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REGULAR ARTICLE

The strength and persistence of entrepreneurial cultures

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Abstract The twentieth century United States provides a natural experiment to measure the strength and persistence of entrepreneurial cultures. Assuming immigrants bear the cultures of their birth place, comparison of revealed entrepreneurial propensities of US immigrant groups in 1910 and 2000 reflected these backgrounds. Two measures of entrepreneurial culture are employed; the first is simply the chance that a member of the migrant group will be an employer and the second is the origin country effect on this probability, conditional upon personal characteristics. The preferred second measure shows persistence of some cultures and change of others over the twentieth century. Among the more stable cultures North-western Europe, where modern economic growth is widely held to have originated, did not host unusually strong entrepreneurial propensities. Instead such cultures were carried by persons originating from Greece, Turkey and Italy, together with Jews.

Keywords Entrepreneurship · Culture · Migration

JEL Classifications D01 · J15 · J23 · J61

1 Introduction

Measurement of entrepreneurial culture requires first distinguishing between motivation and opportunity. Opportunities depend on national institutions and macroeconomic conditions. The legal environment and costs of setting

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up a firm strongly influence differences in business start-up rates between countries (Klapper et al. 2006; Ciccone and Papaioannou 2007). Capital or credit rationing may also determine prospects for entrepreneurship (Black et al. 1996; Blanchflower and Oswald 1998). Variations in aggregate demand can make firm formation both more or less difficult, and more or less necessary (Foreman-Peck 1985; Meager 1992; Hofstede et al. 2004).

Motivations on the other hand are determined by preferences. Unlike opportunities motivations can be suggested by surveys (Davidsson and Wiklund 1997). Large proportions of Europeans state that they would prefer to be self-employed (Blanchflower et al. 2001). So the very wide variation between nations in percentages favouring self-employment may indicate either differences in frustrated aspirations, or a broad range of national entrepreneurial motivations, or both.

Similarly, actual entrepreneurship and self-employment rates differ markedly between countries and are not readily explained by conventional economic variables (Noorderhaven et al. 2004; Freytag and Thurik 2007). The explanation then must instead be sought in national divergences in opportunities and aspirations or motivation; in institutions and cultures. Specifying and measuring components of these influences and the extent to which they are shared or diverge between national economies is one approach. But this approach leaves open the possibility that vital correlated contributors to distinctive institutional or cultural environments have been omitted and therefore effects inadequately assigned. A country whose citizens record high levels of dissatisfaction with society may be reflecting a national culture, or they may be responding to poorly functioning institutions. Without controlling for institutions the association of dissatisfaction with national society and entrepreneurship cannot be taken to imply a cultural effect. If this dissatisfaction *is* linked to entrepreneurship (Hofstede et al. 2004; Noorderhaven et al. 2004) the appropriate policy responses to encourage entrepreneurship are very different; in the first case a long term educational programme to transform culture, in the second, relevant institutional change.

Typically cross-national studies to date have been unable to break the perfect collinearity in models of entrepreneurial choice, of country-specific institutions and opportunities on the one hand, and country-specific national entrepreneurial cultures or motivations on the other. The novelty of the present research is to do so by comparing migrants from different cultures in a common economic environment. Moreover by focussing on the persistence of cultural effects over almost a century, the exercise ensures the impacts identified are not merely short term responses to institutional or economic circumstances.

In sum motivation, as determined by national entrepreneurial culture, is established more precisely by controlling for opportunity over the twentieth century. Some plausible assumptions allow the United States to be a natural experiment for separating entrepreneurial culture from opportunities—primarily national institutions and macroeconomic conditions. If immigrants

bear the traditions of their birth place, comparison of revealed entrepreneurial propensities of US immigrant groups will reflect these backgrounds. In the common environment differential entrepreneurial behaviour by origin depends upon entrepreneurial culture (so long as certain conditions are met).

Section 2 distinguishes the contribution of entrepreneurial from more general business cultures, Section 3 sets out the specification of the model—the analysis employs two alternative measures of entrepreneurial culture, unconditional and conditional entrepreneurship chances. Section 4 describes the historical processes generating the immigrant samples. The validity of the exercise hinges upon whether or not immigrants are a selective group and whether country of origin can identify a sufficiently homogenous cultural group. Section 5 therefore discusses the extent to which the United States constituted 'a level playing field' for the groups studied, while Section 6 presents the results of the analysis, including tests of the 'level playing field' hypothesis.

2 Culture and entrepreneurial culture

For present purposes culture is shared values and belief systems (Davidsson and Wiklund 1997; Jones 2006; Guiso et al. 2006). Culture is based on a form of group taste or preference. Preferences for drinking tea with milk or eating lamb with mint sauce can be described as 'culturally determined'. These preferences are values revealed in behaviour. Individuals born in one place and time and therefore steeped in one tradition choose these combinations, whereas people born elsewhere do not. When individual preferences or values are aggregated across a cultural group, the typical or representative member has different preferences from those of other cultural groups.

The arguments of individuals' preference functions are not necessarily tangible variables. Religion traditionally provided the values of culture. More recently 'Anglo-Saxon' culture was alleged important in the past for economic development and Japanese 'collectivism' supposedly was the wave of the future (Temin 1997). A modern theoretical cultural specification is post-materialism, which describes the degree to which a society places immaterial life-goals, such as personal development and self-esteem, above material security (Uhlaner and Thurik 2007). Geert Hofstede's (1980) four dimensions of culture—individualism, power distance, certainty and achievement—have proved enormously popular in cross-cultural comparisons of influences upon entrepreneurial behaviour.[1] But a recent assessment concluded that many hypotheses concerning the influence of these indices on entrepreneurship are often contradictory (Hofstede et al. 2004, p173). König et al. (2007) extend

[1]Greek entrepreneurs were the most highly authoritarian—scored most highly on power distance—of all nations considered in one study for instance (Drakopoulou Dodd and Patra 2002).

Hofstede to seven dimensions.[2] Answers to questions about life satisfaction and satisfaction with the working of democracy provide a simpler index of entrepreneurial culture that is strongly correlated across countries with self-employment (Noorderhaven et al. 2004). All these measures show marked differences among nations.

Another way of measuring entrepreneurial culture is by significant divergences between the values of the self-employed and those of others in the European Values Survey (Beugelsdijk 2007). One more approach is to use country dummy variables in a regression analysis on preferences and actual self-employment, based on Eurobarometer survey data (Grilo and Thurik 2006). The culture variable is what is left when the contribution of age, risk attitude, gender and so on, to self-employment attitude and actuality are controlled. As with this study, much research (including the present exercise) treats culture as a 'residual', a fixed effect or a black box. In such cases, if the model is mis-specified, then the so-called culture variable will in fact be a concatenation of institutional, policy and macroeconomic conditions (Beugelsdijk 2007).

There need be no simple link of culture to behaviour although it is reasonable to expect some traceable connection. A stronger entrepreneurial culture may not always predict more *successful* entrepreneurship—or faster economic growth—for the constraints within which choices are exercised also affect outcomes. Individuals inheriting a highly entrepreneurial culture are simply more likely to use their initiative and ingenuity, particularly in making 'judgemental decisions', decisions about what rules apply in the circumstances (Casson 2003). How successful they are, and whether they do this in politics, crime or legitimate business, will be determined by institutions, resources and history, among other factors (Baumol 1990). This is the core of the identification problem; how can the effect on behaviour of institutions, policies and macroeconomic and other environmental conditions be controlled to isolate the impact of culture?

Weber's (1905) 'Protestant Ethic' is perhaps the most well known attempt to link culture with economic behaviour. Recent exercises include Wennekers et al. (2007) who use Hofstede's uncertainty avoidance variables to explain business densities in 21 countries over time. Beugelsdijk (2007) entrepreneurial culture index is significantly correlated to European regional innovativeness, measured by patents—which in turn is associated with economic growth. Employing data from 27 countries, Uhlaner and Thurik (2007) confirm the significance of post-materialism in predicting total entrepreneurial activity and, more particularly, new business formation rates.

General culture can create entrepreneurial opportunities by influencing the business environment (Freytag and Thurik 2007). It may ensure that the individual (who shares preferences with members of the group) has

[2]Institutional collectivism and in-group collectivism, uncertainty avoidance, power distance, assertiveness, future orientation, humane orientation, and performance orientation.

preferences about other individuals' preferences, a form of altruism. Rational purely self-interested individuals will attempt to "free ride" on the benefits of being an employee or group-membership more generally unless deterred by monitoring and enforcement. Such people will try to avoid contributing to group efforts, since these are personally costly, while obtaining the collective gains (such as wages) (Olson 1982). If all members of the group behave similarly the institution or firm becomes much less effective, in due course even disappearing. A concern for others' wellbeing can reduce or eliminate such 'free-riding'. An altruistic element to culture may lower transactions costs—the costs of monitoring and enforcing, which makes entrepreneurship or running a business easier. If buyers and sellers believe they can trust each other, insurance, monitoring and enforcement costs fall, boosting the volume of transactions, and therefore the gains from trade (Casson 1991). Business entrepreneurship too will more probably flourish where agreements are expected to be honoured. This is an example of culture as entrepreneurial opportunity; it is not what is meant by entrepreneurial culture. Rather culture here functions the same way as domestic institutions; it does not affect motivation or the supply of entrepreneurs.

Entrepreneurial culture is those elements of culture that affect the likelihood of an individual choosing to become a (business) entrepreneur; it provides motivation (and therefore supply). The distinction between the two types of business culture for the present study is important because entrepreneurial culture is portable, it travels with the entrepreneur, whereas general culture is not, it is a country-specific effect.

Culture may evolve according to its internal dynamic and respond to events, institutions and even the macroeconomic environment. A sustained period of unemployment may lead to cultural change through a downgrading of expectations or reinforcement of a dependency culture. But culture consists of beliefs and values transmitted 'fairly unchanged' from generation to generation (Guiso et al. 2006). Much research shows that cultural values are very slow to change within particular cultures (Uhlaner and Thurik 2007). The pace of cultural change is sufficiently slow to convince some that culture is a fundamental force in economic history (Landes 1998, 516–7). Features of business culture could be transitory (Jones 2006, Ch 2, 258) but over shorter periods culture may be sufficiently enduring to act as a predetermined variable in a model of entrepreneurship. Ultimately the persistence of entrepreneurial cultures is an empirical, historical, matter which it is the purpose of the present paper to investigate.

3 Modelling culture and entrepreneurship

An operational definition of entrepreneurship is needed to identify supportive or detrimental cultures. An entrepreneur is one who takes riskier decisions for greater rewards, exploiting opportunities that others have not noticed (Kirzner 1973; Casson 2003). Becoming an employer is an entrepreneurial act in the

sense that it involves taking on risk. It also necessitates being innovative, to the extent that setting up any business requires looking for a gap in the market, however narrowly defined. A measure of entrepreneurial culture is then the tendency of members of a large group to become employers, rather than employees.

We therefore employ two measures of entrepreneurial culture which represent less and more restrictive definitions of culture. The first is simply the chances of a member of the immigrant group being an employer—relative to other migrant groups.[3] The second is the likelihood of becoming an employer that can be attributed to country of origin, conditional on a wide range of personal characteristics. Even though migrants may well be exceptional in their originating country, each immigrant group will be exceptional to the same extent, unless there are historically unusual 'push' factors that must be identified qualitatively. Economic costs of movement differ by original location, as does the strength of the push factor but normally these will only affect the relative volumes of migrant groups. Persecution may be a reason to migrate for large numbers. Yet only when this or other processes select the more or less entrepreneurial from a country does it affect the present 'experiment'.

We do not compare immigrants with those born in the host country (as for instance does Lofstrom 2002) but with each other. The native born are more likely to inherit a family business, which also takes individuals into the employer category. Migrant self-employment through inheritance by contrast is unlikely and is probably in start-ups.

The entrepreneurship ratio, or unconditional chances, does not take into account differences among the migrants in characteristics that might influence entrepreneurship independently of culture. Those from some origin countries were more likely than others to be literate at the beginning of the twentieth century. Such migrants might be relatively highly entrepreneurial because of these attributes, whereas purely for cultural reasons they might be less entrepreneurial than those who were illiterate.

Whether the ratio measure is appropriate depends on what is assumed culturally determined. It could be contended that education and literacy, like entrepreneurship, depend upon culture. They are not independent variables but endogenous in the occupational choice model that includes culture. If so their inclusion would lead to an underestimation of the contribution of culture, and the true cultural measure is simply the unadjusted chances of entrepreneurship. But when literacy, wealth and other variables are not culturally determined, our second measure is appropriate; the chance of becoming an employer, holding constant a range of other influences on the outcome.

[3]These (unconditional) chances, calculated as relative frequencies, are referred to interchangeably as 'entrepreneurship ratios', the ratio of those who become employers to the total in the migrant group.

For this second measure then it is essential to specify the appropriate controls, such as resources and abilities, that will leave the origin country effect as the culture impact on the likelihood of becoming an entrepreneur. We adopt the general method of logit binary occupational choice which in this field is widely used (for example Blanchflower et al. 2001; Lofstrom 2002; Grilo and Irigoyen 2006).

The key explanatory variable in the model is country of origin, the measure of immigrant entrepreneurial culture. Risk attitude as transmitted through culture can affect the wealth/income effects on the entrepreneurship decision. The rich are more likely to find a given risk (of becoming an entrepreneur) acceptable, even if they have the same risk attitude as the poor. But commonly the better-off will face a wider range of options as well. Insofar as entrepreneurship is time-consuming, and leisure is a normal good, the rich will then be *less* likely to opt for this occupation. An entrepreneur's personal wealth, either as a result of savings or inherited, is typically necessary to provide the equity in the new business—for start up capital. The relative impacts of leisure preference, risk attitudes and the personal capital requirement for business starts then determine how wealth and income affect the decision to become an entrepreneur.

The need to acquire savings and work experience at first increases entrepreneurship with age, and perhaps eventually diminishes it (Parker 2004). Information about entrepreneurial opportunities is likely to increase with duration of immigrants' residence in the host country, and with ability to speak the language. Both would then raise the likelihood of becoming an entrepreneur. By increasing awareness of opportunities, formal education, or in earlier periods, literacy, could increase entrepreneurial chances.

Entrepreneurship may be perceived as a better way of providing more income than wage employment and families can be expensive. In such circumstances marriage increases the likelihood of choosing to become an entrepreneur. Some migrants intend to return to their country of origin and these are less likely to make the commitment of starting a business. Marriage may encourage such commitment, which would also be signalled by 'naturalisation'. Gender will probably influence the chances of becoming an entrepreneur as well, particularly in earlier periods.

To allow that work experience influences entrepreneurial choice we also control for different sectors in which employment or self-employment takes place. Greater expected rewards will increase the likelihood of an individual becoming an entrepreneur. This provides a link of the entrepreneurial supply with the demand or opportunities for entrepreneurship.

Apart from the contribution of common institutions in the migrant destination country, the opportunities for entrepreneurship depend on industry entry barriers or their absence. Barriers now are lowest in the wholesaling, retailing and construction industries. Finance and business services also offer high returns sometimes without high barriers. These opportunities, reflected in high expected returns, direct the supply of entrepreneurs. Since the focus of

the present study is only on one country, the possibility discussed above that culture can influence entrepreneurial opportunity can be put to one side.[4]

Substituting out expected returns from both entrepreneurial supply and opportunities yields a reduced form equation of the probability that an individual will become an entrepreneur:

$$\Pr[Y=1] = f\,(\textbf{\textit{gender, marital status, residence duration, formal human capital, English speaking, sector, age, wealth, culture}}) \quad (1)$$

This equation provides the second measure of entrepreneurial culture with which two hypotheses can be tested. The first is that entrepreneurial cultures (generally estimated from country of origin) make a difference to behaviour. The second hypothesis is that (some) entrepreneurial cultures persist for long periods.

4 The US immigrant samples

The central idea is that, to isolate the impact of culture from that of institutions on the business start-up rate, we can consider how those brought up in one country perform in a social and economic environment where institutions and market opportunities are different- the United States. During the twentieth as well as the nineteenth centuries, immigrants from a wide range of cultures arrived in the common environment of the United States and some of them started their own businesses. Cultural persistence here is the stability of entrepreneurial or start-up propensities between the 1910 and 2000 US Censuses.[5]

Agricultural employment is excluded from the sample because opportunities and conditions were so different from other sectors. The sample is also restricted to origins from which migrants were quite numerous in 1910 in order to make the comparison over time more consistent. For instance Koreans were not included because, although sufficiently frequent in 2000, in 1910 there were too few working as employers outside agriculture. But the highly entrepreneurial Middle East was disaggregated subsequently to examine whether particular sources were driving the result.[6] Persons 'working on own account' in the early period, and 'unincorporated business' in the later period, are left out of the entrepreneurial category because they could be associated with casual work. Instead we focus on employers and incorporated businesses, on the grounds that these groups match more closely the theoretical concept of an entrepreneur.

During the period leading up to 1910, migrants were generally not 'filtered' or selected by the host country. So origins of immigrants to the US at different times varied mainly with the strength of 'push factors' in source countries.

[4] Although US culture as well as institutions may be a reason for the higher level of US entrepreneurship relative to all European countries, as noted by Grilo and Irigoyen (2006).

[5] 5% samples from IPUMS (http://usa.ipums.org/usa/). 1910 is the first year that the employer/employee question is asked.

[6] The base case in the analysis is 'other North America'.

During the 1840s harvest failure drove large numbers of German and Irish migrants across the Atlantic, while persecution of Jews triggered another wave of migrants from Russia and Poland beginning in the 1880s. Population growth coupled with weak economic development encouraged increasing migration from southern and eastern Europe in the 1890s. Population growth too played a part, along with expanding demand for agricultural labour, in swelling Mexican immigration in the first decade of the twentieth century.

The one major exception to free entry was the Chinese Exclusion Act of 1882, which allowed Congress to suspend general Chinese immigration. Although the Act refused entry to Chinese skilled and unskilled labourers and Chinese employed in mining, Chinese nationals with $1000 were still allowed into the United States as 'merchants' (Lee 1960, p79)—a condition highly relevant to their entrepreneurial characteristics. Later, and probably too late to influence substantially the present natural experiment, the 'Gentleman's Agreement' of 1907–1908 blocked unskilled Japanese migration to the US, when the Japanese government agreed not to issue passports to labourers (Ichihashi 1932, Ch 16). With the Chinese exception, 1910 is therefore a good year in which to conduct the experiment.

The period of relatively open immigration ended shortly afterwards. In 1924 the Immigration Act limited the number of immigrants who could be admitted from any country to 2% of the number of people from that country who were already living in the United States in 1890. Another major policy change came with the Immigration and Nationality Act of 1965 (becoming law in 1968) which abolished the national origin quotas but introduced Western and Eastern hemisphere quotas.

Liberalisation continued with the Immigration Act of 1990. After the Act, the United States admitted 700,000 new immigrants annually, an increase of 200,000. The new legislation continued to give preference to immigrants with family members already in the United States. Consequently the past stock of immigrants and quota sizes were extremely influential in determining the country of origin of US immigrants in the years after the Act (Clark et al. 2007). Is this likely to bias the degree of entrepreneurship of migrants relative to those in their country of origin?

5 A level playing field?

The interpretation that culture in the country of origin is the explanation for differences in immigrant entrepreneurship in the US depends upon a number of conditions being satisfied. Three of these are:

1. That country of origin is an adequate indicator of entrepreneurial culture,
2. The absence of selection processes favouring, or discriminating against, emigration of entrepreneurial types from a particular state, and
3. That non-cultural systematic differences between origin countries do not bias the choice of entrepreneurship.

The nation is a somewhat arbitrary unit of entrepreneurial culture and 'national' cultures are often heterogeneous, even in the twenty-first century. Armenian immigrant entrepreneurs were prominent in many countries at different periods of history without an Armenian 'country of origin' (Godley 2006). Again, numbers of Greeks living outside Greece in the first decade of the twentieth century were much greater than those within the country and Greek migration from Ottoman-dominated areas, especially for political reasons, was common (Saloutos 1964, 16, 23, 33). Further north, migrants from the Russian Empire and Poland in the years before the First World War are very likely to have been Jews because of the anti-Jewish Pogroms from the 1880s. Nonetheless in the absence of information about specific relevant fractionalisation or events, the assumption which is tested here is that the country of origin is an indicator of distinctive entrepreneurial culture.[7] A statistically significant 'origin effect' on entrepreneurial chances among those living and working in the common US institutional environment is taken as consistent with a distinctive national entrepreneurial culture.

Migration might be selective by entrepreneurial predisposition according to the level of development for a number of reasons. Perhaps migrants from poorer countries were less able to found businesses because they lacked the skills appropriate to a more advanced economy. Alternatively they might be disproportionately forced in to self-employment because of the same deficiencies. Another hypothesis is that poorer people, lacking in financial resources, might migrate from richer countries and richer people from poorer countries. If resources were not adequately controlled in our model (by property ownership), and were necessary to entrepreneurship (as our model parameter estimates below indicate) then behaviour attributable to the national level of development would incorrectly be identified as a cultural effect.

A rather different selection process could operate with similar impact if some origin countries' institutions affecting entrepreneurship (rather than wage earners) were less favourable than others and therefore disproportionately more entrepreneurial types emigrated. Again, labour market discrimination against or in favour of particular migrant groups possibly crowded immigrants selectively by origin into entrepreneurship. In the late nineteenth century Union branches spread internationally, controlling jobs in certain sections of industry on behalf of those from higher income economies (Foreman-Peck 1992).[8] Migrants from newer source countries would be hard pressed to

[7] A test of city- or region- based culture, as well as that of a nation, would be a considerably larger project at this level, although Davidsson and Wiklund (1997) used individual level data to identify weak regional effects in Sweden, and Beugelsdijk (2007) found mainly indirect aggregate regional effects across Europe.

[8] At the Homestead Works in 1892 the Welsh managed the rolling mills and the Irish the Bessemer blast furnaces. In the International Association of Machinist there were individual branches speaking German, French or Bohemian at the beginning of the twentieth century.

find work in these sectors. More generally, (and perhaps an implication of Hatton and Leigh 2007) 'pioneer immigrants' may have been less accepted in the employment market and so more often pushed into self-employment. If for whatever reason labour markets were segmented by national origin, the consequential lower wages of new immigrant groups may have favoured entrepreneurial choice in these groups (creating 'sweat shops' for instance). A new immigrant entrepreneur employing members of the same community could pay lower wages than prevailed in the wider host community and would thereby achieve a competitive advantage.

Wages undoubtedly did differ between migrant groups before the First World War. Hatton (2000) measurement of immigrant earning power, translated as 'immigrant quality', shows Jews among the highest earners before 1914, with coefficients identical to those of the Dutch and Finnish. Jewish immigrants were also highly entrepreneurial in both London and New York in the generation before the First World War (Godley 2001)—not what would be expected if high Jewish wages discouraged Jewish entrepreneurial choices. By contrast migrants from Syria and Turkey recorded the largest ethnic handicap in wage earning. Jewish, Turkish and Syrian originating migrants all were among the most entrepreneurial but their wage positions (and presumably therefore their skills) in the US market differed markedly. This is inconsistent with at least one version of 'entrepreneurial bias'.

Once the particular migration stream became integrated into the host culture, or better accepted by the host community, they were more able to slot into paid employment if they wished.[9] Market segmentation of given migrant groups probably could not persist over three generations. New migrants groups in 1910 could not be new in 2000 as well. Hence a fundamental test of culture versus labour market barriers is persistence or otherwise of behaviour across the twentieth century when most conditions changed. Similar values for the culture estimate at the two dates must imply either that identical conditions somehow persisted or replaced each other, or that they were not of fundamental importance in both periods. However it does not follow that if the culture estimates are different at the two dates that culture was not important on both occasions.

To summarise, the 'playing field' for migrants may not have been level because of different GDPs per capita in origin countries, because of unusually unfavourable (or favourable) source country institutions for entrepreneurship, or because newer immigrant groups suffered more labour market discrimination. Critically though, because of the selection of similar migrant groups in the year 2000 as in 1910, this last possibility is very unlikely for the second year. In experiments below we assess the importance of the other possible sources of bias.

[9]Suggested to us by Tim Hatton.

Table 1 Ranked entrepreneur ratios or chances

Country of origin	1910	Country of origin	2000
China	11.57%	Greece	12.02%
Germany	9.24%	Israel	10.72%
Spain	8.18%	Syria and Lebanon	9.45%
Greece	7.89%	Italy	7.82%
Netherlands	6.75%	Austria	7.11%
Russian Empire and Poland	6.14%	Turkey	6.27%
Cuba	6.02%	Cuba	5.75%
England	5.80%	Netherlands	5.34%
Scotland	5.65%	Sweden	5.14%
France	5.62%	Ireland	5.11%
Turkey	5.62%	France	4.84%
Total	**5.54%**	China	4.77%
Sweden	4.97%	Spain	4.37%
Ireland	3.97%	Russia	4.33%
Italy	3.60%	England	4.04%
Japan	2.99%	Germany	3.73%
Austria	2.76%	Portugal	3.56%
Portugal	2.09%	Japan	3.49%
Mexico	1.73%	Scotland	3.32%
Syria and Lebanon	NA	**Total**	**3.31%**
Israel	NA	Mexico	1.61%

Note: 'Entrepreneurship ratio' is the first measure of entrepreneurial culture as discussed in the text; the chances of an immigrant becoming an employer relative to other members of the immigrant group, calculated as a relative frequency. Calculated from IPUMSusa

6 Results

6.1 Entrepreneurial chances

(Unconditional) entrepreneurial chances (or ratios) are the simplest measure of entrepreneurial culture, but nonetheless are informative as descriptive statistics. Consistent with Max Weber's 1905 doctrine, US immigrants from the 'Catholic group' of countries (Table 1)—Italy, Mexico, Portugal and Ireland in 1910 are near the bottom of the ranking of probabilities or ratios, but a contrary finding is that Spain and Cuba are near the top. The highest chances in 1910 are those of China (which was subject to special influences already noted), Spain, Germany, Greece and the Netherlands, followed by the Russian empire (the majority of migrants from which were Jewish refugees).

In the year 2000 (Table 1), the top four entrepreneurial groups are those originating from Israel, Greece, Syria and Lebanon,[10] and Italy. The position was broadly similar in contemporary Australia (in 1996) (Collins 2003). Judged by the criterion of comparable entrepreneurial proportions at both dates,[11]

[10] Syria and Lebanon were also the most highly entrepreneurial in 1910 but the sample available was judged too small to report.

[11] According to *t*-tests.

Mexico, Cuba, Netherlands, Sweden, Turkey and Japan show stability, or persistence of entrepreneurial culture. Greece and Italy increase entrepreneurship probabilities substantially, as does Austria (with different boundaries). The ratios for Portugal and Ireland also rise. Migrants from England, Scotland, France, Spain and Germany were less entrepreneurial at the end of the century than at the beginning. Overall the chances of entrepreneurship decline from 5.54% in the 1910 sample to 3.31% in the 2000 sample because of the massive increase in Mexican immigration with a low entrepreneurial ratio.

Could this pattern stem from the level of development of the source country, from origin country institutions or from the number of migrants already sent from same origin generations before 1910? Table 2 presents regressions of the entrepreneurship ratios separately in 1910 and 2000 on explanatory variables intended to capture these effects. Neither GDP per capita (level of development), joint stock companies per head/rule of law (the institutions proxy), nor size of established migrant community is a statistically significant predictor of the entrepreneurship ratio. In 1850 the largest migrant group came from Ireland (unentrepreneurial in 1910) and the second largest from Germany (with a high entrepreneurial ratio in 1910).

Table 2 A Level Playing Field? Entrepreneurship ratios in 1910 and 2000; OLS regressions

	Indep. Var.	ln (GDP per cap), origin	Rule of law	JS Cos	ln (migrants 60 years earlier)	R^2	Observations
1910		0.011 (0.011)				0.06	N = 17 Ex China
2000		−0.002 (0.009)				0.003	N = 20 Inc China and Russia
1910				0.70 (1.90)		0.015	N = 11
2000			−0.004 (0.007)			0.02	N = 19
1910					0.001 (0.002)	0.03	N = 16
2000					−0.005 (0.004)	0.09	N = 20

Note: Standard errors in parentheses

Sources: GDP Maddison (2006). To obtain the GDP per capita for England and Scotland in 1910, Maddison data in 1913 for aggregate GDP level for the UK is used, together with the Frank Geary and Tom Stark (2002) result to calculate the proportion of GDP produced by England and Scotland. The two figures are combined to get the aggregate GDP levels for these two countries. Finally, the Maddison population data are used to derive the GDP per capita. For Cuba in 1910, the earliest available data is 1929. Because Mexico is similar to Cuba in growth and fluctuations, we derive the data for Cuba by analogy with Mexico. GDP per capita for Mexico in 1913 and 1929 does not change much. Hence, we assume GDP per capita for Cuba in 1913 is the same as 1929, i.e. 1639. For the group of Russian Empire and Poland in 1910, we take average of the two countries to get the GDP per capita for this group

JS Cos. Mainly Webb, A.D. (1911) *New Dictionary of Statistics*, Routledge; China, W. K. K. Chan, *Merchant, Mandarins, and Modern Enterprises in Late Ch'ing China,* p.181; Greece, 1900 ten SA companies in operation (A.Angelopoulos, *Soceiete Anonymes Companies in Greece*, Athens, 1928, in Greek). 1920 two hundred SA companies in operation.(G.Haritakis, *Economic Yearbook of Greece for 1929*, Athens, 1930, in Greek). Thanks to Kai Chan and Ioanna Pepelasis for these country sources

Rule of Law: Kaufmann et al. (2008). Migrants: IPUMSusa

At first sight a more significant result obtains for 'cultural convergence', an expected consequence of globalisation. Those countries—Germany is an illustrative case—with high entrepreneurship ratios in 1910 were likely to experience declines in 'entrepreneurial spirit' by 2000, while those with low ratios—such as Italy—probably exhibited a rise in entrepreneurial spirit. Figure 1 shows the change in the entrepreneurship ratio over the twentieth century on the vertical axis—so that a value less than unity indicates a decline—and on the horizontal axis, the initial (1910) level of entrepreneurship. On average those countries with ratios above 6% in 1910 had lower ratios in 2000, and conversely. The very large absolute value of the negative coefficient of the convergence equation implies that the ranking of entrepreneurial cultures will be reversed over the century. Either this is because of the impermanence of cultures, or, the interpretation preferred here, because of the limited nature of the ratio measure.

The origin groups that decline can be classified broadly as the western European core, and those that increase, the European periphery (Table 3). The rest of the world contributes the relatively stable group. If new immigrant groups in 1910 were more prone to entrepreneurship, then we should see convergence over the twentieth century with entrepreneur ratios falling (de-

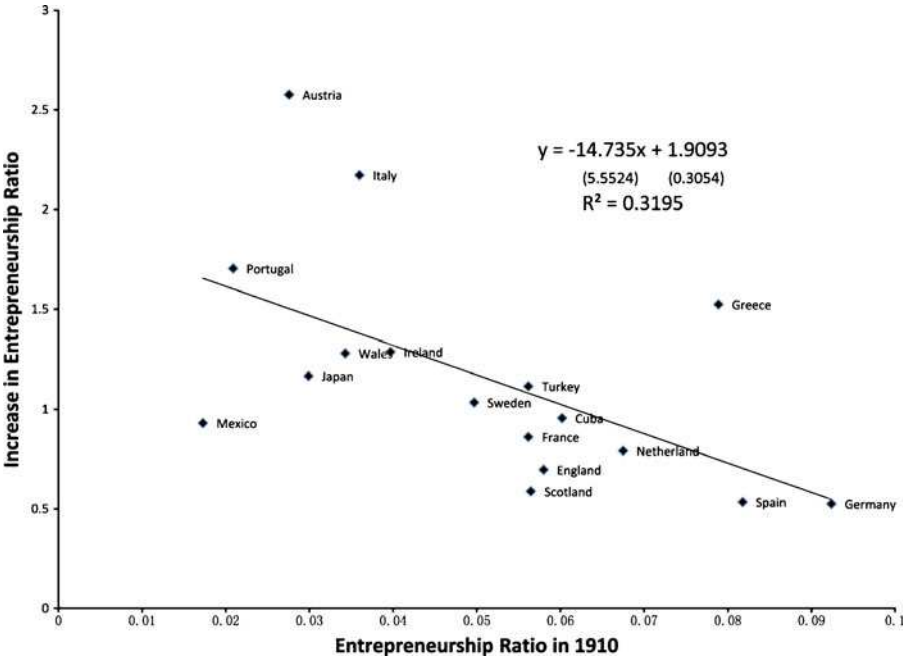

Fig. 1 Entrepreneurial cultural convergence 1910–2000. 'Entrepreneurship ratio' is the first measure of entrepreneurial culture as discussed in the text; the chances of an immigrant becoming an employer relative to other members of the immigrant group calculated as a relative frequency

Table 3 Entrepreneurial cultural change 1910–2000 (Ratio or Chances Measure)

	1910 Entrepreneurship Ratio	Change in Entrepreneurship Ratio 1910–2000	
Germany	0.0924	0.5246	'Decline of the Entrepreneurial Spirit'
Spain	0.0818	0.5342	
Scotland	0.0565	0.5876	
England	0.058	0.6965	
Netherland	0.0675	0.7911	
France	0.0562	0.8612	
Mexico	0.0173	0.9306	
Cuba	0.0602	0.9551	
Sweden	0.0497	1.0342	'Persistence of Entrepreneurial Culture'
Turkey	0.0562	1.1156	
Japan	0.0299	1.1672	
Wales	0.0343	1.2799	'Rise of the Entrepreneurial Spirit'
Ireland	0.0397	1.2871	
Greece	0.0789	1.5234	
Portugal	0.0209	1.7033	
Italy	0.036	2.1722	
Austria	0.0276	2.5761	

Note: An index of (approximately) one in the 'change' column indicates that there was no change in entrepreneurship chances or ratios between 1910 and 2000

pendent variables less than unity in Fig. 1) for the high ratio groups in 1910 and no significant change among established migrant groups (dependent variable = 1) or perhaps a slight rise. In fact around half the sample increased their entrepreneurial ratios over the twentieth century. They include the largest migrant group in 1850, the Irish, as well as 'new migrants' such as those from Greece and Italy who only began arriving in the decades immediately before the First World War. A possible reason for these changes is the inadequacy of the simple ratio as a measure of entrepreneurial culture. All three groups may have become more entrepreneurial as they accumulated wealth and education, without any change in underlying culture.

6.2 Entrepreneurial culture controls

This interpretation can be tested with the alternative measure of culture, which supposes that education, wealth and other variables that determine entrepreneurial behaviour, in practice are more influenced by institutions and chance than by culture. If so, a more accurate measure of entrepreneurial culture can be obtained by controlling for these and other variables as in Eq. 1. On this interpretation of culture, Fig. 1 does not show genuine cultural convergence but the impact of convergence of non-cultural influences upon entrepreneurial behaviour. We therefore estimate the (country-specific) culture effects as implied by Eq. 1, first describing the results for the controls estimated from logit equations (Table 4).

Table 4 Entrepreneurial culture controls 1910 and 2000: logit equations

Control Variable	1910 M.E.	2000 M.E.
Gender (male = 1)	0.0114	0.0131
	(.0015)	(.0004)
Marital Status (married = 1)	0.0145	0.0063
	(.0012)	(.0004)
6∼10 years in US	0.0078	0.0052
	(.0024)	(.0008)
11∼15 years in US	0.0157	0.0083
	(.0035)	(.0009)
16∼20 years in US	0.0127	0.0091
	(.0029)	(.001)
21+ years in US	0.0148	0.0057
	(.0027)	(.0007)
Naturalization	0.0160	0.0033
	(.0017)	(.0004)
Education (literacy)	0.0106	NA
	(.0014)	NA
Education (grade 1∼12)	NA	0.0003
	NA	(.0009)
Education (1 to 3 years of college)	NA	0.0037
	NA	(.0011)
Education (4+ years of college)	NA	0.0075
	NA	(.0012)
English speaking	0.0143	0.0049
	(.0013)	(.0006)
Construction	0.0774	0.0457
	(.0126)	(.0100)
Manufacturing, durables	0.0107	−0.0064
	(.0047)	(.0028)
Manufacturing, nondurables	0.0354	−0.0021
	(.0068)	(.0034)
Transportation, communication, and other utilities	0.0075	0.0102
	(.0049)	(.0053)
Wholesale and retail trade	0.1994	0.0286
	(.0216)	(.0064)
Finance, insurance, real estate, business and repair services	0.1017	0.0280
	(.0187)	(.0073)
Personal, entertainment, and recreation services	0.1058	0.0050
	(.0145)	(.0041)
Age	0.0023	0.0020
	(.0002)	(.0001)
Age squared	−0.0000	−0.0000
	(.0000)	(.0000)
Own property	0.0160	0.0108
	(.0013)	(.0004)
Pseudo-R^2	0.2542	0.1229
Log likelihood	−9189	−66997
Number of observations	52890	499072

Note: Estimated on 5% US Census sample (IPUMSusa). ME = marginal effect or for discrete variables $\Pr(Y = 1|X = 1) - \Pr(Y = 1|X = 0)$. Standard errors in parentheses. Industry base case is mining. Full age squared coefficients are −0.0000196 for 1910 and −0.0000156 for 2000

Property ownership in 1910 raised the chances of being an employer by 1.6 percentage points, by the same percentage as naturalisation and residence in the US for more than 10 years (there is not much evidence of increasing effects beyond a decade). Age increased the chances of becoming an employer up to 57 years old. The rise in probability between the ages of 30 and 60 was about 1.5 percentage points. Being male in 1910 added 1.1% to the likelihood of entrepreneurship, while literacy and the ability to speak English contributed 1.1 and 1.4 percentage points respectively.

These are contributors to the supply of entrepreneurs. On the demand side or entrepreneurial opportunities, in 1910 unsurprisingly the sector with the lowest entry barrier for entrepreneurship was the wholesale and retail trade (relative to the base case of mining). Finance, real estate and personal and professional services came second in raising the chances of entrepreneurship. Construction was the third easiest sector for new entry. Manufacturing was little better than mining (the base case), and transport, communication and other utilities was not significantly different from mining.

Ninety years later the marginal effects of the entrepreneurial supply variables were rather smaller in general than in 1910. In part this is because the general propensity for entrepreneurship had fallen and perhaps also because of the greater abundance of human capital. Table 4 shows that being male increased entrepreneurial chances by 1.3% in 2000, unusually rather more than in 1910. The impact of marriage on the probability of entrepreneurship more than halved between the 2 years.

Age at which chances of entrepreneurship were maximised rose to almost 65, probably reflecting greater life expectation. Length of residence in the US for maximum likelihood of entrepreneurship increased to 16–20 years in 2000. Property ownership raised the likelihood by 1.1 percentage points in the later year, compared with 1.6 percentage points 90 years earlier, possibly because credit arrangements became easier. Education variables at the later date replace 'literacy' in 2000 and so are not directly comparable, but college education increased entrepreneurial chances. Changes in technology enhanced the attractiveness of the transport, communication and other utilities sector for start-up businesses. Organisational changes may well have been responsible for the opposite effect in Personal, Recreational and Professional Services.

Some of these results for the year 2000 can be compared with those of three other studies of about the same time but using different data sets and specifications. Grilo and Irigoyen (2006) use a Eurobarometer survey on entrepreneurship conducted during September/October 2000 on a random sample from the 15 Member States and the US, covering approximately 8,500 respondents. Blanchflower et al. (2001) analyse an International Social Survey Programme sample of 25000 individuals across 23 nations interviewed in 1997 and 1998. Lofstrom (2002) explores a very large US census sample of migrants and natives for 1980 and 1990, confined to males.

The strong male gender effect on entrepreneurship of the present study therefore can only be compared to Blanchflower et al. (2001) where there is a

similar impact and to Grilo and Irigoyen (2006), where there is not. Our finding of a positive higher education effect appears to contradict Blanchflower et al. but is consistent with the results of Grilo and Irigoyen, and of Lofstrom. A positive age effect on entrepreneurship is common to all studies including the present one, and Lofstrom also finds the diminishing positive impact that we do. Entrepreneurship chances increase with years since immigrant arrival and decrease with ignorance of English language in Lofstrom's model, in a similar fashion to the findings of the present paper. In addition, Siqueira's (2007) analysis of the US 2000 census for Brazilian immigrants finds that being married increases the chances of owning their own business, as does the present study of a wider sample of migrants.

6.3 Conditional entrepreneurial culture effects

From the same logit equations above, we take the country of origin coefficients of Table 5. At the 5% probability we cannot reject a zero 'controlled' entrepreneurial culture effect for the heterogeneous group of Portugal, Netherlands, Scotland, France, Germany, Austria, Mexico, Japan and Cuba in 1910 according to the LR test (not shown) (Table 5). In the 'above average' entrepreneurship groups, we note that China was subject to restrictions which would enhance entrepreneurship in the US, and that the Russia-originating migrants were predominantly Jews. This leaves persons originating from Greece, Spain, Turkey and Italy in that order as disproportionately entrepreneurial, other things being equal, in 1910 (excluding Cuba because the coefficient is not significantly different from zero).[12] At the other end of the scale Ireland provided disproportionately the most unentrepreneurial types, controlling for other influences, followed by Sweden and then England. All three were below the group average.

In 2000 Jews (persons from Israel), migrants from Greece and Turkey, and Italy are among the most entrepreneurial, consistent with some cultural persistence (Table 5). Cuba joins the entrepreneurial group as does (a smaller) Austria. England remains significantly unentrepreneurial, now linked with Japan, Germany, Scotland, Portugal and Mexico.[13] Ireland has left the unentrepreneurial category—judging by an LR test, and China has not quite entered it, on the same criterion. For seven origins (France, Ireland, Netherlands, Russia, China, Sweden and Spain) the hypothesis of no distinctive cultural effect cannot be rejected. In short some countries, both entrepreneurial and unentrepeneurial, show cultural persistence over the twentieth century, others experienced cultural change.

[12] Compare the relatively high preference for self-employment of Greek, Irish, Italian and Portuguese nationals found in 2000 by Grilo and Irigoyen (2006).

[13] Grebler et al. (1970, p216) comment 'One can only speculate about the reasons why so relatively few Mexican-Americans have moved into business occupations.'

Table 5 Ranked entrepreneurship logit origin country effects

Country of origin	1910 M.E.	Country of origin	2000 M.E.
Greece	0.1169	Israel	0.0259
Spain	0.0526	Greece	0.0204
Turkey	0.0524	Syria and Lebanon	0.0179
China	0.0362	Turkey	0.0110
Russian Empire and Poland	0.0244	Austria	0.0059
Cuba	0.0202	Italy	0.0059
Japan	0.0172	Sweden	0.0050
Italy	0.0124	Cuba	0.0025
Mexico	0.0046	France	0.0021
Austria	0.0017	Russia	0.0003
Germany	0.0008	Spain	0.0003
France	−0.0013	Netherlands	0.0000
Scotland	−0.0026	Ireland	−0.0004
Netherlands	−0.0029	China	−0.0009
England	−0.0043	Japan	−0.0026
Sweden	−0.0067	Germany	−0.0033
Portugal	−0.0068	England	−0.0034
Ireland	−0.0103	Portugal	−0.0062
Syria and Lebanon	NA	Scotland	−0.0078
Israel	NA	Mexico	−0.0156

Note: Coefficients from logit equations in Table 4. ME; for these discrete variables $\Pr(Y = 1 \mid X = 1) - \Pr(Y = 1 \mid X = 0)$ where X is an independent variable and Y a dependent variable

Figure 2 plots these logit culture coefficients, with the vertical axis measuring the change (ratio) of the coefficients between 1910 and 2000 against a horizontal axis of the 1910 coefficient. Negative cultural coefficients (adverse entrepreneurial cultures) in 1910 are associated with a rise (increasing 'entrepreneurial spirit') over the twentieth century and positive coefficients are linked with a fall. The closer fit of the regression line ($R^2 = 0.91$ compared with 0.32) shows that controlled (or conditional) entrepreneurial cultural convergence is more apparent than is convergence with the unadjusted measure.

A 'convergence coefficient' of 0.817 with a standard error of 0.06 indicates that the coefficient is significantly less than one, and there is some cultural persistence over the century. Even when the Greek origin outlier in 1910 is removed, the explained variation of the convergence equation is still 78% and the coefficient is 0.81. Persistence was sufficiently strong that origins revealing a 'decline in entrepreneurial spirit' were nonetheless often among the most entrepreneurial at both dates—Greece, Turkey and Italy are cases in point (Table 6). Conversely some of those with a 'rise in entrepreneurial spirit' are among the least entrepreneurial at both dates—England for instance.

To summarise, migrants from Greece, Turkey and Italy, along with Jews (if the identification for 1910 is accepted) exhibit strong and deeply embedded entrepreneurial traits. But in some obvious cases also the culture has changed; the shift in Ireland towards entrepreneurship for instance is consistent with the extraordinary economic growth spurt at the end of the twentieth century

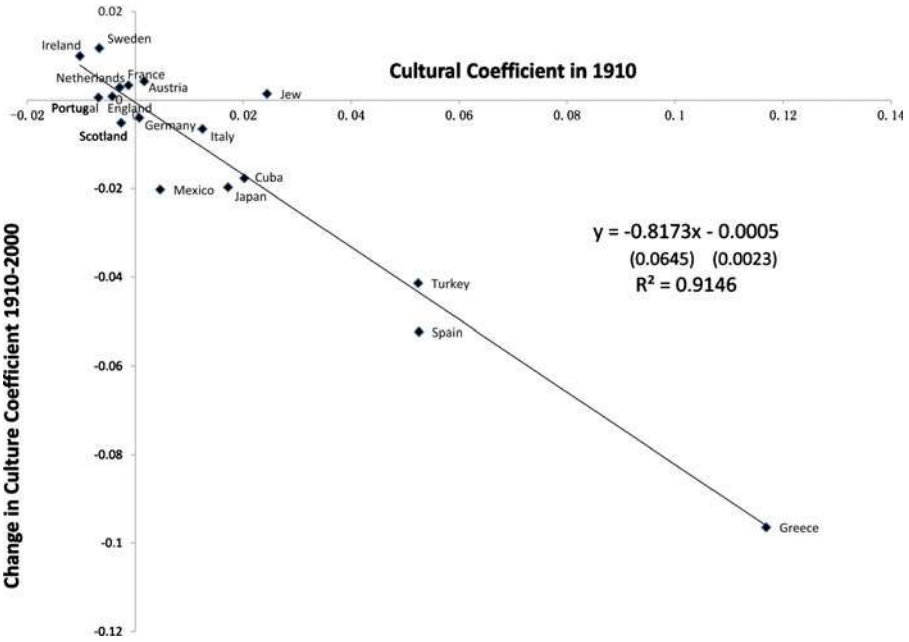

Fig. 2 'Controlled' entrepreneurial cultural convergence 1910–2000. Coefficients in the figure are 'marginal effects' obtained from logit regressions reported in Table 5. The controls are shown in Table 4

(Barry 1999). From the pattern of country entrepreneurship it is impossible to discern any sign of a Protestant-Catholic divide that might be suggested by an interpretation of Weber's (1905) thesis. Nor does North-Western Europe, where modern economic growth originated, reveal any strong entrepreneurial cultures.

It is not possible to estimate the impact of culture on entrepreneurial behaviour in the present sample at the same time as origin country institutions or GDP/level of development, because in the cross-section the measures are perfectly collinear.[14] But if the indices of entrepreneurial culture were erroneously reflecting these other influences they should be correlated, which, with one exception, they are not. In fact 'push' factors, insofar as they are measured by the institutional variables, rule of law for the 2000 sample and

[14]Where Y is the probability of entrepreneurship, X_i are country or origin dummies and Z is the level of development of the origin countries:

$$Y = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + \ldots + bZ + e \quad \text{(i)}$$

Z is defined as

$$Z = c_1X_1 + c_2X_2 + c_3X_3 + c_4X_4 + \ldots \quad \text{(ii)}$$

where c_i are the relative level of development of each country. Therefore Z is a linear combination of the country dummies explaining Y and will be perfectly collinear with them.

Table 6 Entrepreneurial cultural change 1910–2000 (marginal effects)

Country	Origin country effect 1910	Change in entrepreneurial culture marginal effect 1910–2000
Greece	0.1169	−0.0965
Spain	0.0525	−0.0523
Turkey	0.0524	−0.0414
Mexico	0.0046	−0.0203
Japan	0.0172	−0.0197
Cuba	0.0202	−0.0177
Italy	0.0124	−0.0065
Scotland	−0.0026	−0.0052
Germany	0.0007	−0.0040
Portugal	−0.0068	0.0006
England	−0.0042	0.0008
Jew (Russian Empire and Poland 1910; Israel 2000)	0.0244	0.0014
Netherlands	−0.0029	0.0029
France	−0.0012	0.0033
Austria	0.0017	0.0042
Ireland	−0.0103	0.0099
Sweden	−0.0067	0.0117

Note: Calculated from Table 5

joint stock companies per head for 1910, were nowhere near statistically significant in a regression with the entrepreneurial culture logit-based measure as dependent variable. Nor was origin country GDP per capita a significantly predictor of entrepreneurial culture coefficients for 2000. But at the 5% level GDP is significant for the 1910 coefficients (Table 7).[15]

The 1910 experience most probably reflects the pattern of 'new' immigration from poorer countries and perhaps market discrimination, because the log of migrant numbers 60 years earlier was an even more significant negative predictor, with a t ratio of about 3. That is, 'pioneer' migrants from poorer countries were more likely to be entrepreneurial in 1910 once their other characteristics such as age, experience and linguistic skills are controlled. But this relation does not persist in the year 2000 in the present sample when the migrants are no longer 'pioneers'.

New immigrant groups; those from Greece, Turkey and Japan especially, but also elsewhere in Southern and Eastern Europe—may therefore have upward biased entrepreneurial coefficients in 1910 but not in 2000. A quantitative test of persistence may need to correct downwards some coefficients (those of the new immigrant groups) in 1910 before comparing them with 2000 coefficients. On the other hand the old immigrant countries coefficients should be more satisfactory for the cross-twentieth century comparison.

[15]China is excluded from the 1910 sample in the estimates of Table 7 because of the filter of legislation on Chinese migration.

Table 7 A level playing field

Indep. var.	ln (GDP per cap), origin	Rule of law	JS Cos.	ln (migrants 60 years earlier)	R^2	Observations
1910	−0.03 (0.015)				0.26	N = 17 Ex China
2000	−0.001 (0.003)				0.005	N = 20
1910			−0.04 (0.03)		0.17	N = 11 Ex China
2000		−0.0009 (0.002)			0.008	N = 20
1910				−0.016 (0.005)	0.39	N = 17 Ex China
2000				0.0026 (0.003)	0.03	N = 19 Ex Israel

Note: Entrepreneurial ratio logit coefficients as OLS regression dependent variable. Dependent variables are the coefficients from Table 5. Standard errors in parentheses
Sources: see Table 2

Most cultures that appeared highly entrepreneurial in the first year remain so in the second year when migrant stock effects must have worn off. Most of their entrepreneurial propensities in 1910 cannot be attributed to the circumstances of the groups, because these groups remained highly entrepreneurial long after any effect of being new to the United States must have disappeared. Conversely much of Northwestern Europe stays relatively unentrepreneurial in the second year, as it was in the first.

7 Conclusion

The analysis has employed two alternative measures of entrepreneurial culture, unconditional and conditional entrepreneurship chances. The simple unconditional or ratio measure has the merit of simplicity but does not take into account the role of institutions and accident in creating the possibilities for entrepreneurship. Migrants from some origin countries were less likely than others to be literate or English-speaking at the beginning of the twentieth century. Such individuals might be less entrepreneurial because of these attributes acquired by historical accident, whereas purely for cultural reasons they may be more entrepreneurial than some who were literate. The rise of Italian and Greek ratios over the twentieth century can be explained in these terms.

The second, conditional, measure is the chance of becoming an employer, holding constant a range of other influences on the outcome. This variable assumes that for instance wealth and literacy are independent of culture as far as occupational choice is concerned. Greater persistence of this measure over the twentieth century indicates that it captures a more useful trait than the ratio (or unconditional) indicator of entrepreneurial culture.

Entrepreneurial cultures made a difference; migrants from some origins were significantly more entrepreneurial than others and most of these differences cannot be attributed to anything other than this culture. Table 5 showed that the difference between the most entrepreneurial (Israel) and

the least entrepreneurial (Mexico) cultures in the US sample of the year 2000 amounted to about 4 percentage points. This variation is greater than the 3.3% average chance of entrepreneurship of the sample (Table 1). Some entrepreneurial cultures also clearly persisted over the twentieth century, although for many origins they changed substantially.

The strongest entrepreneurial cultures were exhibited by those originating from the Middle East, Greece and Turkey, while some additional historical material is necessary to establish who these people were. Consistent with a version of the 'cultural critique', the English were persistently prone to less entrepreneurship than most other US immigrant groups, once controls for other entrepreneurship influences are included. With the sample available it is impossible to distinguish definitively whether English twentieth century culture was a result of a shift in the later nineteenth century (as Wiener (1981) contended) or was comparable with that of the entire nineteenth century and earlier. However persistence over the turbulent twentieth century might be taken plausibly to imply durability over the less traumatic long nineteenth century as well. Which alternative is appropriate has a bearing on how much entrepreneurial cultures matter for economic development. If the 'First Industrial Nation' rose to economic prominence with a rather unentrepreneurial culture, entrepreneurial cultures may be dispensable.

That the Dutch, whose seventeenth century economic pre-eminence was no less remarkable than the later British performance, were consistently only about averagely entrepreneurial, is also compatible with the dispensability of entrepreneurial cultures. No less superfluous is the doctrine that the (predominant in the Netherlands) Protestant religion encouraged entrepreneurship. Conversely, the idea that 'Catholic culture' was inimical to economic development is not born out in the twentieth century by the sustained entrepreneurship of Cubans and Italians in the United States.

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