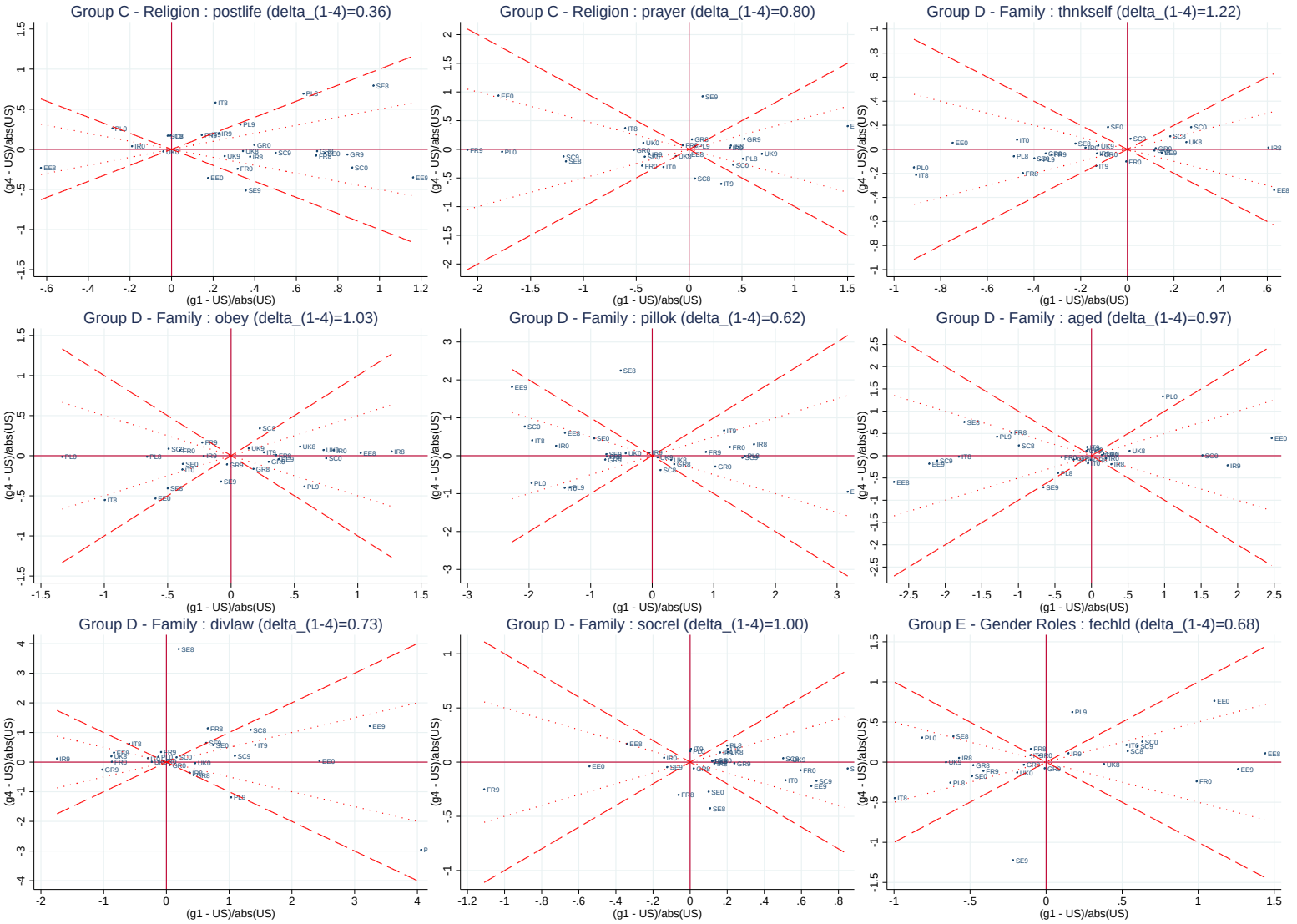

Figure 2b: Individual Countries Percentage Deviation from Norm (Weighted Average across Countries of 4^{th} generation coefficients) for Generations 1 and 4, over the Entire Period

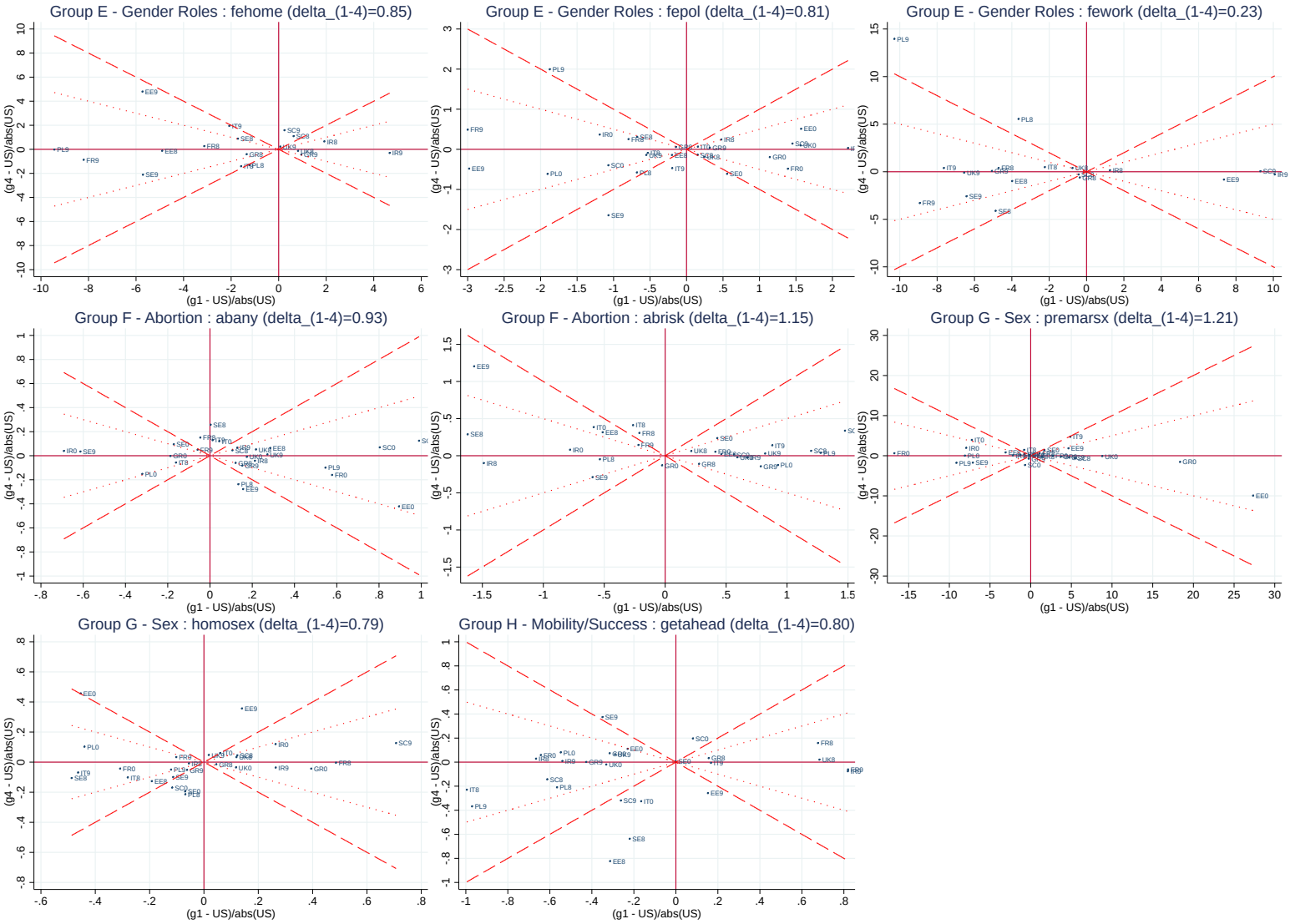

Figure 2c: Individual Countries Percentage Deviation from Norm (Weighted Average across Countries of 4^{th} generation coefficients) for Generations 1 and 4, over the Entire Period

Appendix

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

Group A – Cooperation	trust	can people be trusted or cannot be too careful (y=1 for yes if $x_{GSS} = 1$)
	fair	will people take advantage of you (y=1 for no if $x_{GSS} = 2$)
	helpful	people are mostly helpful or looking out for themselves (y=1 for yes if $x_{GSS} = 1$)
Group B – Government	eqwlth	government should equalize income between poor and rich (y=1 for yes if $x_{GSS} < 5$)
	helppor	government should improve the standard of living of the poor (y=1 for yes if $x_{GSS} < 4$)
	polviews	political views (y=1 for liberal if $x_{GSS} < 4$)
Group C – Religion	attend	frequency of religious services attendance (y=1 for less often if $x_{GSS} < 4$)
	pray	frequency of prayer (y=1 for less often if $x_{GSS} > 4$)
	reliten	intensity of religious affiliation (y=1 for not strong if $x_{GSS} > 1$)
	postlife	belief in life after death? (y=1 for no if $x_{GSS} = 2$)
	prayer	approval of prayer in public schools (y=1 for disapprove if $x_{GSS} = 2$)
Group D – Family	thnkself	independence of a child is highly important quality (y=1 for important if $x_{GSS} < 3$)
	obey	obidience of a child is a highly important quality (y=1 for not important if $x_{GSS} > 2$)
	pillok	birth control available to teenagers without parental consent (y=1 for ok if $x_{GSS} < 3$)
	aged	approval of sharing home with grown children (y=1 for disapproval if $x_{GSS} > 1$)
	divlaw	should divorce be easier (y=1 for yes if $x_{GSS} = 1, 3$)
	socrel	frequency of social evenings with relatives (y=1 for less often if $x_{GSS} > 3$)
Group E – Gender Roles	fechild	working mother can have a good relationship with children (y=1 for yes if $x_{GSS} < 3$)
	fehome	women should take care of running homes (y=1 for no if $x_{GSS} = 2$)
	fepol	women not suited for politics (y=1 for no if $x_{GSS} = 2$)
	fework	women should work even if husband can support them (y=1 for yes if $x_{GSS} = 1$)
Group F – Abortion	abany	approval of abortion for any reason (y=1 for yes if $x_{GSS} = 1$)
	abrisk	approval of abortion for health/defect/rape reasons (y=1 for yes if $x_{GSS} = 0$)
Group G – Sexual Behavior	premarsx	approval of premarital sex (y=1 for yes if $x_{GSS} = 4$)
	homosex	approval of same-sex sexual relations (y=1 for yes if $x_{GSS} > 2$)
Group H – Mobility/Success	getahead	work, help, luck as a source of social mobility (y=1 for work if $x_{GSS} = 1$)

Notes: The responses from the survey have been recoded to have a binary outcome. y denotes the indicator variable in the Probit. Variable abrisk does not exist in the GSS. $abrisk = abhlth \cap abrape \cap abdefect$. x_{GSS} denotes the numerical value of the answers to the GSS questions. Some allow for a gradation of response.

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 French Canada
Irish origin (IRE)	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: Speed of Convergence for the 4^{th} Generation: Using Alternative Cut-offs

		$\pi^{all}_{33.75}$	$\pi^{80}_{33.75}$	$\pi^{90}_{33.75}$	$\pi^{00}_{33.75}$	$\pi^{all}_{11.25}$	$\pi^{80}_{11.25}$	$\pi^{90}_{11.25}$	$\pi^{00}_{11.25}$
Group A – Cooperation	trust	0.85	0.78	0.89	0.89	0.63	0.56	0.78	0.56
	fair	0.81	0.89	0.67	0.89	0.48	0.56	0.44	0.44
	helpful	0.74	1.00	0.67	0.56	0.44	0.56	0.33	0.44
Group B – Government	eqwlth	0.85	0.89	0.89	0.78	0.52	0.44	0.56	0.56
	helppoor	0.67	0.56	0.67	0.78	0.30	0.22	0.33	0.33
	polviews	0.74	0.44	0.78	1.00	0.26	0.22	0.00	0.56
Group C – Religion	attend	0.81	1.00	0.78	0.67	0.56	0.67	0.44	0.56
	pray	0.67	0.56	0.78	0.67	0.37	0.44	0.33	0.33
	reliten	0.81	0.78	0.78	0.89	0.52	0.56	0.44	0.56
	postlife	0.56	0.56	0.44	0.67	0.33	0.44	0.22	0.33
	prayer	0.74	0.56	0.78	0.89	0.37	0.22	0.44	0.44
Group D – Family	thnkself	0.85	1.00	0.78	0.78	0.63	0.67	0.67	0.56
	obey	0.74	0.67	0.67	0.89	0.52	0.56	0.44	0.56
	pillok	0.85	0.78	0.78	1.00	0.41	0.44	0.44	0.33
	aged	0.70	0.78	0.67	0.67	0.41	0.44	0.56	0.22
	divlaw	0.52	0.44	0.67	0.44	0.30	0.11	0.44	0.33
	socrel	0.74	0.56	0.89	0.78	0.41	0.22	0.44	0.56
Group E – Gender	fechld	0.81	1.00	0.56	0.89	0.30	0.44	0.22	0.22
	fehome	0.61	0.67	0.56	-	0.33	0.33	0.33	-
	fepol	0.74	0.67	0.67	0.89	0.33	0.22	0.56	0.22
	fework	0.78	0.67	0.89	-	0.56	0.44	0.67	-
Group F – Abortion	abany	0.78	0.67	0.78	0.89	0.37	0.22	0.44	0.44
	abrisk	0.89	0.89	0.89	0.89	0.59	0.44	0.67	0.67
Group G – Sex	premarsx	0.78	0.78	0.78	0.78	0.52	0.56	0.56	0.44
	homosex	0.67	0.89	0.56	0.56	0.33	0.33	0.33	0.33
Group H – Mobility	getahead	0.70	0.78	0.67	0.67	0.59	0.67	0.56	0.56

Notes: $\pi_{33.75}$ ($\pi_{11.25}$) denotes the proportion of country-wave observations for which the absolute value of the deviation from the norm has been cut by at least one quarter (three quarters) between generation 1 and generation 4. Time subscripts (80, 90, 00) refer to the middle of each decade (86, 96, 06). "All" denotes the proportion of country-decade convergent observations out of the total.

Table A5: Single Origin: Convergence by Cultural Attitude: Comparing Generation 2 and 4

Attitude	gen 2 $\pi_{22.5}$	gen 4 $\pi_{22.5}$	(gen 4 $\pi_{22.5}$ - gen 2 $\pi_{22.5}$)		
fehome	0.39	0.39	0.00	[-0.17, 0.33]	{-0.11, 0.28 }
postlife	0.67	0.41	-0.26	[-0.11, 0.30]	{-0.07, 0.26}
helppoor	0.41	0.44	0.03	[-0.07, 0.33]	{-0.04, 0.33}
polviews	0.56	0.44	-0.12	[-0.07, 0.33]	{-0.04, 0.30}
getahead	0.26	0.48	0.22	[-0.07, 0.33]	{-0.04, 0.30}
abrisk	0.30	0.48	0.18	[-0.04, 0.37]	{0.00, 0.33 }
fework	0.28	0.50	0.22	[-0.11, 0.39]	{-0.06, 0.33}
pillok	0.30	0.52	0.22	[0.00, 0.41]	{0.04, 0.37}
pray	0.44	0.52	0.08	[-0.07, 0.37]	{-0.04, 0.33}
divlaw	0.33	0.56	0.23	[-0.04, 0.37]	{0.00, 0.33}
reliten	0.48	0.56	0.08	[0.00, 0.41]	{0.04, 0.37}
aged	0.30	0.59	0.29	[0.04, 0.44]	{0.07, 0.41}
fepol	0.33	0.59	0. 26	[0.00, 0.41]	{0.04, 0.37}
premarsx	0.41	0.59	0.18	[-0.04, 0.41]	{0.04, 0.37}
prayer	0.44	0.59	0.15	[-0.04, 0.37]	{0.00, 0.33}
fair	0.44	0.59	0.15	[0.00, 0.44]	{0.07, 0.44}
homosex	0.41	0.59	0.18	[-0.04, 0.39]	{0.00, 0.37}
eqwlth	0.52	0.59	0.07	[-0.07, 0.33]	{-0.04, 0.30}
thnkself	0.26	0.63	0.37	[0.07, 0.44]	{0.07, 0.41}
obey	0.41	0.67	0.26	[0.07, 0.48]	{0.11, 0.44}
fechld	0.41	0.67	0.26	[-0.04, 0.41]	{0.00, 0.37}
attend	0.37	0.70	0.33	[0.00, 0.41]	{0.04, 0.37}
trust	0.41	0.74	0.33	[0.04, 0.48]	{0.07, 0.44}
abany	0.52	0.74	0.22	[0.00, 0.41]	{0.00, 0.37}
socrel	0.56	0.74	0.18	[0.00, 0.41]	{0.04, 0.37}
helpful	0.33	0.78	0.45	[0.04, 0.44]	{0.07, 0.41}

Notes: Percentage of country-wave observations for which the absolute value of the deviation from the norm has been cut at least in half between generation 1 and generation 2 or 4. 95% (90%) bootstrapped confidence interval for the test gen 4 $\pi_{22.5}$ = gen 2 $\pi_{22.5}$ in the square (curly) brackets.

Table A6: Single Origin: Convergence by Cultural Attitude and Country

		GER	E.EU	POL	SCA	FRA	IRE	ITA	UK	S.EU	Total	95% CI
Group A – Cooperation	trust	3	2	2	2	2	3	1	2	3	20	[11, 20]
	fair	1	1	2	2	3	3	1	2	1	16	[11, 21]
	helpful	3	1	3	3	3	3	1	2	2	21	[11, 20]
Group B – Government	eqwlth	3	2	1	2	2	2	2	1	1	16	[11, 20]
	helppoor	3	1	0	1	1	2	2	2	0	12	[9, 18]
	polviews	3	1	0	1	2	2	1	2	0	12	[9, 18]
Group C – Religion	attend	3	0	1	3	1	3	3	3	2	19	[13, 21]
	pray	2	1	1	1	3	3	1	2	0	14	[10, 18]
	reliten	3	0	2	1	2	3	1	3	0	15	[11, 20]
	postlife	3	1	0	2	1	2	0	1	1	11	[9, 17]
	prayer	2	2	1	1	3	2	0	3	2	16	[12, 21]
Group D – Family	thnkself	2	3	2	2	2	1	2	2	1	17	[11, 21]
	obey	2	2	1	3	2	3	1	3	1	18	[11, 20]
	pillok	1	0	1	1	2	2	3	3	1	14	[9, 18]
	aged	2	2	2	2	2	2	1	2	1	16	[12, 20]
	divlaw	3	2	1	1	2	3	0	3	0	15	[10, 18]
	socrel	3	3	1	3	1	3	1	3	2	20	[11, 20]
Group E – Gender	fechld	2	3	3	1	3	2	1	2	1	18	[10, 20]
	fehome	1	2	1	1	1	1	0	0	0	7	[5, 13]
	fepol	3	2	1	2	3	2	1	2	0	16	[10, 20]
	fework	2	1	0	0	1	2	1	2	0	9	[6, 12]
Group F – Abortion	abany	2	3	2	2	2	3	1	3	2	20	[11, 20]
	abrisk	2	1	0	2	2	2	0	3	1	13	[8, 17]
Group G – Sex	premarsx	2	1	2	2	3	2	1	1	2	16	[11, 20]
	homosex	3	0	2	2	3	2	1	2	1	16	[10, 19]
Group H – Mobility	getahead	3	0	1	1	1	3	1	3	0	13	[10, 19]
	Total	62	37	33	44	53	61	28	57	25		
	95% CI	[53, 66]	[24, 39]	[21, 36]	[33, 49]	[39, 54]	[50, 65]	[23, 38]	[50, 64]	[17, 31]		

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 absolute value of the deviation from the norm has been cut at least in half between generation 1 and generation 4 ($\pi_{22.5}$ criterion). Observations for *fehome* and *fework* span only two decades – 80s and 90s. The last row and column reports also the bootstrapped 95% confidence intervals in square brackets.

Table A7: Matching of Attitudes between GSS and EVS/WVS

GSS	EVS/WVS Question Number	Description of EVS variable
trust	a165	Most people can be trusted (y=1 for yes if $x_{EVS} = 1$)
attend	f028	How often do you attend religious services (y=1 for less often if $x_{EVS} > 3$)
pray	f063	How important is God in your life (y=1 for less important if $x_{EVS} < 7$)
postlife	f051	Believe in life after death (y=1 for no if $x_{EVS} = 0$)
thnkself	a029	Important child qualities: independence (y=1 for important if $x_{EVS} = 1$)
obey	a042	Important child qualities: obedience (y=1 for not important if $x_{EVS} = 0$)
divlaw	f121	Justifiable: divorce (y=1 for yes if $x_{EVS} > 3$)
fechild	d061	Pre-school child suffers with working mother (y=1 for yes if $x_{EVS} > 2$)
fehome	d057	Being a housewife just as fulfilling (y=1 for no if $x_{EVS} > 1$)
fework	d058	Husband and wife should both contribute to income (y=1 for yes if $x_{EVS} = 1$)
abany	f120	Justifiable: abortion (y=1 for yes if $x_{EVS} = 10$)
homosex	f118	Justifiable: homosexuality (y=1 for yes if $x_{EVS} > 7$)

Notes: The responses from the EVS/WVS have been recoded to have a binary outcome. We indicate the correspondence between GSS and EVS/WVS and the original value(s) from the EVS/WVS that are matched with the recoded GSS variables. y denotes the indicator variable in the first stage Probit. x_{EVS} denotes the answer number to the EVS/WVS questions.

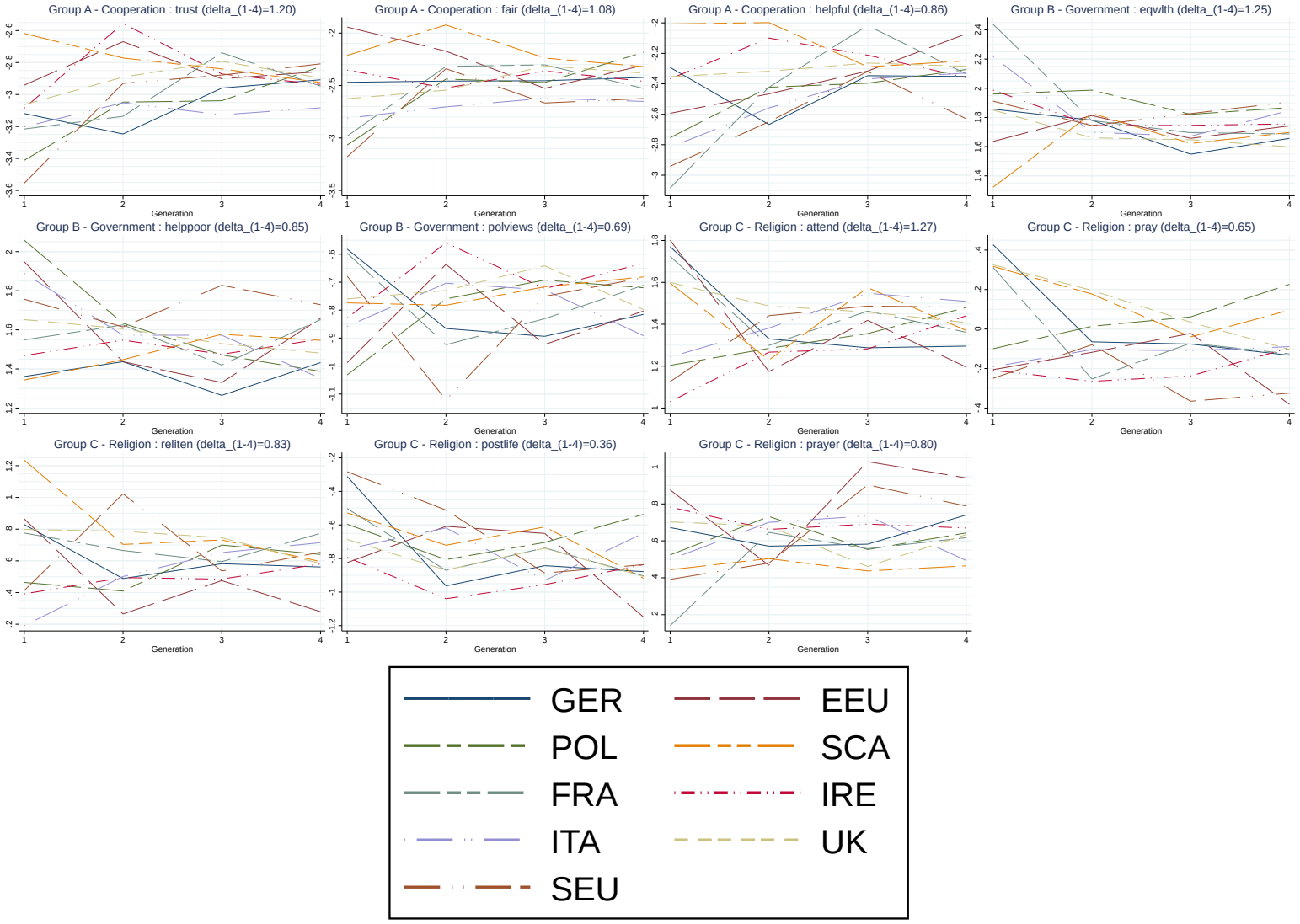

Figure A1a: Evolution of Attitudes across Generations (Weighted Average over Time) : Groups A–C

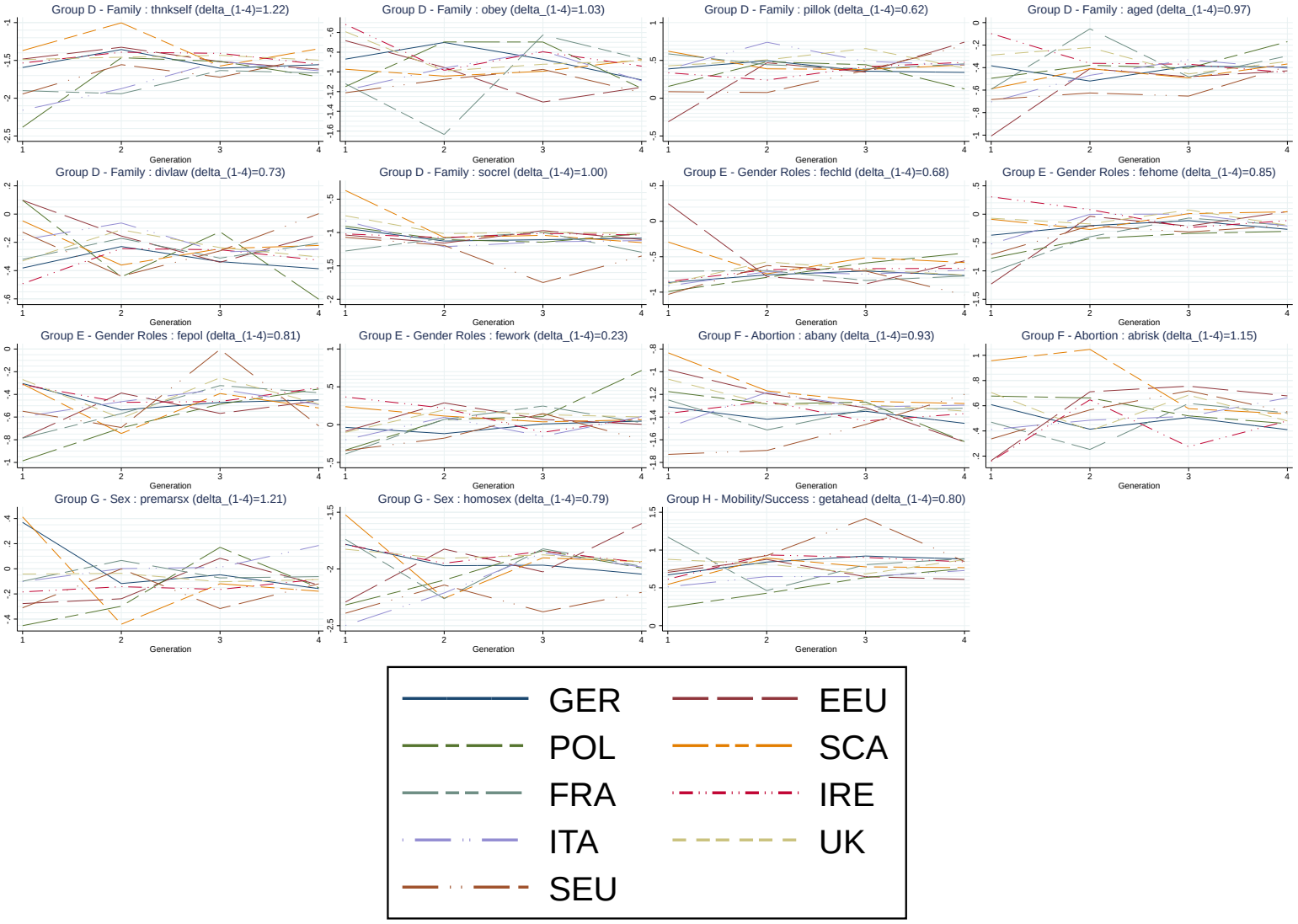

Figure A1b: Evolution of Attitudes across Generations (Weighted Average over Time) : Groups D–H

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