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## Economic Culture and Economic Performance: What Light Is Shed on the Continent’s Problem?

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Enlightenment thinkers, from Smith and Hume on to Kant and de Tocqueville, all took it for granted that a society’s culture – the people’s values, attitudes, morals and beliefs, many of them learned at their mother’s knee – mattered for the effectiveness of business life and, more broadly, the realization of the society’s potential. The Enlightenment is often caricatured as the doctrine that a society eschewing superstition and taboos and embracing reason and individual opportunity will with time attain perfection of its possibilities. Notwithstanding various dissenters, including Marx, who took culture to be a function of the economy’s structure rather than the reverse, the Enlightenment view on the influence of a nation’s culture remained prevalent right through the “Protestant ethic” in Weber (1905) and the “entrepreneurial spirit” in Schumpeter (1911). One could imagine their running regressions of inter-country differences in economic performance on differences in the culture, particularly the economic culture.

By the middle of the 20<sup>th</sup> century moral relativism had taken over. Most anthropologists and many other social scientists were disinclined to evaluate contrasting national cultures, seemingly believing that every nation finds its way to the culture that is best for it. Hence a society’s culture might have a downside in its ill-effects on its economy yet the cost would be compensated by benefits in other directions. So it would be valueless and perhaps politically incorrect to run those regressions. Nevertheless, a push back against such relativism soon began. Ruth Benedict wrote that some cultures may be better or worse than others. Several works reestablished culture as a causal force that makes markets work better: Banfield on trust (1958), Titmuss on gifts (1970), the Russell Sage conference on altruism (Phelps, 1973), and Putnam on civic virtue (1993). It is plausible again to run those regressions.

The debate over economic performance in continental Europe may prove to be a testing ground for the view that culture matters – some elements of it at any rate – for a society’s results. As is increasingly admitted, the performance characteristics – one might say the specifications – of the national economy in

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nearly every Continental country are poor compared to most performance characteristics in the U.S. and a few other comparators. (Productivity in the Big 3 – Germany, France and Italy – stopped catching up with U.S. productivity in the early 1990s, then lost ground in the recent slowdowns and the U.S. speed-up; unemployment rates, which were declining, are again far higher than those in the U.S., U.K., Ireland, etc.). However, the crucial point is not that the Continent’s economic systems are inferior to those of some comparators but rather the nagging sense of falling short – of *structural underperformance*. In my view, the Continental economies had started to be under-performers in the interwar period and remained so, with corrective steps here and further missteps there, from the postwar decades onward; but the structural shortfall was masked during the “glorious years” when rapid growth and high employment was stimulated by the low-hanging fruit of unexploited technologies used overseas and further powered by Europeans’ efforts to claw back the wealth they had lost in the war years.

Many analyses, looking beyond market forces (such as the rather important influence of demographic prospects), attribute the Continent’s tendency toward relatively high unemployment and low participation, if not the lower productivity, to the Continent’s *social model*. Yet this explanation has not had entirely clear sailing.<sup>1</sup> One could as easily bring up the *political model*. The Continent’s historic struggle between left and right may create uncertainty for those investing or innovating on the Continent. The rule of law, or procedural justice, has received much attention ever since Smith and North. But the nations on the Continent are not a bunch of banana republics. It is not clear that they are behind their comparators in constitutional protections, property rights, anti-trust, law enforcement and judiciary independence. (Some would put interventionism in economic policy, such as that typical of corporatist economies, under the heading of property rights violations; but this paper regards that as part of the economic system.)

My thesis for several years has been that it is the *economic model* that largely accounts – more, at any rate, than the other models do – for the Continent’s inability to match the economic performance of the U.S. and in some respects that of other comparators.<sup>2</sup> But what is the “economic” model – in other words, what is the “economy”? At first, like others, I meant the *economic system*, i.e., the system of *economic institutions* in the capital, labor and product markets. In arguing my thesis I pointed to the strength on the

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<sup>1</sup> Yet, theoretically, welfare entitlements could be largely neutral for activity. When paychecks are driven down by the social charges, saving and ultimately the stock of private wealth is driven down too; and these two forces work in opposing directions, the one reducing work and the other increasing it. (See Hoon (2006).) In fact, employment in the U.K. and Ireland have been strong in spite of their large welfare outlays.

<sup>2</sup> Research in the late 1990s compared the breadth of institutions in boomers with that in non-boomers (Phelps, 2000). Most of the early ideas were ultimately published in book form in my *Enterprise and Inclusion in the Italian Economy* (2002). Subsequently, economic institutions were used to explain inter-country differences in the levels of structural performance characteristics, such as productivity and male participation rate, in Phelps and Zoega (2001), Phelps (2003) and Phelps and Zoega (2004).

Continent of institutions understood to be bad, such as employment protection legislation and bureaucratic “red tape,” and to the weakness of institutions understood to be good, such as a well-functioning stock market and ample liberal-arts education. Important modeling and testing was done both before and after my work by Aghion and Howitt (1993, 2005).

This line of analysis is of limited generality, though. To justify regressing performance on institutions one might posit that institutions are sprinkled over countries as an experimental agronomist might sprinkle trial fertilizers over various plots of land. A lecture of mine (2003bis) and a book by Eggertsson (2005) discuss why country might go on with one or more “inefficient” institutions – out of ignorance of how badly the system has functioned and difficulties of statistical inference about individual institutions.<sup>3</sup> But it may be that countries have differing institutions because they have different economic cultures causing them to prefer different systems of institutions. Then a country’s economic institutions are *proxies* to some unknown extent for the prevailing culture. In that case, the prevailing set of institutions might not be alterable as long as the culture is unchanged.

The purely institutional regression is worse yet if the cultural elements have *direct* effects on performance – on top of their *indirect* effects through the institutions they foster. In that case the inhibiting values, attitudes, etc. are analogous to institutions that deter or bar good performance and the empowering values, attitudes, etc. are analogous to institutions that foster and enable good performance. So they are in a sense as much a part of the “economy” and the “economic system” as the institutions (in the narrow sense). It is clear that a regression that omits a huge part of the system that the economy is composed of is extremely unreliable. To credit an institution with some estimated effectiveness when the cultural variable are omitted is to risk attributing to it the direct benefits of the cultural influences traits that caused the institution to be built.

Of course, any program to explain inter-country differences by appeal to differences in cultural influences would be incomprehensible from the standpoint of neoclassical or neo-neoclassical theory. The Arrow-Debreu equations have no cultural elements – and not any economic institutions either, other than private ownership. It follows that a rationale for cultural effects, if found, must go outside the neoclassical paradigm to recognize entrepreneurship, management, engaging jobs, learning and personal growth, team players – thus Knightian uncertainty and creativity as well as imperfect information. Elsewhere I have stressed the importance of “dynamism” for the performance of a market economy, which I will compress here. (These thoughts suggest that in an economy where entrepreneurial activity is important, the culture of the people available for work is analogous also to their “know-how”: just as a stage and a hall will not “work” if the assembled players have not acquired the

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<sup>3</sup> Phelps (2003b) and Eggertsson, *Inefficient Institutions*, (2005).

ability to act and interact, so the plant and hardware of an entrepreneurial company will not “work” if the personnel is unwilling or unhappy to be organized and to organize themselves as a team.)

This paper, then, will explore for effects of several cultural values, attitudes, etc. on some of the main dimensions of economic performance.

### 1. Cultural Influences on Performance – A Conceptual Frame

If we are to obtain estimates of the performance effects of national cultural attributes that have any claim to reliability and interpretability we had better base our investigation on some conceptual framework, however informally formulated it may be – rather than try whatever off-the-shelf variables are at hand. This appears to require some notion of what a system of economic institutions and economic culture *is* in view of *economic change* and particularly the *processes* of *innovation*, their benefits and drawbacks, and their consequences for the main indicators, economic growth and prosperity. The neoclassical framework, with its premise of perfect knowledge and perfect coordination, is too narrow for much understanding of under-performance and the possible role that institutions and culture may play in it; so we want to go beyond neoclassical economics.

Contrary to myth, what we commonly call the West is *not* polar with respect to the character of its economies, with the so-called “Anglo-Saxon” economies all operating on the system called capitalism, with or without an accompanying welfare state, and all the Continental economies operating on the system called corporatist, social-market or Rhenish. Denmark’s economy is thought to be different in some way and Italy’s is surely more industrious than most of the Anglo-Saxon economies. The Nordic nations, from Finland to Iceland, do not fit neatly into either category. Nevertheless, there is some utility in considering two *extremes* – two *ideal types* – each of which resonates somewhat with one or more actual economies in the West.

At one extreme we have a private-ownership system structured for cutting-edge innovation. It is *fertile* in coming up with innovative ideas with prospects of profitability; *shrewd* and *adept* in selecting among these ideas for development; finally, *prepared* and *venturesome* in evaluating and trying the new products and methods that are brought out. A *semi-classical* theory of innovation began with Schumpeter (1911). Saving is allocated to developing entrepreneurs’ proposed “innovations” only to the extent that there are businessmen around with the *initiative* to “seize the moment” and the *leadership* to “get it done.”<sup>4</sup> The *modern* theory of such dynamism – and the case for adopting such a system – began in the mid-’30s with Hayek (1948). 1<sup>st</sup>, virtually every employee down to the humblest worker has arcane “know-how,” some of it what Michael Polanyi called “personal knowledge,” and out

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<sup>4</sup> In Schumpeter’s model, the entrepreneurial ideas are always “in the air” so it was more a matter of the right entrepreneur being in the right place and the right time than it is a matter of his/her creativity.

of that know-how a new idea may come that few others, if any, would have.<sup>5</sup> With openness to commercial ideas and acceptance of the entrepreneurs who develop them, a plethora of new ideas may be generated. 2<sup>nd</sup>, the pluralism of experience and knowledge that the financiers bring to bear in their decisions gives a wide range of entrepreneurial ideas a chance of an informed, insightful evaluation. And, importantly, the financier and the entrepreneur do not need the approval of the state or of social partners. Nor are they accountable later on to such a social body if the project goes badly, not even to the financier's investors. So projects can be undertaken that would be too opaque and uncertain for the state or social partners to endorse. 3<sup>rd</sup>, the pluralism of knowledge and experience that managers and consumers bring to bear in deciding which innovations to try and which of those to adopt is crucial in encouraging entrepreneurs to conceive new ideas and financiers to back them.

At the other extreme we have a private-ownership system that has been profoundly modified by the introduction of additional institutions. These include the massive components of the corporatist system of interwar Italy – big employer confederations, big unions and big banks. On its face, the system operates to discourage or bar many entrepreneurial projects, particularly start-ups. For its “innovations” – most of them not world-class, not “cutting edge,” but rather *adaptations* of products and methods recently introduced abroad – the system depends more on established companies in cooperation with local and national banks. For what it lacks in entrepreneurship it tries to compensate with technological sophistication and increased coordination. Where the former system allows any number of versions of a new product or method to be developed and launched, this latter system convenes experts to set a product standard before any version is launched. To what end this system? What is the theory? 1<sup>st</sup>, there is the solidarist aim of protecting the “social partners” – communities and regions, business owners, organized labor and the professions – from disruptive market forces; also, the consensualist aim of blocking business initiatives that lack the consent of the “stakeholders” – those with a stake besides the owners, such as employees, customer and rival companies. 2<sup>nd</sup>, elevating community, society and being over individual engagement and personal growth appeals to anti-materialist and egalitarian strains in West culture. 3<sup>rd</sup>, there is the “scientism” that holds that such a system can be *more* dynamic than the former system – maybe not more fertile in little ideas, such as might come to petit bourgeois entrepreneurs, but certainly in big ideas. Not having to fear fluid market conditions, an entrenched firm can afford to develop expensive innovations based on current or developable technologies. And with confederations of firms and state mediation available, such firms could arrange to avoid costly duplication of their investments. The state for its part could promote technological advances in cooperation with industry by harnessing the society

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<sup>5</sup> A column in the Wall Street Journal told of a deliveryman who was asked whether he found it best to work from the top floor down or the reverse. “It depends on the time of day,” he replied. A perfect Hayekian moment.

collective knowledge. The state could indicate new economic directions and favor some investments over others through its instrument, the big banks.

The impetus for this paper has been the intuition that several countries on the Continent – among them Germany, Italy and France – had and still have a culture that led them to evolve and retain systems of institutions that (in most or all respects) are much closer to the latter extreme than are the systems that the culture of the U. S., the U.K. and Canada led them to evolve and retain. It may be that, with their culture attitudes, the former system was abhorrent to them. Or it may be that they thought that their culture would ill-equip them to do well with the former system. Or, conceivably, their culture might predispose them against dynamist behavior *whatever* system they adopted. So it is of more than minor interest that there is evidence, shown in Appendix 2, in support of that intuition: Germany, Italy and France appear to generate less dynamism than do the Anglo-Nordic nations: notably, fewer firms able to break into the top ranks and fewer jobs offering freedom in decision-making. (See Table 1 of *Appendix 2*.) It further appears that Germany, Italy and France as a whole have *worse performance indicators*: not only lower productivity and labor compensation – in the latter contest, U.S. handily beats France, Canada almost ties Germany, and U.K. beats Italy – but also worse rates of labor force participation and unemployment. (See Table 2 of *Appendix 2*.) Nevertheless, dynamism is not the *sole* determinant of economic performance. Industrial composition is obviously important for aggregate performance indicators. A long-time thesis of mine is that attained wealth normalized by productivity has ill-effects on many indicators. Some results here suggest that how a society and its companies *cope* with the changes wrought by the dynamism around them matters a lot. So in this first exploration I will take the expedient course of testing for relationships between performance indicators and culture – not testing whether culture impacts on dynamism and dynamism on performance.

What, in view of the above, are the presumably *pertinent* cultural values, attitudes, ethics and beliefs in each economically advanced country in the OECD – in the available data set? And do the inter-country differences among them appear to play a role in causing inter-country differences in economic performance? The cultural data in this paper are limited to those calculated from underlying data (on the individual respondents' answers) contained in *World Values Surveys*, which, though providing a wealth of data, is not nearly as wide-ranging as we would like. A quick perusal (by disinterested research assistants!) of the 1990-93 surveys has served to focus my thinking around the data that are available.

At first, I found myself defining four *dimensions* of culture and looking for *Survey* questions that would serve to characterize each country's culture in every one of the four dimensions. The mean of the *individual* responses in a country to a *Survey* question about values, attitudes etc. would be the *national*

indicator locating the country with respect to *that question* in the dimension to which the question belonged; another *Survey* question in that dimension, if such was found, would provide another national indicator in the same dimension; and so forth. Then these indicators could be averaged to yield an *index* of the nation's scores in that dimension. In the end, though, I decided to let the national mean response to each cultural question used stand alone rather than to average them into some index of indicators.

One dimension has, as I would put it, Stimulation/ Engagement/Mastery/ Development at one end and, at the other, Being/Identity. (I think of this cultural dimension as the Wm. James/H. Bergson dimension.) One national indicator calculable from the underlying *Survey* data that belongs more clearly in this dimension than in the other dimensions gets at the centrality of jobholding in the culture of the country. This indicator, labeled Importance, measures the response to the question "Is your job the most important thing in your life?" (c046 in the *Surveys* codes<sup>6</sup>). Other national indicators that clearly belong to this dimension are calculated from responses to questions asking respondents what they look for in a job. One of these indicators, Involvement (c031), measures the respondents' reported pride in their work. A second, Interestingness (c020), measures the preference for an interesting job. A third, Achievement (c018), measures the preference to "achieve something." (This may be too vague or broad to be useful. All manner of employees may want to achieve "something": making shoes or building bridges or winning promotions; it need not mean creating a new idea or a new firm.)

The second dimension has at one end Loyalty/Dutifulness/Altruism and at the other end Practicality/Opportunism/Egoism. (This is Plato's debate between Socrates's responsibility and Thrasymachus's unalloyed self-interest.) The sole indicator from the *Surveys* that appears to belong in this dimension is Willingness to Follow Orders (c061). I owe my awareness of this hypothesis to Angelo Airaghi, senior vice-president for strategy at Finmecannica (and a close friend of mine). He once commented to me that in his observations over a long career, much of it in Japan and in the United States, if he had to place the U.S. on a spectrum with the company men of Japan at one extreme and the everyone-for-himself Italians at the other, the Americans would be 90 per cent of the way toward the Japanese. (I was surprised but came to take it seriously.)

The third dimension has at one end Individualism/Pluralism/Tolerance and at the other Solidarity/Conformity/Unanimitarianism/Envy. (I think of this as the Kantian dimension.) Here there is an indicator, Acceptance of Competition (e039), calculated from responses to a question of whether the respondent is positive or negative about competition). A *Survey* question on the attitude toward foreigners had a low response rate and was not successful.

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<sup>6</sup> The code in parentheses reflects the encoding system used in the consolidated database of *World Value Surveys 1981 – 2004*.

Another indicator, Efficiency-Fairness (c059), which came from a question asking whether it would be fair that a secretary who could do twice the work as another would earn twice as much, was such a failure that it was dropped.

The fourth dimension has at one end Initiative/Venturesomeness/Experimentalism and at the other end Passivity/Tradition. (In their different ways Schumpeter and Hayek conceived this dimension.) Culture indicators in the *Surveys* that fit here are Desire for Freedom in Decision Making and thus possibly, freedom to lead – henceforth, Freedom in Decisions (e053), Preference for New Ideas over Old Ideas (e046), Self-Confidence (e048), Acceptance of Changes (e047), and Initiative at Work (c016). This last may work poorly or perversely if a strongly positive response goes hand in hand with scientism – with a national reliance on state coordination of collective knowledge rather than on entrepreneurs and financiers.

Other dimensions were conceived but indicators to implement them did not appear to be available from *Surveys*. One was Populism/Mass Protest versus Liberalism. Another was top-down Scientism versus Hayek’s bottom-up Organic Growth of Knowledge.

Of course, various other observations and polls might also be used to obtain proxies for popular attitudes. For the present paper, though, it appears sufficient to make do with the data available in *Surveys*.

## 2. Cultural Influences – Some Statistical Tests

Tables 1 to 5 report the estimated effects of our selected cultural variables on five standard economic indicators: male labor force participation, the activity rate (also known as the employment rate), employment in percent of the labor force and two measures of labor productivity. In each table, Model 1 focuses on the 10 culture variables. To have a sort of benchmark with which to compare the significance of the culture variables the tables next focus in Model 2 on a set of ‘traditional’ explanatory variables. Model 3 combines the set of culture and traditional variables. Models 4 and 5 are narrowed to those culture variables that were significant in Model 3. (Some of the traditional variables that were far from significant were also omitted.) In Models 1 to 4, the tables present both the Ordinary Least Square (OLS) estimates and the more realistic Generalized Least Squares (GLS) estimates with White standard errors. These regressions “pool” data from 1996, 1999, 2002 and 2005. The estimation in Model 5 takes into account *both* the variation over time in each country *and* the variation across countries at each time.<sup>7</sup> The following paragraphs discuss the empirical results for each measure of economic performance.

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<sup>7</sup> The Hausman test rejects the null hypothesis of systematic differences between the fixed effects and random effects estimates. So the random effects estimates are consistent and efficient. Accordingly the tables report the random effects specification. Appendix A contains more details on the estimation methodology as well as the data sources.



*Male participation rate.* Table 1 shows under Model 1 the pooled regressions on the cultural variables using OLS and GLS. In the GLS regression, Acceptance of New Ideas (e046), Acceptance of Competition (e039) and Interestingness of Work (c020) are all significant. Achievement-mindedness (c018) also proved significant. So, unsurprisingly, is the Importance of Work (c046). Initiative at Work (c016) and Involvement in Work (c031) look promising but do not survive in later columns. (Freedom in Decisions is discussed below.)

It is striking that that the degree of explanation is so high – much higher than the explanation provided by the “traditional” explanatory variables in Model 2. Furthermore, the coefficients on the tax rate and the replacement rate are quite small, although that is also a characteristic of some of the culture variables.

Model 3 is a regression that combines the cultural variables with the traditional variables. It cannot be called a fruitful marriage. But consider Models 4 and 5, estimated with OLS, GLS and a Random-Effects method, which have been narrowed beforehand to exclude the apparently failed cultural variables. There we find four survivors: Acceptance of New Ideas (e046), Acceptance of Competition (e039), Importance of Work (c046) and Interestingness of Work (c020).

At the preliminary stages, the study included two additional measures of economic performance: labor force participation rate in percent of population between the age of 15 and 64 and female participation rate in the labor force. The former yielded results very similar to the ones reported here and so provide no additional insight. The female participation rate was not studied, since it reflects not only economic forces and culture but also attitudes towards gender differences that we do not know how to control for.

*Economic activity rate.* Table 2 on the economic activity rate regressions confirms the main findings of the previous one. Here again the cultural variables in Model 1 outperform the traditional variables in Model 2. In Models 3, 4 and 5, Acceptance of Change (e047) again performs well. Achievement (c018) is again significant while Initiative at Work (c16) and Involvement in Work (c031) are wrong-signed. What is noteworthy here is the interaction of Willingness to Follow Instructions (c061) and Freedom in Decisions at Work (e053). The coefficients of both these variables taken separately are negative and this is unambiguously the wrong sign. But these two variables might well be complementary. To allow for that possibility the interaction term is introduced. That term turns out to be highly significant and has so large a positive coefficient that the *total* effect of each of the two variables is positive (at their mean values). Thus *both* Willingness to Follow and Freedom in Decisions are positive influences when their interaction is taken into account, Leadership without “followership” and, likewise, followership without leadership would contract employment but the two together operate to increase employment.

*Employment relative to labor force.* Table 3 records the results from regressions of employment in percent of the labor force on the cultural variables. The results here are mixed. In Models 4 and 5, both Initiative at Work (c016) and Importance of Work (c046) are highly significant with large coefficients. Unfortunately, Involvement at Work (c031) and Acceptance of Competition (e039) are wrong-signed. These mixed results suggest that some other powerful forces are important drivers of inter-country differences in the unemployment rate.

*Labor productivity.* The performance of the cultural variables is generally excellent in Table 4. A highly interesting result of the analysis there is that *neither* the cultural group *nor* the traditional group performs well by itself. Yet when married in Models 3, 4 and 5, the performance of both groups improves – especially that of the cultural variables. Initiative at Work (c016), Willingness to Follow (c061), Freedom in Decisions (e053), Involvement in Work (c031) and Acceptance of Competition (e039) are all highly significant with large, positive coefficients. Achievement (c018) is wrong-signed.

Among the traditional variables, the employment protection variable and the old-age dependency ratio in 2050 are significant and have the expected signs. This specification includes the unemployment rate on the right-hand side with the aim of “adjusting” the *measured* productivity differences for the differing extent to which countries keep out of employment persons of low productivity and send them to the unemployment pool. Contrary to all past experience, that trick did not work here. Possibly, as the percentage of employed members of the labor force increases, a rising proportion of employed persons will be part of the *variable* workforce, manning the assembly lines and producing output, thus a decreasing proportion will be tied up in overhead tasks. (Okun’s Law.)

*Productivity level as a ratio to the U.S. level.* A potential drawback of the above productivity regressions is that they do not take into account a possible catch-up process going on in which economies are tending to close or narrow the gap between themselves and the productive leader (also in the sample). To allow for this possible effect and to directly evaluate the potential forces leading to the gap, we ran regressions in which the dependent variable is the *ratio* of a country’s productivity level to the level of the leading economy, here that of the U.S. (The ratio is 1 *minus* the percentage “gap.”) The results are presented in Table 5.

In a comparison between Model 1 and Model 2, the culture variables appear to perform at least as well as the traditional explanatory variables. Model 3 leads to an improvement in the performance of some of the culture variables and some of the traditional ones. In particular, Initiative at Work (c016), Willingness to Follow Orders (c061), Freedom in Decisions (e053), and Acceptance of Competition (e039) become highly significant and have the theoretically predicted positive sign. (Achievement (c018) remains negative and significant even after the marriage of the culture and mode traditional models.) As in the preceding tables, Models 4 and 5 confirm the major results of Model 3. In

particular, a comparison between the narrowed Model 4 and Model 5 suggests that adopting the panel method mentioned above does not lead to considerable change in the estimated results.

Among the traditional variables, employment protection and the expected dependency ratio in 2050 appear to have a significant negative effect on the productivity ratio, thus widening the gap. It is worth noting that the tax rate has lost its significance both in Table 5 and Table 4.

I should confess that there exist some traditional variables, all of them going back to my own work, that are so powerful as to blow most of the other variables out of the water. One of these blockbusters is private wealth, as estimated from private saving rates. Another is a “social wealth” variable taken from social insurance outlay data. These last-minute findings lead me to believe that another variable, stock market capitalization, would also wreak havoc with all the coefficients. I suspect the same is true of the famous bureaucratic red tape index. Why is this? As remarked earlier, all the traditional variables here are to some extent a function of economic culture – their effects are the culture’s “indirect” effects – so introducing the controls awards them culture’s indirect effects, thus leaving the cultural variables with only their direct effects, if they have any.) Yet the results are pretty good because the traditional variables in the regressions are not sufficiently good proxies for culture to do much damage to the coefficients of the culture variables in the tables. But some traditional variables, such as the blockbuster variables, express so effectively a cultural mindset that they are highly correlated with the culture variables in the regressions that there is nothing much left for the individual culture variables to explain.

### **3. What Implications for the Continental Nations?**

This section will have a preliminary look at what the data suggest, pending more systematic calculations and significance tests.

We may reasonably infer from the detailed empirical results here that *some* particular cultural attributes, namely those with significantly positive regression coefficients, really *do* matter for economic performance in one or more respects. They are key attributes a deficiency of which in a country would operate to pull down its economic performance in the affected dimensions. If the nations on the Continent *are* in fact deficient in some or all of the key (and not super-endowed where they are not deficient), that would help to explain the widespread perception that the Continental economies as structured now are “under-performers.” Is the Continent predominantly deficient in these key cultural attributes?

The brief examination that follows is confined to comparing the cultural scores of the Big 3 on the Continent with the usual comparators, the U.S., the U.K. and Canada. And the comparison is limited to a few cultural variables.

Two culture variables have scored pretty well. Importance of Work (c046), which is so important for participation and unemployment, and Involvement (or Pride) in one's Work (c031), which is important for productivity. (A close substitute, Interestingness of Work (c020), drove out involvement in the participation results of Table 1.) In these respects many of us think of the Europeans as painstaking craftsmen, the Americans as more practical, so we would not be surprised if the Continent's average scores on these two variables were comparable or better than those of the comparators. In fact, according to our survey data, the nationals on the Continent are in fact deficient on these two scores. The data set shows that with respect to Importance of Work (c046), the Americans' score of 0.17 tops Germany's 0.11, Canada's 0.11 tops Italy's 0.08, and Britain's 0.07 tops France's 0.04. With respect to Involvement (c031), America's 2.87 tops Italy's 2.03, Britain's 2.80 tops Germany's 1.79, and Canada's 2.70 tops France's 1.74.

This echoes de Tocqueville's contrast in 1835 between the "tumultuous and boisterous gaiety" in aristocratic societies such as French society and the democratic Americans, who "prefer those more serious and silent amusements which are like business." (de Tocqueville, 1835). In recent correspondence Richard Robb, whose financial business has taken him for many years to Japan and now to Europe, drew a similar contrast in the present day: Continental Europeans are not nearly as immersed in their work and career as are the Japanese and the Americans.<sup>8</sup> Thus Airaghi's perception is borne out.

Also powerful when their interaction was taken into account was another pair of cultural variables, Willingness to Follow Instructions (c061) and Freedom to Make Decisions (e053). The former (c061) delivered spectacularly: it raises productivity and even lowers the unemployment rate. On this score, the Continentals score decisively below their comparators: America scores 1.47, Canada 1.34 and Britain 1.32; France scores 1.19, Germany 1.13 and Italy 1.04. With respect to the latter (e053), the U.S. scores 0.61, Canada 0.65, and U.K. 0.43. Germany has 0.57, France 0.57 and Italy 0.54. The aggregates are about equal though the Continent loses the competition 2 matches to 1.

Acceptance of competition (e039) appears to have a powerful effects on productivity, as hypothesized, and even on participation and thus, given the unemployment rate, employment. Here the U.S. scores 1.11, Canada 1.01 and the U.K. 0.57. Germany scores 1.21, thus topping the U.S., while France has 0.68 and Italy 0.49.

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<sup>8</sup> "Somehow, European employees seem to have great difficulty identifying personally with their firm. They see their jobs as contracts for services and do not care beyond the terms of the contract. (On a flight) it is always interesting to see the American business people ...with their communications devices and their self-help books. I'm sure the content of these books is nonsense, but to me it illustrates a point: they care in a personal way about their work. This is why they chose to read. I have the sense the Europeans generally do not. I think this kind of personal engagement is necessary for entrepreneurship..." Email, July 15, 2006.

The preference for jobs offering Initiative at Work (c016) was also a significant cultural attribute in the productivity tables and, fitfully, in the participation table. On this culture attribute too the Continent's big 3 is not dominated by the three comparators. Germany scores 0.59, beating Canada's 0.55. Yet America's 0.52 beats Italy's 0.47 and Britain's 0.45 beats France's 0.38. Also, the big 3's aggregate score is lower than that of its comparators.

## **Conclusions**

The most basic point to carry away, obviously, is that the empirical results lend support to the Enlightenment theme that a nation's culture ultimately makes a difference for the nation's economic performance in all its aspects – activity as well as productivity. (Testing for the effects of elements of the culture directly on dynamism and also on reported job satisfaction are possible future steps in this line of research.)

Thus a country's initiation of a program to reform the institutional machinery with the aim of achieving a major improvement of economic performance – though a much-needed step – would, if undertaken alone, very likely succeed only to a degree and thus cause considerable disappointment. A transformation of the economy to one of dynamism, thus the teamwork to implement it and to adapt well to it, can be obtained only if the economic culture and possibly other “background conditions” are conducive, not just the institutional machinery.

This lesson, I note, does not hinge on any estimated “complementarity” between institutions and culture; none such was estimated here. It follows simply from an estimated linear equation and a data set having the feature that, on the whole, cultural variables get some of the credit (along with some representative institutional variables and other “controls”) for the better performances among the countries in the data set. (The added problem for institutional reform that the “interaction terms” of complementarity imply, where they are positive and significant, is that the effect of a new or improved institution may be small or nil unless that *effect* is potentiated by the emergence of a culture that can better exploit the institutional change.)

An aspect of the results that are of particular interest to me is that *every one* of the cultural “dimensions” had at least one cultural variable representing it that performed significantly in at least one of the regressions. In the 1<sup>st</sup> dimension, Stimulation/Engagement/Development, the (proportionate) number reporting that their job is most important in their lives (c046) is significant both in raising male participation and (to a lesser extent) raising employment. (Yet it has no effect of its own on productivity, given all the other cultural attributes in the regression.) In the same dimension, the pride taken in one's work (c031) is more mildly labor-force-raising and more

powerfully unemployment-lowering. This pride/involvement in the work is also seen as raising productivity as well.

In the 2<sup>nd</sup> dimension, Loyalty/Dutifulness/Altruism, the willingness to take a job that requires following instructions (c061) was the sole variable entering the regressions. It delivered spectacularly in combination with the Freedom variable (e053).

In the 3<sup>rd</sup> dimension, Individualism/Pluralism/ Tolerance, it appears that Acceptance of Competition (e039) had powerful effects on productivity, as hypothesized, and even on participation, possibly through circuitous channels.

Here the Continental big 3 makes it a contest but as a group still loses badly to the comparators as a group. On e039, the U.S. scores 1.11, Canada 1.01 and the U.K. 0.57. Germany scores 1.21, thus topping the U.S., while France has 0.68 and Italy 0.49.

In the last dimension, Initiative/Venturesomeness/Experimentalism, two cultural attributes had considerable explanatory power. The preference for initiative at work (c016) was extremely significant in the productivity equations. It was significant also for the unemployment rate, boosting employment without boosting participation. The desire for freedom in decision-making (e053), also dubbed here the willingness to assume responsibility, perhaps to lead, was highly significant in the productivity equations.

I would comment that in my previous work I had organized my thinking around the intellectual currents of reaction on the Continent to the Enlightenment and to capitalism in the 19<sup>th</sup> century: the solidarism, consensus, anti-commercialism and equalitarianism. It would be understandable if such a climate had a dispiriting effect on potential entrepreneurs. But, to be candid, I had not imagined that Continental Man might *feel* less *entrepreneurial*. It did not occur to me that Continental Man lacked an “entrepreneurial spirit,” or intellectual curiosity, or creativity. After all, this is a region that I treasured for the creativity of its Beethoven, Wagner, Picasso and Keynes. In the early 20<sup>th</sup> century Schumpeter was writing about the entrepreneurial spirit of Austrians and Weber that of the Germans! Apparently the Europeans’ creativity, once unmatched and perhaps so still, does not translate to business.

Do the data then reflect “two cultures,” as argued by Bourguignon (2006) Or are the inter-country differences here purely random disturbances around the *same* all-West means? In fact, variances are so low, owing to the large sample sizes, that the differences in scores between the big 3 and their comparators are statistically significant at stringent confidence levels.

Such comparisons could easily be misunderstood, however. What is the meaning of the higher score in Germany? Perhaps it only means that the

Germans, far more than the Americans, are deprived of opportunities for initiative so, as a result, they have a *craving* for *additional* initiative – far more than the Americans do; thus, initiative is on the mind of the Germans. If so, the Germans’ greater interest in those rewards of work does not imply that *at the same level of opportunity* they would value more initiative than the Americans. In short, the “value” expressed by the *Surveys* respondents are apt to be biased by their current *conditions*: In countries where there is deprivation of *supply* relative to the mean in the sample, the value attached to more is thereby increased and, as a possible result, respondents place more weight on that value; symmetrically, where is abundance relative to the mean, there is downward bias. (If respondents were asked whether in choosing the city to live in they put weight on water supply, they would say they don’t. It is a confusion between Smith’s “value in use,” i.e. total utility, and “value in exchange,” i.e., marginal utility.) That suggests that the *true* inter-country differences in reported values, in so far as what is being reported is the value of *more*, are apt to be much greater than the measured differences.

In conversation on such comparisons my friend Jean-Paul Fitoussi made a related point. He thinks that the French economy is extremely hierarchical. At the micro level, the typical French company has many ranks, thus many layers of command and little latitude left to any one employee. At the macro level, there is the stratification by education, which predetermines the level to which a participant in the economy can rise. Both institutions, in limiting the range of responsibilities that a participant can have in the present and, generally speaking, over his or her career, are apt to cause French respondents in the *Surveys* to say that they want a position offering a lot of initiative and freedom – more so than respondents in other countries who, thanks the organization of their national economy, are already enjoying a lot of those rewards. Thus the relatively low (average) score that the French give to freedom in decision-making and to initiative is surprising and alarming. They ought to be rattling the bars of their cages.<sup>9</sup>

It may be, then, that the French, having long since despaired of having more freedom and more initiative, have learned not to care much about those values. Similarly, it may be that Americans, having assimilated large doses of freedom and initiative for generations, take initiative and freedom for granted. That appears to be what de Toqueville thought. (I have distilled his paragraph into one sentence.)

The greater involvement of Americans in governing themselves, their relatively broad education and their wider equality of opportunity all encourage the emergence of the “man of action” with the “skill” to “grasp the chance of the moment.” (p. 461.)

These thoughts suggest that, even if deprivation can sensitize respondents to

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<sup>9</sup> Unless, of course, Jean-Paul has got the conditions reversed: it is the American employees who operate with a tight leash. My friend Roman Frydman said to me that he was awed at the authority of Air France clerks to take actions far beyond the authority given to their counterpart at Delta Airlines.

the value of initiative (or freedom or whatever reward is of interest), a long history of it may finally inure them to their relative deprivation. And a history of abundant reward in some respect may cause the respondents unthinkingly to underestimate its importance, even though they may act on its being there. So perhaps the responses in the *Surveys* can be taken at face value.

To sum up this exploration of culture effects on the Continent: There is a *loose* correspondence between the Continental countries' relative endowment of *some* cultural attributes and the relative performance of their national economies in some if not all respects – though it is not yet clear how much of such effects are *indirect* through the culture's impact on the nation's selection of economic institutions and how much of such effects are *direct*. Yet, not all of the cultural attributes hypothesized to be important were found to matter for performance. And not all Continental countries were under-endowed (some were well-endowed) in some of the cultural attributes that matter a lot.

Two caveats: That Continental countries tend to differ from comparators with regard to some cultural attributes – the Continent is “different” – does not compel us to agree with the opinion that the continental Europeans have chosen economic institutions that are different yet “optimal” *for them*, given those values.<sup>10</sup> The values expressed by the continental Europeans do not contrast with those in comparator economies so radically as to suggest that the Continent would reject institutional changes demonstrated to deliver greater innovation and, as a result, higher productivity and a more rewarding workplace – notwithstanding some decrease in job security. The theme that big, even radical, innovations must come from the entry of start-ups (Schumpeter (1911), Arrow (1960) and Bhidé (2000) and, also, I think, the theme that the Continent's corporatist institutions are inimical to dynamism in all companies, both new and established (Phelps and Zoega 2004) continue to be plausible guides to needed institutional reform on the Continent.

We need not agree either that the continental Europeans have adopted the right values – right for them. It would be appropriate and possibly therapeutic if citizens in nations with unsatisfactory economic performance would compare their attitudes with those in other nations and ask whether they would not benefit from changing some of those values. That may be a long road. To embark on modifications of the economic culture and the economic institutions to implement them would be a voyage of discovery – one having parallels with the “discovery procedure” that is the essence of capitalism.

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<sup>10</sup> A colleague of mine once made the cruel remark that “a country gets the economic system it deserves.” As the book by Eggertsson and my paper (2003bis) argued, some and perhaps most of the institutions a country adopts are apt to be a non-optimal fit with its values. The problem is that it is impossible to infer all the maladies and the remedies.



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Table 1. Determinants of Economics Performance: Male Participation Rate in the Labor Force (std. errors in parentheses)

Dependent Variable: Male Participation in the Labor Force	Model (1): Culture Variables		Model (2): Traditional Variables		Model (3): Culture and Traditional Variables		Model (4): Narrowed		Model (5): Narrowed, Panel Data
	OLS	GLS, White SE	OLS	GLS, White SE	OLS	GLS, White SE	OLS	GLS, White SE	RE
	Initiative at Work (c016)	0.093 (0.053)**	0.093 (0.046)**			-0.027 (0.048)	-0.027 (0.036)		
Achievement (c018)	-0.018 (0.060)	-0.018 (0.055)			0.112 (0.068)*	0.112 (0.065)*			
Interestingness of Work (c020)	0.002 (0.0002)***	0.002 (0.0002)***			0 (0.0004)	0 (0.0005)	0.001 (0.0005)**	0.001 (0.0006)*	0.001 (0.0006)***
Involvement at Work (c031)	0.031 (0.015)**	0.031 (0.013)**			0.001 (0.016)	0.001 (0.016)			
Importance of Work (c046)	0.198 (0.102)*	0.198 (0.096)**			0.018 (0.095)	0.018 (0.103)	0.06 (0.079)	0.06 (0.081)	0.238 (0.146)*
Willingness to Follow (c061)	0.062 (0.02)***	0.062 (0.019)***			-0.029 (0.033)	-0.029 (0.036)			
Acceptance of New Ideas (e046)	0.042 (0.014)***	0.042 (0.010)***			0.074 (0.023)***	0.074 (0.027)***	0.071 (0.011)***	0.071 (0.009)**	0.059 (0.021)***
Freedom in Decisions (e053)	-0.07 (0.067)	-0.07 (0.044)			-0.064 (0.055)	-0.064 (0.066)			
Acceptance of Change (e047)	0.043 (0.078)	0.043 (0.062)			-0.087 (0.095)	-0.087 (0.099)			
Acceptance of Competition (e039)	0.028 (0.019)*	0.028 (0.015)*			0.025 (0.019)*	0.025 (0.017)	0.029 (0.011)**	0.029 (0.012)**	0.01 (0.022)
year 1996	-0.004 (0.008)	-0.004 (0.009)	0.004 (0.014)	0.004 (0.014)	0.003 (0.007)	0.003 (0.008)	0.004 (0.007)	0.004 (0.008)	-0.001 (0.004)
year 1999	0.002 (0.008)	0.002 (0.008)	0.008 (0.014)	0.008 (0.014)	0.007 (0.007)	0.007 (0.006)	0.008 (0.007)	0.008 (0.006)	0.004 (0.004)
year 2005	0.001 (0.008)	0.001 (0.007)	0.001 (0.014)	0.001 (0.015)	0.001 (0.006)	0.001 (0.006)	0.001 (0.007)	0.001 (0.006)	0.001 (0.004)
Tax on Labor Income			-0.004 (0.001)***	-0.004 (0.001)***	-0.002 (0.001)***	-0.002 (0.001)**	-0.003 (0.000)***	-0.003 (0.000)**	0 (0.001)
Employment Protection			0.012 (0.007)*	0.012 (0.005)**	-0.003 (0.006)	-0.003 (0.006)	-0.004 (0.004)	-0.004 (0.003)	0 (0.0002)
Dependency ratio in 2050			0.002 (0.002)	0.002 (0.003)	0.009 (0.002)***	0.009 (0.002)***	0.006 (0.002)***	0.006 (0.001)**	0.006 (0.003)**
Replacement Ratio			0 (0.001)	0 (0.001)	0.001 (0.000)***	0.001 (0.000)***	0.001 (0.000)***	0.001 (0.000)**	0 (0.001)
Constant	0.395 (0.060)**	0.395 (0.048)**	0.811 (0.115)***	0.811 (0.192)***	-0.037 (0.101)	-0.037 (0.066)	0.14 (0.082)	0.14 (0.077)*	0.195 (0.166)
Observations	68	68	72	72	68	68	68	68	68
R-squared	0.84	0.81	0.44	0.44	0.89	0.89	0.86	0.86	0.86

Note: Hausman Test rejects the hypothesis of systematic difference between FE and RE: Prob.>Chi<sup>2</sup>=0.08. Significance levels: \* at 10%, \*\* at 5%, and \*\*\* at 1%.

Table 2. Determinants of Economics Performance: Employment in Percent of Active Population (std. errors in parentheses)

Dependent Variable: Employment in Percent of Active Population	Model (1): Culture Variables		Model (2): Traditional Variables		Model (3): Culture and Traditional Variables		Model (4): Narrowed		Model (5): Narrowed, Panel Data
	OLS	GLS, White SE	OLS	GLS, White SE	OLS	GLS, White SE	OLS	GLS, White SE	RE
Initiative at Work (c016)	-0.016 (0.067)	-0.016 (0.072)			-0.267 (0.041)***	-0.267 (0.039)***	-0.33 (0.037)***	-0.33 (0.028)***	-0.341 (0.083)***
Achievement (c018)	-0.054 (0.101)	-0.054 (0.081)			0.36 (0.059)***	0.36 (0.059)***	0.463 (0.041)***	0.463 (0.041)***	0.513 (0.082)***
Interestingness of Work (c020)	0.002 (0.000)***	0.002 (0.000)**			0.001 (0.002)	0.001 (0.002)			
Involvement at Work (c031)	0.052 (0.027)*	0.052 (0.021)*			-0.035 (0.014)**	-0.035 (0.015)**	-0.028 (0.011)**	-0.028 (0.009)***	-0.024 (0.023)
Importance of Work (c046)	0.076 (0.142)	0.076 (0.139)			0.012 (0.082)	0.012 (0.086)			
Willingness to Follow (c061)	0.12 (0.025)***	0.12 (0.036)**			-0.065 (0.029)**	-0.065 (0.030)**	-0.494 (0.038)***	-0.494 (0.039)***	-0.47 (0.082)***
Acceptance of New Ideas (e046)	0.046 (0.015)***	0.046 (0.019)*			0.062 (0.020)***	0.062 (0.023)**			
Freedom in Decisions (e053)	0.139 (0.060)**	0.139 (0.067)*			-0.027 (0.047)	-0.027 (0.051)	-0.901 (0.062)***	-0.901 (0.047)***	-0.9 (0.139)***
(c061)*(e053)							0.666 (0.064)***	0.666 (0.068)***	0.619 (0.137)***
Acceptance of Change (e047)	0.061 (0.094)	0.061 (0.105)			0.026 (0.081)	0.026 (0.091)	0.288 (0.051)***	0.288 (0.044)***	0.304 (0.113)***
Acceptance of Competition (e039)	0.061 (0.029)**	0.061 (0.026)*			0.009 (0.016)	0.009 (0.016)			
year 1996	-0.019 (0.012)	-0.019 (0.011)	-0.011 (0.017)	-0.011 (0.017)	-0.013 (0.006)*	-0.013 (0.007)	-0.014 (0.006)**	-0.014 (0.006)**	-0.016 (0.004)***
year 1999	-0.006 (0.01)	-0.006 (0.011)	0.001 (0.017)	0.001 (0.017)	-0.001 (0.006)	-0.001 (0.005)	-0.002 (0.006)	-0.002 (0.005)	-0.003 (0.004)
year 2005	0.006 (0.01)	0.006 (0.011)	0.005 (0.017)	0.005 (0.018)	0.006 (0.005)	0.006 (0.005)	0.005 (0.006)	0.005 (0.005)	0.006 (0.004)*
Tax on Labor Income			-0.003 (0.001)***	-0.003 (0.001)***	-0.002 (0.001)***	-0.002 (0.001)***	-0.002 (0.000)***	-0.002 (0.000)***	-0.001 (0.000)***
Employment Protection			0.018 (0.009)**	0.018 (0.007)**	0.014 (0.005)**	0.014 (0.005)**	0.032 (0.003)***	0.032 (0.003)***	0.033 (0.007)***
Dependency ratio in 2050			0.013 (0.002)***	0.013 (0.003)***	0.022 (0.002)***	0.022 (0.002)***	0.025 (0.002)***	0.025 (0.001)***	0.025 (0.003)***
Replacement Ratio			0 (0.001)	0 (0.001)	0.002 (0.000)***	0.002 (0.000)***	0.001 (0.000)***	0.001 (0.000)***	0.001 (0.001)***
Constant	0.095 (0.078)	0.095 (0.082)	0.096 (0.14)	0.096 (0.217)	-0.74 (0.087)***	-0.74 (0.075)***	-0.16 (0.089)*	-0.16 (0.082)*	-0.262 (0.179)*
Observations	68	68	72	72	68	68	72	72	72
R-squared	0.84	0.84	0.52	0.52	0.96	0.96	0.95	0.95	0.94

Note: Hausman Test rejects the hypothesis of systematic difference between FE and RE: Prob.>Chi^2=0.69. Significance levels: \* at 10%, \*\* at 5%, and \* \* \* at 1%.

Table 3. Determinants of Economics Performance: Employment in Percent of Labor Force (st. errors in parentheses)

Dependent Variable: Employment in Percent of Labor Force	Model (1): Culture Variables		Model (2): Traditional Variables		Model (3): Culture and Traditional Variables		Model (4): Narrowed		Model (5): Narrowed, Panel Data
	OLS	GLS, White SE	OLS	GLS, White SE	OLS	GLS, White SE	OLS	GLS, White SE	RE
Initiative at Work (c016)	18.874 (4.183)***	18.874 (3.649)***			11.258 (4.122)***	11.258 (3.548)***	10.367 (2.539)***	10.367 (2.607)***	10.367 (5.192)**
Achievement (c018)	-11.762 (4.716)**	-11.762 (5.016)**			-3.067 (5.837)	-3.067 (6.163)			
Interestingness of Work (c020)	0.129 (0.020)***	0.129 (0.020)***			0.064 (0.027)**	0.064 (0.024)***	0.073 (0.021)***	0.073 (0.018)***	0.069 (0.038)*
Involvement at Work (c031)	0.411 (1.208)	0.411 (1.279)			-2.429 (1.4)*	-2.429 (1.793)	-3.425 (0.894)***	-3.425 (0.961)***	-3.47 (1.808)*
Importance of Work (c046)	39.214 (8.044)***	39.214 (9.144)***			33.077 (8.118)***	33.077 (8.642)***	39.084 (6.936)***	39.084 (7.161)***	38.466 (13.688)***
Willingness to Follow (c061)	7.604 (2.074)***	7.604 (1.529)***			-1.338 (2.861)	-1.338 (2.763)			
Acceptance of New Ideas (e046)	-1.334 (1.087)	-1.334 (1.309)			2.591 (1.979)	2.591 (1.655)			
Freedom in Decisions (e053)	0.66 (3.875)	0.66 (3.532)			-0.536 (4.701)	-0.536 (3.833)			
Acceptance of Change (e047)	1.408 (6.102)	1.408 (6.398)			-12.371 (8.094)	-12.371 (6.926)			
Acceptance of Competition (e039)	-1.854 (1.499)	-1.854 (1.556)			-2.084 (1.597)	-2.084 (1.688)	-4.277 (0.947)***	-4.277 (0.826)***	-4.224 (1.910)**
year 1996	-2.653 (0.631)***	-2.653 (0.720)***	-2.021 (0.798)**	-2.021 (0.909)**	-2.265 (0.570)***	-2.265 (0.574)***	-2.297 (0.556)***	-2.297 (0.602)***	-2.271 (0.417)***
year 1999	-0.453 (0.631)	-0.453 (0.527)	-0.108 (0.796)	-0.108 (0.703)	-0.173 (0.557)	-0.173 (0.472)	-0.196 (0.552)	-0.196 (0.481)	-0.177 (0.408)
year 2005	-0.412 (0.631)	-0.412 (0.546)	-0.364 (0.795)	-0.364 (0.611)	-0.405 (0.542)	-0.405 (0.526)	-0.405 (0.548)	-0.405 (0.519)	-0.405 (0.397)
Tax on Labor Income			-0.168 (0.032)***	-0.168 (0.023)***	-0.13 (0.060)**	-0.13 (0.046)***	-0.12 (0.033)***	-0.12 (0.029)***	-0.128 (0.043)***
Employment Protection			0.22 (0.405)	0.22 (0.307)	-0.633 (0.526)	-0.633 (0.459)	-0.069 (0.296)	-0.069 (0.306)	-0.073 (0.605)
Dependency ratio in 2050			0.358 (0.110)***	0.358 (0.141)**	0.725 (0.178)***	0.725 (0.207)***	0.688 (0.122)***	0.688 (0.106)***	0.694 (0.247)***
Replacement Ratio			0.031 (0.029)	0.031 (0.029)	0.072 (0.029)**	0.072 (0.036)**	0.05 (0.026)*	0.05 (0.026)*	0.053 (0.051)
Constant	83.792 (4.746)***	83.792 (4.254)***	77.583 (6.560)***	77.583 (8.554)***	50.17 (8.608)***	50.17 (9.306)***	60.374 (6.659)***	60.374 (6.271)***	60.261 (13.586)***
Observations	68	68	72	72	68	68	68	68	68
R-squared	0.72	0.72	0.46	0.46	0.81	0.81	0.78	0.78	0.77

Note: Hausman Test rejects the hypothesis of systematic difference between FE and RE: Prob.>Chi<sup>2</sup>=0.99. Significance levels: \* at 10%, \*\* at 5%, and \*\*\* at 1%.

Table 4. Determinants of Economics Performance: Labor Productivity (std. errors in parentheses)

Dependent Variable: Ln(Productivity)	Model (1): Culture Variables		Model (2): Traditional Variables		Model (3): Culture and Traditional Variables		Model (4): Narrowed		Model (5): Narrowed, Panel Data
	OLS	GLS, White	OLS	GLS, White	OLS	GLS, White	OLS	GLS, White	RE
Initiative at Work (c016)	0.349 (0.242)	0.349 (0.186)**			1.049 (0.148)***	1.049 (0.160)***	0.836 (0.135)***	0.836 (0.116)***	0.853 (0.286)***
Achievement (c018)	-0.522 (0.272)	-0.522 (0.339)			-1.918 (0.211)***	-1.918 (0.258)***	-1.523 (0.139)***	-1.523 (0.142)***	-1.577 (0.289)***
Interestingness of Work (c020)	-0.001 (0.001)	-0.001 (0.001)			0.002 (0.001)*	0.002 (0.001)**			
Involvement at Work (c031)	0.012 (0.07)*	0.012 (0.088)**			0.212 (0.050)***	0.212 (0.048)***	0.176 (0.038)***	0.176 (0.038)***	0.172 (0.081)**
Importance of Work (c046)	0.28 (0.465)	0.28 (0.478)			0.344 (0.299)	0.344 (0.316)			
Willingness to Follow (c061)	0.542 (0.120)***	0.542 (0.098)***			0.643 (0.103)***	0.643 (0.116)***	0.525 (0.050)***	0.525 (0.052)***	0.538 (0.105)***
Acceptance of New Ideas (e046)	-0.317 (0.063)***	-0.317 (0.048)***			0.005 (0.071)	0.005 (0.087)			
Freedom in Decisions (e053)	-0.202 (0.224)	-0.202 (0.189)			0.437 (0.168)**	0.437 (0.194)**	0.229 (0.083)***	0.229 (0.081)***	0.285 (0.164)*
Acceptance of Change (e047)	1.075 (0.352)***	1.075 (0.375)***			-0.169 (0.29)	-0.169 (0.34)			
Acceptance of Competition (e039)	0.085 (0.087)	0.085 (0.12)			0.331 (0.057)***	0.331 (0.058)***	0.319 (0.037)***	0.319 (0.036)***	0.306 (0.077)***
year 1996	-0.136 (0.036)***	-0.136 (0.037)***	-0.151 (0.040)***	-0.151 (0.040)***	-0.145 (0.024)***	-0.145 (0.021)***	-0.131 (0.021)***	-0.131 (0.021)***	-0.118 (0.015)***
year 1999	-0.041 (0.036)	-0.041 (0.034)	-0.051 (0.039)	-0.051 (0.038)	-0.047 (0.021)**	-0.047 (0.018)**	-0.041 (0.020)**	-0.041 (0.017)**	-0.035 (0.013)***
year 2005	0.056 (0.036)*	0.056 (0.037)*	0.054 (0.038)	0.054 (0.041)	0.056 (0.020)***	0.056 (0.020)***	0.057 (0.020)***	0.057 (0.021)***	0.059 (0.013)***
Tax on Labor Income			0.001 (0.002)	0.001 (0.002)	0.002 (0.002)	0.002 (0.003)			
Employment Protection			-0.114 (0.019)***	-0.114 (0.019)***	-0.15 (0.019)***	-0.15 (0.022)**	-0.149 (0.011)***	-0.149 (0.010)***	-0.154 (0.022)***
Dependency ratio in 2050			0.013 (0.006)**	0.013 (0.005)***	-0.048 (0.008)***	-0.048 (0.009)**	-0.037 (0.006)***	-0.037 (0.007)***	-0.041 (0.012)***
Unemployment			0.011 (0.009)	0.011 (0.007)	0.001 (0.008)	0.001 (0.009)	0 (0.005)	0 (0.005)	-0.008 (0.005)
Replacement Ratio			0.002 (0.001)	0.002 (0.002)	-0.002 (0.001)	-0.002 (0.001)			
Constant	11.482 (0.274)***	11.482 (0.293)***	10.209 (0.355)***	10.209 (0.294)***	12.507 (0.408)***	12.507 (0.508)**	12.087 (0.247)***	12.087 (0.279)***	12.298 (0.458)***
Observations	68	68	72	72	68	68	72	72	72
R-squared	0.67	0.67	0.6	0.6	0.92	0.92	0.9	0.9	0.9

Note: Hausman Test rejects the hypothesis of systematic difference between FE and RE: Prob.>Chi^2=0.88. Legend: at \* 10%, \*\* at 5%, and \* \* \* at 1% significance level.

Table 5. Determinants of Economics Performance: Labor Productivity Ratio (std. errors in parentheses)

Dependent Variable: Labor Productivity Ratio	Model (1): Culture Variables		Model (2): Traditional Variables		Model (3): Culture and Traditional Variables		Model (4): Narrowed		Model (5): Narrowed, Panel Data
	OLS	GLS, White SE	OLS	GLS, White SE	OLS	GLS, White SE	OLS	GLS, White SE	RE
Initiative at Work (c016)	0.309 (0.178)*	0.309 (0.143)***			0.81 (0.124)***	0.81 (0.139)***	0.645 (0.111)***	0.645 (0.098)***	0.659 (0.274)**
Achievement (c018)	-0.405 (0.201)**	-0.405 (0.257)**			-1.394 (0.176)***	-1.394 (0.210)***	-1.197 (0.125)***	-1.197 (0.154)***	-1.255 (0.292)***
Interestingness of Work (c020)	0 (0.001)	0 (0.001)			0.002 (0.001)**	0.002 (0.001)			
Involvement at Work (c031)	0.024 (0.051)	0.024 (0.066)			0.17 (0.042)***	0.17 (0.038)***	0.133 (0.033)***	0.133 (0.024)***	0.123 (0.078)*
Importance of Work (c046)	0.309 (0.342)	0.309 (0.345)			0.371 (0.25)	0.371 (0.255)			
Willingness to Follow (c061)	0.407 (0.088)***	0.407 (0.071)***			0.506 (0.086)***	0.506 (0.100)***	0.415 (0.041)***	0.415 (0.044)***	0.424 (0.101)***
Acceptance of New Ideas (e046)	-0.246 (0.046)***	-0.246 (0.036)***			-0.034 (0.059)	-0.034 (0.074)			
Freedom in Decisions (e053)	-0.106 -0.165	-0.106 (0.138)			0.354 (0.141)**	0.354 (0.160)**	0.251 (0.091)***	0.251 (0.104)**	0.321 (0.184)*
Acceptance of Change (e047)	0.691 (0.260)**	0.691 (0.277)**			-0.135 (0.243)	-0.135 (0.287)			
Acceptance of Competition (e039)	0.034 (0.064)	0.034 (0.085)			0.207 (0.048)***	0.207 (0.044)***	0.232 (0.031)***	0.232 (0.031)***	0.223 (0.075)***
year 1996	0.01 (0.027)	0.01 (0.028)	-0.001 (0.031)	-0.001 (0.031)	0 (0.02)	0 (0.018)	0.017 (0.018)	0.017 (0.017)	0.026 (0.012)**
year 1999	0.017 (0.027)	0.017 (0.026)	0.01 (0.029)	0.01 (0.03)	0.011 (0.017)	0.011 (0.016)	0.019 (0.016)	0.019 (0.015)	0.023 (0.010)**
year 2005	-0.067 (0.027)**	-0.067 (0.026)**	-0.068 (0.029)**	-0.068 (0.031)**	-0.068 (0.016)***	-0.068 (0.016)***	-0.066 (0.016)***	-0.066 (0.016)***	-0.065 (0.010)***
Tax on Labor Income			0 -0.001	0 (0.002)	0.002 (0.002)	0.002 (0.002)	0 (0.001)	0 (0.001)	-0.001 (0.001)
Employment Protection			-0.079 (0.015)***	-0.079 (0.013)***	-0.103 (0.016)***	-0.103 (0.018)***	-0.102 (0.009)***	-0.102 (0.010)***	-0.104 (0.023)***
Dependency ratio in 2050			0.009 (0.005)	0.009 (0.003)***	-0.034 (0.006)***	-0.034 (0.008)***	-0.033 (0.006)***	-0.033 (0.007)***	-0.036 (0.012)***
Unemployment			0.008 (0.007)	0.008 (0.005)	0.003 (0.006)	0.003 (0.007)	-0.002 (0.004)	-0.002 (0.004)	-0.006 (0.004)*
Replacement Ratio			0.001 (0.001)	0.001 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.002 (0.002)
Constant	1.288 (0.202)***	1.288 (0.216)***	0.341 (0.269)	0.341 (0.214)	2.016 (0.341)***	2.016 (0.420)***	2.03 (0.273)***	2.03 (0.368)***	2.235 (0.566)***
Observations	68	68	72	72	68	68	72	72	72
R-squared	0.63	0.63	0.53	0.53	0.88	0.88	0.87	0.87	0.87

Note: Hausman Test rejects the hypothesis of systematic difference between FE and RE: Prob.>Chi^2=0.99. Legend: at \* 10%, \*\* at 5%, and \*\*\* at 1% significance level.

## APPENDIX 1 <sup>11</sup>

### **Methodology for the Empirical Tests**

The objective of the empirical part of this study is to investigate whether variables reflecting economic culture, belonging to the four cultural currents, have causal effect on economic performance. The study faces the following two major objectives: first, to address concerns about the possible endogeneity of economic performance and culture; and second to cover a set of economically similar countries that is large enough to allow for meaningful econometric estimation.

The empirical study includes the following OECD countries: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Netherlands, Norway, Poland, Portugal, Spain, Sweden UK, and US. The data base comprises cross-sectional data for 1993, 1996, 1999, 2002, and 2004. Economic performance is measured by labor productivity, the ratio of a country's productivity to the highest productivity level in each cross section, male participation rate in the labor force, employment in percent of population between the age of 15 and 64, and employment in percent of labor force.

In addition, the empirical results depend on one crucial assumption and one key property of the culture variables in the World Values Surveys (WVS). First, the assumption is that past beliefs do not affect present economic performance (a variation of Markov Equilibrium). It is conceivable that present beliefs and expectations about future beliefs may affect present performance. However, according to this assumption, past beliefs do not enter directly the model determining economic performance at present. Second, beliefs are relatively stable over time. This is the prevailing view among scholars in the field. Moreover, it is also empirically supported by the high persistence in the values of the variables in the *Surveys*, which have longer time series.

Combining these two points, one can use culture variables from the 1990-1993 survey as proxies for the culture variables at time 1996, 1999, 2002, and 2004; the culture variables from 1990-1993 do not belong directly to the model, but are correlated with the non-observable culture variables for the period 1996-2004. This setting addresses possible reverse causality concerns: the future (productivity at time 1996-2004) cannot cause the past (culture in 1990-1993). The assumption that the culture variables from 1990-1993 do not belong directly to the models determining performance in 1996, 1999, 2002, and 2004 also implies that the culture variables from 1990-1993 are not correlated with the error term in models of economic performance in subsequent periods.

On the basis of these methodological assumptions, the empirical study proceeds in the following stages. First, the departing point of the study is a set of simple OLS regressions of the measures of economic performance on culture variables. Second, control variables for the structure of the labor market, government intervention, market forces are introduced into the model. Third, time dummies are included in the OLS models to account for short-run fluctuations and time-specific shocks. The structure of the dataset, however, leaves no doubt that the OLS regressions can be only suggestive. There are two ways to address the implications arising from the panel structure of the

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<sup>11</sup> This technical report was prepared by Raicho Bojilov.



data set. One approach is to use an estimation procedure that is consistent in the presence of heteroskedasticity. The White estimation procedure provides consistent and asymptotically efficient estimates. This procedure is very attractive because it does not impose any particular assumptions on the type of the heteroskedasticity. However, in small samples the White estimation procedure is less efficient than WLS. The WLS relies on some restrictive assumptions on the structure and form of the heteroskedasticity. Most importantly, the econometricians must find the proper weights to eliminate the heteroskedasticity. Unfortunately, in the present study, finding these weights proved to be an insurmountable task, so the regression tables report only the White estimation results.

Another approach is to use Panel Data analysis. Its major advantage is that it directly accounts for the panel structure of the data set and imposes fewer (heroic) assumptions about the structure of the data than OLS or heteroskedasticity-adjusted LS. Unfortunately, it also has drawbacks in the context of this study. Most importantly, since 1990-1993 culture variables are used as proxies for the 1996-2004 cross-sections, fixed effect estimation is not useful as it is based only on within group variation over time. Thus, the significance of the culture variables can be tested only in a random effect setting. The random effect estimation, however, relies on heavy assumptions about the structure of the error terms, whose appropriateness should be verified by a Hausman test. Moreover, even if there is no systematic difference in the coefficient estimates under fixed and random effect estimations, a random effects regression incorporates only a fraction of the cross-sectional variation, which is where the potential evidence for the significance of culture resides. Thus, given the small sample size, it will not be surprising if the panel regressions find fewer culture variables to be significant than the pooled regressions do. To summarize, contingent on favorable Hausman test results, random effects estimation provides a conservative estimation of the effect of culture on economic performance.

### **Data: Sources and Definitions**

Labor productivity is based on the Penn World Tables and the productivity growth reported by the OECD for 2002 and 2004. All other variables come from the OECD or the UN. The reason to choose the Penn World Table productivity estimates is that unlike most other sources, these are based on careful cross-country PPP adjustments. As a result, the Penn estimates are less contaminated by methodologically induced noise. Here is the way the variables are defined in the regressions, along with a short reference to the sources:

- Productivity: Output per worked hours over one calendar year, from the Penn World Tables.
- Labor Income Tax: average labor income tax for a two-parent family with children, from the OECD.
- Dependency Ratio in 2050: proportion of potentially active population between the age of 15 and 64, based on UN estimates.
- Employment Protection Index (EPL): OECD Index, which is averaged for the period 1987 – 2004, from the OECD. The averaging is a standard procedure applied in research based on the index, since only several countries have experienced marginal changes in their level of employment protection over the last twenty years.
- Culture Variables: retrieved from the *World Values Survey 1981 – 2004*.

## APPENDIX 2

**Table 1. Measures of Dynamism**

	Decision-making freedom at work	Turnover of listed firms	Patents granted per working age person	R&D intensity adj. for industry structure
United States	7.4	118%	3.7	2.9
Canada	7.2	106%	1.3	1.8
United Kingdom	7.0	65%	0.8	1.9
France	6.4	79%	0.9	2.2
Italy	6.7	63%	0.4	1.0
Germany	6.1	42%	1.5	2.2

Decision making freedom at work is measured on a scale from 1 to 10, 10 highest, averaged for 1990-1993 (Human Beliefs and Values, Inglehart et al); turnover of listed firms represents the number of exits from and entries into each country's MSCI National Stock Index from 2001 to 2006 as a % of the number of firms in 2001; patenting data is averaged for 1990-2003 (World Intellectual Property Organization); R&D intensity adjusted for industry structure is the average % of business sector value added for 1999-2002 using the G7 industry structure (OECD).

**Table 2. Benefits of Dynamism**

	Pride derived from the job 1990-93	Job satisfaction 1990-93	Male labor force in % of working-age men, 2003	Employment in % of the labor force 2003	Labor compensation per worker 1996	Market output per hour in 1992
United States	2.9	7.8	85%	94%	\$31,994	100
Canada	2.7	7.9	85%	92%	\$23,751	-
United Kingdom	2.8	7.4	85%	95%	\$22,008	73
France	1.7	6.8	76%	90%	\$24,192	92
Italy	2.0	7.3	76%	91%	\$21,822	-
Germany	1.8	7.0	79%	91%	\$23,946	92

Pride derived from one's job is measured on a scale from 1 to 3, 3 being the highest, and job satisfaction on a scale from 1 to 10, 10 highest; both are averaged for 1990-1993 (*Human Beliefs and Values*, Inglehart et al); men in the labor force in % of working age men and employment in % of the labor force are computed for 2003 (OECD); labor compensation per worker is computed as the ratio of total compensation to the labor force using 1996 data (Extended Penn World Tables); market output per hour worked is for 1992 (Solow/Baily).