4. Entrepreneurship, culture and openness

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INTRODUCTION

Advances in scientific knowledge – in technology – are made by scientists working in research labs around the world. At any point in time there is multidimensional frontier technology that consists of technological breakthroughs made in each industry and each country. Conceiving of new products and new methods against the background of existing technologies and the accessible stock of past products and methods is generally the contribution of business people, as Hayek (1967/1978) understood – the knowledgeable and imaginative businessmen or financiers or end users. Developing and marketing such visions requires the undertaking of entrepreneurs (often the conceivers), whose range and zeal were prized by Schumpeter (1911). Evaluating and trying the new products and methods is done by the cutting edge managers of Nelson and Phelps (1966) and the venturesome consumers of Bhidé (2000). The Hayekian innovators, drawing on the expertise that comes from their specialized experience and close observation, think of new ideas for possible development and subsequent sale in domestic or overseas markets. Schumpeterian entrepreneurs monitor developments in technologies, products and methods at home and abroad and contemplate how profitable it would be to adapt or improve or cheapen existing goods or methods. It follows that while productivity improvements receive a huge boost from technological progress, the two are only loosely linked. A period of significant technological progress can at the same time witness very low rates of productivity growth; and, vice versa, one can have periods with rapid productivity growth and little technological progress.

Those who conceive, develop and try out a novel product or method are hoping for some combination of pecuniary profit and personal satisfaction in the process. When they find an opportunity that passes that market test they improve welfare – widening the set of goods and methods available and offering satisfaction from the conceiving, developing and trying a new good or method. (When they fail either to make a profit or gain satisfaction,

thus burning up resources that could have been spent otherwise without generating the hoped-for benefits, they may reduce welfare – though the attractive jobs they created in the attempt may have reduced involuntary unemployment.) In analogy to scientific discoveries, one can talk of a business discovery whenever the 'discovery procedure' hits upon and implements a plausible innovation and the latter passes the market test.

Like technological discoveries, business discoveries fall into two groups. The entrepreneur may discover ways in which he can import foreign business discoveries and adapt them to local circumstances. He spreads foreign business knowledge to his country and improves local welfare as a result. Such an entrepreneur would need to have a feel for the nuances of local markets, local tastes and the ability of the local workforce to provide the service. Amar Bhidé has pointed out (2000) the importance of the ability of local consumers to enjoy the new technology. But none of this is obvious *a priori*. A systematically successful local entrepreneur has the ability to gauge these factors fairly accurately and to detect those business innovations that are capable of earning a profit. In this he is facing Knightian risk (Knight 1921) because he is doing something for the very first time and no prior experience will enable him to calculate the probability of success.

The second type of entrepreneur is one who makes genuinely original business innovations, not modelled on any existing ones. Such an entrepreneur pushes out the frontier of business knowledge in the world. He may, however, benefit from the vast array of existing business practices, each being an innovation inherited from the past. Standing on the shoulders of giants may help the would-be entrepreneur in miscellaneous ways. Past entrepreneurs may have created a climate of creativity, self-reliance and ambition that affects the behaviour of current would-be entrepreneurs. Casual evidence suggests that successful individuals in different professions have a performance-enhancing effect on others by setting high standards of achievement, demonstrating that success is possible and showing the path towards success. Success often breeds further success. Past entrepreneurial successes may also have affected the institutional environment by breaking up the pattern of entrenched interests and their hold on the power of the state. Laws are often passed, thrown aside or modified following successful innovations, either to promote further innovations or to prevent excesses and market failures that were not previously known.

MEASURES OF DYNAMISM

Our measure of dynamism goes beyond the simple notion of labor productivity or labor productivity growth. While labor productivity may seem

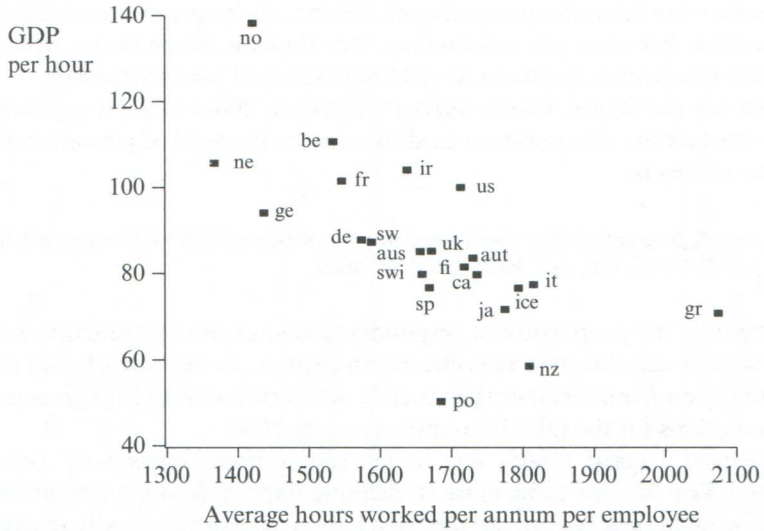


Figure 4.1 Hourly productivity and hours of work

to be an obvious measure of dynamism, it suffers from a couple of rather obvious shortcomings in this regard. First, the hourly productivity figures in Europe are skewed by the absence of many low productivity people, particularly the young ones, who are counted as unemployed. Second, as shown in Figure 4.1, the level of hourly productivity is also an imperfect measure in that hourly productivity is related to the number of hours worked. This may be either because longer hours cause fatigue, which lowers output per hour, or because shorter working hours put pressure on workers to perform well on the job. This helps explain why, to take just one example, output per hour is high in France where there are comparatively few hours worked. It has been suggested that in addition, firms only hire when the workforce has been stretched thin compared to most other countries owing to their exceptional firing costs. In contrast, productivity in the US is high despite the much higher number of hours worked.[1]

Instead of using labor productivity in levels or growth rates, we follow Phelps (2005) by defining a dynamic economy as one based on creativity – innovative ideas, problem solving and the discovery and development of human talents – where the work offered by the business economy must offer mental stimulation and challenges in the form of problems to solve, and in this way lead to the discovery of talents. In the spirit of Dewey and William James, the rewarding life then consists of problem solving, taking action and putting one's ideas to the test – whether that is the market, a sporting

match or the laboratory experiment. Hence, our appropriate measure of dynamism becomes job satisfaction. Our thesis is hence that a dynamic economy is primarily bound to yield high levels of job satisfaction.

We use the World Values Survey (Inglehart, 2006) to get a measure of job satisfaction. The question used to measure the level of job satisfaction in the survey is:

> Overall, how satisfied or dissatisfied are you with your job? a) Dissatisfied; b) 2; c) 3; d) 4; e) 5; f) 6; g) 7; h) 8; i) 9; j) Satisfied

We take the proportion of respondents who express satisfaction 8 and above and use this as a measure of absorption in one's work and deep gratification from it rather than merely a cheerful nature. This gives us 14 observations for the OECD countries in year 2000.

Richard Layard (2005) has in his recent book *Happiness: Lessons from a New Science* come close to defining happiness along similar lines. Following his lead we can use reported happiness as an alternative measure of dynamism. Again, using the World Values Survey we find responses to the following question:

> Taking all things together, would you say you are: a) Very happy; b) Quite happy; c) Not very happy; d) Not at all happy.

We take the fraction of respondents who pick 'very happy' as a measure of happiness. The correlation between our measure of job satisfaction and our measure of happiness is 0.63 but the benefit of the happiness measure is that we have observations on a larger sample of 22 OECD countries.

Our measure of job satisfaction is correlated with a number of other measures of economic performance. The labor force participation rate and the unemployment rate can be interpreted as proxies for the degree of prosperity in the sense of the discovery and development of talents. See Appendix 4.1 for more data. Figure 4.2 shows that across the sample of 14 OECD countries, job satisfaction is inversely correlated with unemployment and positively correlated with labor force participation of the young, both men and women, and of women in the 25–64 years category. The correlation between job satisfaction and the overall unemployment rate is −0.63 and the correlation with the rate of participation of young men is 0.60; the correlation for young women is 0.73; and that for women aged 25–64 is 0.57. This supports the thesis proposed by Phelps (2005) that a dynamic economy may have an impact on unemployment and participation through job satisfaction.

We are left with the fundamental question: what are the ingredients or

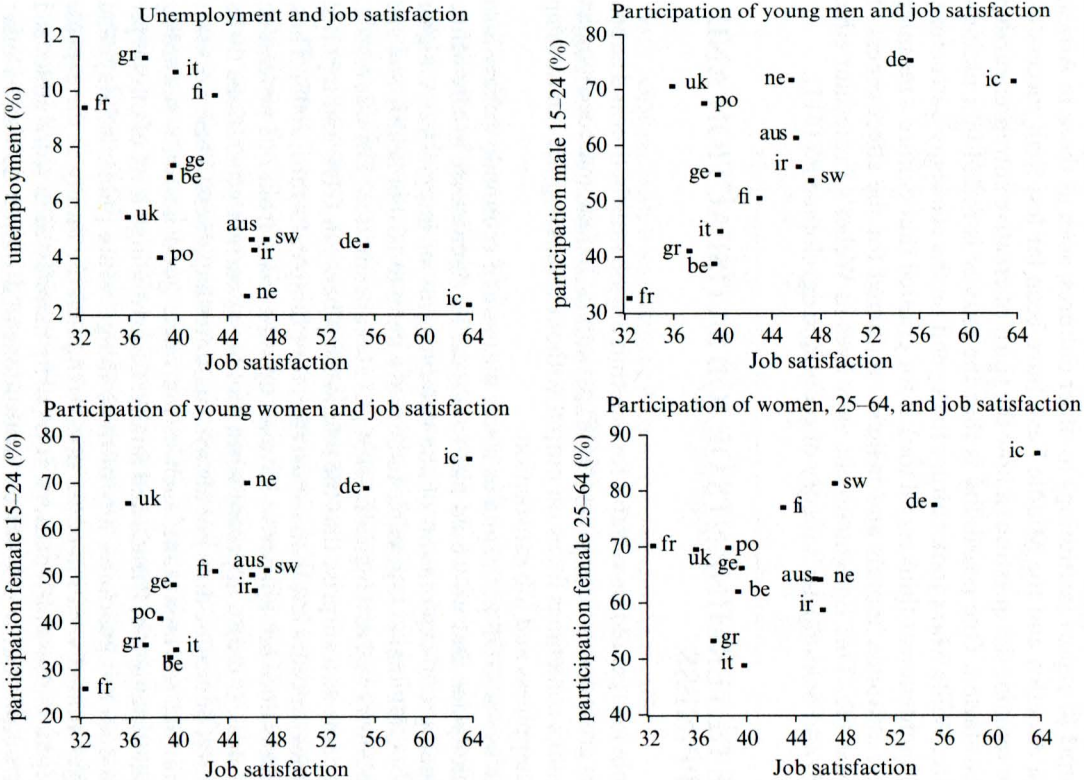


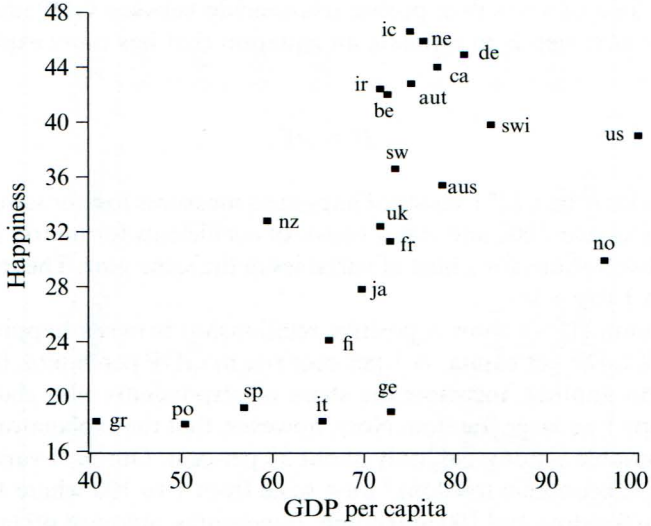
Figure 4.2 Job satisfaction and economic performance

the social recipe for an entrepreneurial economy? Ever since Adam Smith, economists have focused on institutions, the underlying assumption being that all humans are alike and given the right set of institutions they will be guided by an invisible hand to deliver maximum social welfare. Yet many attempts to export institutions to other cultures, such as those in Africa, South America and the Middle East, have been far less than successful. There remains the question of how the spirit of creative entrepreneurship can be started. One possibility is that the answer is found in a nation's culture. While Marx took culture to depend on the economy's structure, the Enlightenment thinkers all took it for granted that culture – meaning values, attitudes, morals and beliefs – mattered for the effectiveness of business life. This Enlightenment view lives in Weber's Protestant ethic (1905) and Schumpeter's theory of economic development (1911).

THE DETERMINANTS OF JOB SATISFACTION AND HAPPINESS

One obvious candidate variable for determining job satisfaction and happiness is gross domestic product (GDP) per capita. In fact, macroeconomics textbooks sometimes focus on output without discussing the relationship with happiness and job satisfaction.

The use of GDP per capita as a sole measure of economic welfare is so commonplace that we would like to discuss its significance briefly before continuing our exploration of the determinants of happiness. A higher level of GDP makes it possible to improve the standard of health care and education as well as a higher level of private consumption. For this reason, it has come as a surprise that the relationship between GDP and reported happiness appears less than robust (see, for example, Layard, 2005). Thus, happiness does not appear to have an upward trend from one generation to the next. It is also apparent when looking at current generations that a high level of income does not always guarantee happiness. There are other factors that are important, such as marriage, good health, a rewarding and challenging job, friends and family. Clearly, a high level of output per capita does not guarantee any of these things. More public holidays and a longer annual vacation could thus strengthen the family at the expense of output. Culture also matters. It is partly manifested in work ethics and hence output but it also affects institutions and output as well as other determinants of job satisfaction and happiness. For this reason it appears to be more reasonable to model the relationship between culture and institutions, on the one hand, and job satisfaction and happiness, on the other hand. Focusing exclusively on GDP – its level and rate of growth – can be



Note: GDP per capita is normalized by the corresponding value for the US.

Figure 4.3 Reported happiness and GDP per capita

misleading because a higher rate of growth can possibly adversely affect workers and households due to the stress of work, long working hours and so on. However, money and consumption have enormous attractions, as described in the writings of Thorstein Veblen and his followers. But, as Veblen (1934) pointed out, it is not clear that money and consumption, hence also output, feeds into family happiness.

Figure 4.3 shows the relationship between GDP per capita and reported happiness for 22 OECD countries[2] for the year 2000. GDP per capita for each country is normalized by the corresponding value for the United States so that the values given on the horizontal axis show GDP per capita in each country relative to that of the US. There is a positive relationship between the two variables. However, this relationship is far from being exact. When GDP exceeds 70 per cent of the US value, the relationship appears to disappear. There is a relationship for the whole sample because reported happiness is lower in Greece, Portugal and Spain and GDP per capita is also lower in these countries than in others. Note that reported happiness is greater in New Zealand and lower in Norway than what these countries' income levels would suggest. Denmark, Iceland and the Netherlands have the highest reported levels, higher than that for the US, which has a higher level of GDP per capita.

In the light of a less than precise relationship between GDP and happiness, our next step is to estimate an equation that has more explanatory variables,

$$H = A\Gamma \tag{4.1}$$

where we let H be a 22*1 vector of happiness measures for our sample of 22 countries in year 2000 and A is a vector of coefficients for matrix Γ, which has 22 observations for a host of variables in the same year. The results are shown in Table 4.1.

In column (1) we show a positive relationship between happiness and the log of GDP per capita. A 1 per cent rise in GDP per capita, from one country to another, increases the share of respondents who claim to be very happy by a large fraction. Note, however, that the explanatory power of this variable is not great, only about 38 per cent. Our next variable is a measure of economic freedom,[3] on a scale from 1 to 100 where 1 implies minimum freedom and 100 maximum. It measures, amongst other factors, the cost of setting up, operating and closing down enterprises, government interference in capital and labor markets, and the effects of public spending and taxes. This variable turns out to have a positive and statistically significant coefficient. Together, GDP per capita and economic freedom explain around 54 per cent of the variation in reported happiness across the sample of 22 countries.

We next add a measure of openness to international trade, measured by the ratio of the sum of imports and exports, on the one hand, and GDP on the other hand. As described by William Baumol (Chapter 1), entrepreneurship both affects the volume of trade as well as being affected by it. This variable has a positive and statistically significant coefficient, so that when openness rises by 10 per cent of GDP, the fraction of respondents claiming to be very happy rises by 1 per cent. Inflation does not have a statistically significant coefficient, but do note that inflation was nowhere a serious problem within the club of 22 OECD countries in year 2000. Our remaining variables are average hours of work (OECD),[4] mandatory annual leaves (OECD),[5] the number of paid public holidays (OECD)[6] and the rate of unemployment. Of these, the average hours worked comes out strongest. When the number of working hours per year goes up by 50, happiness goes up by 1.5 per cent. Note that more work implies greater happiness, supporting our thesis of dynamism generating interesting and challenging jobs. Both the length of annual leave and the number of public holidays come out as insignificant. Finally, unemployment (Source: OECD) has a negative coefficient but is not so significant; a 1 per cent increase in unemployment (let's say from 2 per cent to 3 per cent) will make just under 1 per

Table 4.1 Estimated happiness equation (4.1)

	Dependent variable: happiness									
	Constant	**GDP**	**Freedom**	**Open**	**Inflation**	**Hours**	**Leave**	**Holidays**	**Unemp.**	**R^2**
(1)	−288.29	31.82								0.38
	(4.00)*	(4.43)*								
(2)	−253.41	24.35	0.57							0.47
	(3.30)*	(2.86)*	(2.10)*							
(3)	−247.51	22.73	0.61	0.11						0.64
	(3.41)*	(2.81)*	(2.29)*	(3.38)*						
(4)	−252.00	23.31	0.57	0.10	0.74					0.65
	(3.32)*	(2.76)*	(2.25)*	(2.63)*	(0.74)					
(5)	−366.59	32.76	0.42	0.13	0.28	0.02				0.67
	(3.56)*	(3.45)*	(1.50)	(2.69)*	(0.28)	(1.09)				
(6)	−413.47	35.55	0.50	0.12	0.05	0.02	0.27			0.69
	(3.24)*	(3.22)*	(1.92)	(2.58)*	(0.06)	(1.21)	(1.19)			
(7)	−379.70	32.66	0.41	0.13	0.88	0.02	0.30	−0.47		0.72
	(3.04)*	(2.92)*	(1.88)	(2.46)*	(0.71)	(1.56)	(1.29)	(1.55)		
(8)	−345.53	30.83	0.19	0.12	0.99	0.03	0.27	−0.44	−0.81	0.74
	(2.68)*	(2.72)*	(0.67)	(2.08)*	(0.75)	(1.89)	(1.25)	(1.46)	(1.28)	

Note: White heteroskedasticity-consistent standard error and covariances. Significance at 5% level indicated by a star.

cent fewer people happy.[7] Note that the inclusion of the unemployment variable makes the coefficient of economic freedom drop because the two are correlated in the data: the OECD countries with a low value on the freedom index also have higher than average rates of unemployment. We also experimented with adding a measure of tertiary education (Barro and Lee, 2000) and a measure of the frequency of divorces and separations. None of these variables had a significant coefficient when added to the list of variables in Table 4.1.

In sum, the list of statistically significant variables includes GDP per capita, economic freedom and openness to international trade. In addition there is a positive relationship between the number of hours worked and reported happiness. In Figure 4.4 we show the relationship between happiness, on the one hand, and economic freedom and openness, on the other.

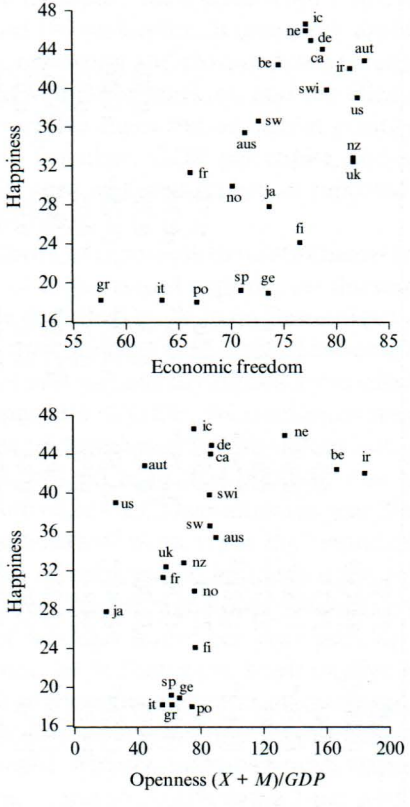


Figure 4.4 Reported happiness, economic freedom and openness

CULTURE AND VALUES

We now move on to discuss which factors determine GDP per capita, economic freedom and openness to international trade. The estimated equation is the following

$$\Gamma^r = BC \tag{4.2}$$

where Γ^r is a 3*22 submatrix of Γ in equation (4.1) with observations on GDP per capita, economic freedom and openness, B is a vector of coefficients and C is a matrix of cultural variables for the 22 countries. We would like to find differences in culture and values that can explain the differences in these three variables across our group of 22 OECD counties. Here we follow in the footsteps of Phelps (2006a), who explained European economic performance – measured by its unemployment rate, its labor force participation rate and the rate of productivity growth – by a set of cultural variables. The findings suggested that the Continent's economic performance was weighed down by several elements of its economic culture.

We use the World Values Survey to measure cultural differences; in particular, we take the responses to the following questions as a measure of work ethics and report the proportion of respondents who choose the answer written in bold letters.

1. Here are some more aspects of a job that people say are important. Please look at them and tell me which ones you personally think are important in a job:
   A job in which you feel you can achieve something: a) **Mentioned**; b) Not mentioned.
   An opportunity to use initiative: a) **Mentioned**; b) Not mentioned.
   A job that is interesting: a) **Mentioned**; b) Not mentioned.
2. People have different ideas about following instructions at work. Some say that one should follow one's superior's instructions even when one does not fully agree with them. Others say that one should follow one's superior's instructions only when one is convinced that they are right. With which of these two opinions do you agree?
   a) **Follow instructions**; b) Must be convinced first; c) Depends.
3. Now I'd like you to tell me your views on competition.
   a) **Competition is good. It stimulates people to work hard and develop new ideas**;
   b) Competition is harmful. It brings out the worst in people.
4. Here are some more aspects of a job that people say are important. Please look at them and tell me which ones you personally think

are important in a job: Generous holidays: a) Not mentioned; b) **Mentioned**.

5. Here are some more aspects of a job that people say are important. Please look at them and tell me which ones you personally think are important in a job: Not too much pressure: a) Not mentioned; b) **Mentioned**.
6. Here are some more aspects of a job that people say are important. Please look at them and tell me which ones you personally think are important in a job: Good job security: a) Not mentioned; b) **Mentioned**.

Answers are measured by the proportion of respondents that answered each question most favourably as indicated in bold letters above. Table 4.2 shows the responses for each of the 22 OECD countries.

What emerges is a difference between the English-speaking countries and the continental European countries. The former group puts greater emphasis on being able to achieve on the job, on showing initiative and that the job is interesting; they also have a more favourable view of competition. The English-speaking respondents are also more inclined to follow instructions. Finally, they put less emphasis on vacations. The Nordic nations have values that fall somewhere between those of these two groups. The Japanese are similar to the Continental Europeans except that they emphasize job security more than anyone else. We put Iceland in a separate line at the bottom of the table because its culture appears to be a mixture of the English speaking and the Continental cultures: work ethics resemble the former while in terms of religion and social capital it is closer to the latter. Surprisingly, it differs from the larger Scandinavian countries in terms of a lower level of trust.

We next turn to different cultural aspects. These are, first, what we can call social capital, and second those having to do with religion. When it comes to social capital we are referring to the level of trust that exists between citizens as well as confidence in the authorities. The role of trust has been described by a number of authors. One of the earlier ones is Banfield (1958).[8] Knack and Keefer (1997) find a relationship between trust and economic growth. They cite Arrow (1972) in support of their findings; he claimed that 'virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time'. They then go on to explain that trust is important in the relationship between an employer and his or her employees as well as in the relationship between a government and its citizens. Trust facilitates the writing of contracts, and lawsuits become fewer in number. However, as pointed out by Baumol *et al.* (2007) the causality can sometimes be reversed when economic growth creates increased civility and trust.

Table 4.2 Work ethics. social capital and religion

	Work ethics								Religion		Social capital	
	achieve	initiative	interest-ing	obedience	competi-tion	leave	no pressure	job sec.	God	god. pol.	trust	confid. p.o.
Australia	71.6	52.3	74.1	48.9	26.4	13.7	23.6	58.5	21.1	–	38.1	3.5
Canada	72.7	49.9	70.4	57.2	23.6	26.4	27.8	64.9	36.9	6.6	38.4	7.1
Ireland	71.2	58.9	72.2	36.8	19.7	45.9	44.2	68.5	36.1	4.0	35.2	13.0
N. Zealand	82.5	72.5	83.7	33.6	24.1	32.3	35.4	72.0	23.3	–	47.5	2.6
U.K.	57.9	39.2	67.9	43.5	11.6	39.3	28.3	65.1	13.9	3.3	28.5	3.3
U.S.	83.7	61.7	81.5	64.5	28.9	36.6	37.8	71.8	58.2	17.6	35.5	10.4
Average	**73.3**	**55.8**	**75.0**	**47.4**	**22.4**	**32.4**	**32.9**	**66.8**	**31.6**	**7.9**	**37.2**	**6.7**
Austria	56.5	48.5	57.3	24.8	22.6	20.3	17.8	75.4	24.6	4.6	31.3	4.8
Belgium	46.7	49.1	56.0	30.7	10.3	33.9	31.9	47.1	14.7	3.3	29.4	3.0
France	50.3	42.8	65.6	33.3	15.8	19.8	11.5	46.3	8.3	3.9	21.4	4.2
Germany	49.1	51.2	68.5	34.6	14.7	23.6	22.7	78.0	9.1	3.6	31.2	2.3
Greece	60.2	56.2	68.9	26.4	15.0	32.4	53.5	65.3	30.1	17.5	20.5	1.4
Italy	75.4	64.4	75.5	26.3	17.8	34.7	60.3	76.1	32.3	4.4	31.8	3.5
Netherlands	40.0	62.0	55.7	27.5	4.8	27.7	33.0	28.6	11.7	0.6	59.4	1.7
Portugal	48.1	35.4	45.0	42.1	17.5	37.3	24.4	64.4	35.7	2.6	9.8	3.0
Spain	47.7	35.0	53.2	35.1	12.7	40.2	39.0	74.7	17.8	1.8	36.3	6.3
Switzerland	56.3	61.4	72.1	33.8	26.3	26.1	30.5	64.4	16.3	–	37.8	2.0
Average	**53.0**	**50.6**	**61.8**	**31.5**	**15.8**	**29.8**	**32.5**	**62.0**	**20.1**	**4.7**	**30.9**	**3.2**
Japan	**69.7**	**49.8**	**63.7**	**28.0**	**10.6**	**70.6**	**69.1**	**80.3**	**6.0**	**2.2**	**39.6**	**1.7**

Table 4.2 (continued)

	Work ethics								Religion		Social capital	
	achieve	**initiative**	**interest-ing**	**obedience**	**competi-tion**	**leave**	**no pressure**	**job sec.**	**God**	**god. pol.**	**trust**	**confid. p.o.**
Denmark	54.9	49.5	64.7	34.5	13.3	16.1	13.9	50.0	6.5	1.3	64.1	3.5
Finland	56.1	48.1	76.0	30.0	10.6	20.8	30.9	68.2	16.2	3.5	56.8	3.2
Norway	74.4	49.7	70.1	59.7	17.5	10.7	23.8	69.3	11.9	–	64.8	2.1
Sweden	72.3	51.9	69.9	37.6	17.7	19.5	35.0	51.0	8.8	1.7	63.7	2.4
Average	**62.8**	**52.1**	**70.6**	**39.1**	**17.1**	**19.3**	**26.8**	**60.6**	**10.9**	**2.2**	**62.4**	**2.8**
Iceland	**80.6**	**63.1**	**76.1**	**42.0**	**33.7**	**17.6**	**32.4**	**58.4**	**15.2**	**2.6**	**39.3**	**5.3**

Note: job sec. = job security; god. pol. = godly politicians; confid. p.o. = confidence in public officials.

We use the answers to the following two questions to measure social capital.

7. Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? a) Most people can be trusted; b) Can't be too careful.
8. Could you tell me how much confidence you have in the civil service: a) A great deal; b) Quite a lot; c) Not very much; d) None at all.

The table gives the proportion of respondents who have a lot of confidence in the civil service and trust their fellow citizens (answers indicated in bold letters above). Note that the four Nordic countries have a high level of trust. In contrast, there is little difference between the English-speaking nations and the Continental Europeans. Confidence in the civil service is greatest in the English-speaking countries.

Finally, we turn to religion. The table gives the proportion of respondents who answered the following two questions in the affirmative.

9. How important is God in your life? Please use this scale to indicate – 10 means very important and 1 means not at all important: a) Not at all important; b) 2; c) 3; d) 4; e) 5; f) 6; g) 7; h) 8; i) 9; j) Very important.
10. How much do you agree or disagree with the following statement: Politicians who do not believe in God are unfit for public office: a) Agree strongly; b) Agree; c) Neither agree or disagree; d) Disagree; e) Strongly disagree.

The proportion of respondents who express a strong belief in god is greatest in the US and thereafter in the Catholic part of Europe. Only in the US and in Ireland do people put much weight on politicians being religious.

We now use factor analysis to derive principal components for the matrix of values shown in Table 4.3. We proceed by summarizing work ethics by deriving the principal components of the 8*22 sub-matrix containing information on those factors. The first principal component, PC1, explains 40 per cent of the variation in the matrix, the second principal component, PC2, explains 27 per cent of the variation and the third, PC3, explains 14 per cent of the variation. Table 4.3 has the eigenvectors for the three principal components.

The first principal component, PC1, emphasizes achievement, initiative and interesting jobs, and values competition. This captures what we can call 'good work ethics'. The second principal components emphasizes

Table 4.3 Principal components for work ethics

	PC1-good work ethics	PC2-low pressure	PC3-initiative
Achievement	**0.53**	0.03	−0.08
Initiative	**0.38**	0.07	**0.60**
Interesting	**0.49**	−0.05	0.21
Obedience	0.26	**−0.33**	**−0.50**
Competition	**0.43**	−0.24	−0.12
Vacation	−0.01	**0.60**	−0.19
Low pressure	0.16	**0.61**	0.08
Job security	0.24	**0.31**	**−0.53**

Note: Bold indicates a factor loading higher than 0.30.

annual leave, a job free of stress and job security, while willingness to follow instructions receives a negative factor loading. We can call this factor 'low pressure'. The third principal component, PC3, has a positive factor loading for initiative, while willingness to follow instructions and job security get a negative loading. We can call the variable 'initiative'.

Our one remaining step is to take our measures of trust and work ethics to explain the pattern of GDP per capita, economic freedom, openness to international trade and hours of work, the four variables that were positively related to reported happiness above.[9] The results are shown in Table 4.4. Trust has a positive impact on GDP as does economic freedom. Confidence in the civil service has a positive relationship to GDP, economic freedom and openness to trade. The first PC – good work ethics – has a positive relationship to GDP but a negative relationship to openness. The second PC – low pressure – has a negative impact on GDP per capita. The third PC – initiative – has a positive effect on openness to trade. Hours of work are a positive function of good work ethics as measured by PC1.

We also explore an alternative model where GDP per capita, economic freedom, openness, hours worked and the cultural variables are put on equal par instead of making the first three a function of underlying cultural variables. We then reduce equations (4.1) and (4.2) so that they become

$$H = C\Gamma^r + DC \tag{4.3}$$

where H, Γ^r and C have the same interpretations as above. The results (not reported here) indicate that all the cultural variables apart from the third principal component, which we labelled initiative, become insignificant at

Table 4.4 Happiness, trust and work ethics

	Log(GDP)	Log(GDP)*	Freedom	Freedom	Open**	Open**	Hours***	Hours***	Happiness	Happiness
Constant	9.73	9.80	64.05	67.29	42.21	35.51	1786.37	1897.25	16.15	20.91
	(79.37)*	(69.91)*	(16.61)*	(3.88)	(3.89)*	(2.29)*	(11.11)	(13.98)	(3.06)*	(3.60)*
Trust	0.01	0.01	0.09	0.05	0.44	0.38	−3.73	−4.16	0.30	0.16
	(2.80)*	(1.92)	(1.21)	(0.59)	(1.46)	(1.15)	(1.38)	(1.81)	(2.69)*	(1.26)
Conf. civil	0.02	0.03	0.74	0.31	7.34	9.182	2.75	−13.88	1.27	1.49
service	(1.86)*	(2.01)*	(2.68)*	(0.91)	(2.93)*	(4.40)*	(0.25)	(1.11)	(3.10)*	(3.19)*
PC1-good		0.01		1.74		-5.83		52.42		0.11
work ethics		(0.58)		(2.58)**		(1.91)		(3.37)*		(0.11)
PC2-		−0.09		0.09		1.76		54.93		-2.54
low pressure		(2.83)*		(0.13)		(0.64)		(1.71)		(1.47)
PC3-		0.01		−0.08		10.40		−0.55		3.43
initiative		(0.25)		(0.07)		(1.98)*		(0.02)		(2.03)*
population					−0.38	-0.00				
					(6.32)*	(4.87)*				
R-squared	0.34	0.58	0.15	0.39	0.74	0.85	0.21	0.56	0.28	0.51

Note: * Japan is an outlier. ** Belgium is an outlier. *** Italy and Japan are outliers. Significance at 5% level indicated by a star.

the 5 per cent level. These variables hence affect H mainly through Γ^r; that is output per capita, economic freedom and openness.

We finally estimate the reduced form relationship between happiness, social capital and work ethics. The results are reported in the right-most column, and show that happiness has a negative relationship with PC2 and a positive relationship with PC3. Trust and confidence in the civil service has a positive coefficient.

CONCLUDING REMARKS

We have found that it is not just income that generates happiness, but also opportunities in the form of economic freedom and international trade. In addition, good work ethics, initiative and a level of mutual trust between citizens pay off in terms of greater happiness. We have also found cultural patterns within the group of OECD economies. The English-speaking world appears to have better, or at least different, work ethics from Continental Europe, and Scandinavia falls somewhere in between. Moreover, the Scandinavian countries benefit from a higher level of trust. Japan differs mainly from the rest in putting much greater weight on annual leave, public holidays, job security and not facing too much pressure at work.

The Continental European economies of Spain, Portugal, Greece, Italy, Germany and France have low levels of reported happiness, which could be explained by lower levels of economic freedom, less trade with the outside world, fewer hours of work, a culture which does not yield trust comparable to that of Scandinavia, and lower levels of work ethics than the Anglo-Saxon countries. In short, these economies are lacking in dynamism. This is then manifested in higher unemployment rates and lower labor force participation rates. In contrast, reported happiness and job satisfaction are greater in Scandinavia and the English-speaking countries due to more trust, greater economic freedom, more openness and different work ethics. There remains the question whether institutional change on the Continent can occur in spite of its culture and, if so, if culture may change as a consequence.

NOTES

1. The high level of productivity in Norway is an anomaly in that it is partly explained by its income from oil production.
2. The countries are: Austria (aus), Australia (aut), Belgium (be), Canada (ca), Denmark

(de), Finland (fi), France (fr), Germany (ge), Greece (gr), Iceland (ic), Ireland (ir), Italy (it), Japan (ja), Netherlands (ne), Norway (no), New Zealand (nz), Portugal (po), Spain (sp), Sweden (sw), Switzerland (swi), the UK (uk) and the US (us).

3. Source: *Index of Economic Freedom, The Heritage Foundation* (http://www.heritage.org/research/features/index/chapters/htm/index2007_chap3.cfm). The index is a simple average of measures of ten types of freedom: business freedom, which measures the ease of creating, operating and closing a business; trade freedom, which measures tariff and non-tariff protection; monetary freedom, which measures price stability; freedom from government, which measures public expenditures; fiscal freedom, which measures the tax burden; property rights, which measures laws protecting property rights: investment freedom, which measures how freely capital flows between countries; financial freedom, which measures banking security and the private ownership of banks; freedom from corruption; and labor freedom, which measures the freedom workers and business have to interact without any restrictions imposed by the state.
4. Average hours worked per employed person per year.
5. Statutory annual minimum leave.
6. Paid public holidays.
7. See also Eurobarometer Survey, 1975–1991, http:ec.europa.eu/public_opinion/archives/eb_arch_en.htm, accessed 10 October 2008.
8. See also the Russell Sage conference on altruism, Phelps (1975).
9. In the openness regression we correct for the size of the population and find, not surprisingly, that smaller nations trade more with other countries.

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APPENDIX 4.1: ECONOMIC PERFORMANCE

Table 4.A1 Unemployment rate

	1960–64	1965–69	1970–1974	1975–79	1980–84	1985–89	1990–94	1995–99	2000–2004
Australia	1.94	1.71	2.20	5.52	7.49	7.33	9.27	7.91	6.20
Canada	5.85	3.98	5.80	7.55	9.88	8.88	10.27	8.80	7.26
Ireland	5.25	5.15	6.24	8.97	12.19	16.27	14.54	9.48	4.34
New Zealand	0.07	0.27	0.23	0.95	3.84	4.86	9.21	6.65	5.00
UK	1.38	1.63	2.30	4.38	9.40	9.29	8.68	7.19	5.06
US	5.72	3.84	5.41	7.02	8.32	6.23	6.59	4.93	5.21
Austria	2.01	1.61	1.01	1.47	2.55	3.96	4.81	5.52	4.59
Belgium	1.48	1.56	1.49	5.25	9.33	9.24	7.69	9.28	7.52
France	1.20	2.04	2.71	4.88	7.92	10.08	10.48	11.53	9.19
Germany	0.49	0.67	0.71	2.15	4.44	5.90	6.28	8.41	8.29
Greece	6.16	4.59	2.92	1.90	5.72	7.54	8.52	10.34	10.48
Italy	3.46	4.13	4.27	5.09	6.99	9.88	9.57	11.75	9.06
Netherlands	0.56	1.08	1.79	3.85	7.99	8.03	6.20	5.31	3.13
Portugal	2.22	4.40	2.86	6.91	8.21	7.20	5.13	6.10	5.22
Spain	1.87	2.14	2.29	4.53	12.41	15.17	14.29	16.00	11.04
Switzerland	0.02	0.01	0.01	0.43	0.57	0.78	2.67	4.13	3.42
Japan	1.34	1.22	1.29	2.04	2.39	2.60	2.35	3.74	5.05
Denmark	1.14	1.08	1.23	4.82	7.38	5.82	8.18	5.61	4.85
Finland	1.41	2.52	2.16	4.98	5.15	4.65	10.91	12.89	9.22
Norway	1.71	1.55	1.49	1.85	2.58	2.96	5.60	4.01	3.97
Sweden	1.58	1.79	2.24	1.86	2.83	2.14	5.21	7.18	5.11

Table 4.A2 Male labor force participation rate (25–64 years of age)

	1960–64	1965–69	1970–1974	1975–79	1980–84	1985–89	1990–94	1995–99	2000–2004
Australia		79.29	78.91	78.39	89.87	87.46	88.11	86.87	85.18
Canada		..	..	..	90.99	89.16	88.37	85.78	86.00
Ireland		95.63	95.71	93.34	..	88.66	87.11	86.27	87.31
New Zealand		..	..	..	..	..	87.09	87.71	88.08
UK		..	..	..	..	89.67	89.62	86.91	86.21
US		93.20	93.21	90.63	89.87	89.14	89.33	87.75	87.65
Austria		..	..	..	..	..	..	84.56	83.40
Belgium		..	..	..	..	83.33	80.28	81.09	81.80
France		..	92.15	91.74	91.39	86.42	85.55	85.04	84.89
Germany		..	93.57	91.31	90.37	86.70	83.54	84.00	83.51
Greece		..	..	..	..	88.74	85.30	86.26	86.05
Italy		..	89.18	88.56	89.03	86.01	85.19	80.98	80.78
Netherlands		..	92.15	90.27	87.78	83.80	85.33	84.37	85.67
Portugal		..	..	91.24	90.17	88.35	88.63	86.73	86.99
Spain		..	..	93.13	91.46	88.68	87.47	85.50	87.20
Switzerland		..	..	..	..	..	..	95.49	93.39
Japan		51.07	95.67	95.79	95.31	94.26	94.53	94.72	94.17
Denmark		..	..	..	..	88.22	90.03	87.74	85.84
Finland		92.02	89.73	87.66	86.37	86.07	84.82	82.40	82.60
Norway		..	..	89.49	89.88	92.48	88.94	88.16	88.35
Sweden		94.31	92.56	92.14	91.65	91.18	91.12	88.04	86.83

Note: Beginning of period, initial value 1966.

Table 4.A3 Female labor force participation rate (25–64 years of age)

	1960–64	1965–69	1970–1974	1975-79	1980–84	1985–89	1990–94	1995–99	2000–2004
Australia		30.40	34.95	40.07	46.86	50.16	59.64	62.60	64.56
Canada		..	..	..	54.82	62.13	68.65	69.39	72.19
Ireland		22.29	..	24.95	..	33.76	40.86	49.05	58.69
New Zealand		..	..	..	..	..	62.66	66.61	69.41
UK		..	..	..	..	60.21	65.93	67.53	69.52
US		44.08	48.59	52.10	59.24	64.23	69.12	71.46	72.49
Austria		..	..	..	..	..	..	62.80	64.14
Belgium		..	..	..	..	46.15	49.27	56.51	61.98
France		..	47.69	53.51	59.08	60.40	64.02	68.34	70.17
Germany		..	42.29	46.73	50.47	50.52	55.15	63.19	66.17
Greece		..	..	..	..	42.99	44.55	47.30	53.20
Italy		..	26.50	28.83	37.55	40.14	45.05	44.43	48.81
Netherlands		..	..	25.63	32.21	38.10	50.83	58.08	64.24
Portugal		..	..	43.10	49.43	56.51	61.21	66.15	69.81
Spain		..	..	26.81	28.37	31.63	40.56	48.33	55.18
Switzerland		..	..	..	..	..	..	69.62	72.77
Japan		26.28	53.38	50.85	54.67	57.33	60.49	61.41	62.48
Denmark		..	..	..	..	75.30	79.66	74.29	77.41
Finland		64.97	64.85	70.91	74.46	78.21	77.32	76.29	76.99
Norway		..	..	52.71	64.17	70.77	74.47	76.48	79.44
Sweden		51.91	59.30	68.32	76.27	82.32	85.70	82.59	81.27

Note: Beginning of period, initial value 1966.

Table 4.A4 Male labor force participation rate (15–24 years of age)

	1960–64	1965–69	1970–1974	1975–79	1980–84	1985–89	1990–94	1995–99	2000–2004
Australia		78.93	76.54	74.65	78.08	75.58	75.27	73.82	72.26
Canada		..	..	..	73.15	71.09	72.41	64.90	65.93
Ireland		76.36	..	69.43	..	62.39	53.18	49.59	56.08
New Zealand		..	..	..	..	..	72.67	71.42	65.89
UK		..	..	..	..	..	..	65.05	70.55
US		..	..	..	..	82.84	83.47	74.37	73.65
Austria		..	..	..	..	..	..	64.39	61.28
Belgium		..	..	..	..	43.19	37.02	36.00	38.72
France		..	60.26	55.62	52.01	48.10	39.64	32.39	32.57
Germany		..	75.54	65.88	61.79	62.96	61.16	56.77	54.70
Greece		..	..	..	..	48.22	44.08	41.32	41.03
Italy		..	52.08	44.78	49.38	47.27	46.07	46.00	44.55
Netherlands		..	..	54.67	49.38	50.51	61.84	65.52	71.64
Portugal		..	..	51.89	65.07	64.31	63.91	57.99	67.47
Spain		..	..	78.76	78.46	72.83	66.53	49.30	50.81
Switzerland		71.70	67.03	72.38	72.46	66.85	69.49	52.87	53.40
Japan		58.98	57.68	50.23	42.87	42.56	43.40	48.01	47.41
Denmark		..	..	..	..	78.75	76.52	76.99	75.17
Finland		65.80	64.06	57.38	56.89	55.23	58.13	43.03	50.45
Norway		..	..	51.89	65.07	64.31	63.91	57.99	67.47
Sweden		..	..	71.87	70.47	65.21	61.83	52.79	53.59

Note: Beginning of period, initial value 1966.

Table 4.A5 Female labor force participation rate (15–24 years of age)

	1960–64	1965–69	1970–1974	1975–79	1980–84	1985–89	1990–94	1995–99	2000–2004
Australia		60.83	59.73	61.23	66.18	66.75	68.86	69.78	68.90
Canada		..	..	..	63.89	65.56	67.35	61.35	62.82
Ireland		62.28	..	54.06	..	54.35	47.25	42.37	46.89
New Zealand		..	..	..	..	..	64.93	63.45	59.85
UK		..	..	..	..	69.79	72.38	64.82	65.69
US		43.63	51.29	57.17	61.90	63.71	62.86	62.31	63.00
Austria		..	..	..	..	..	..	56.20	50.29
Belgium		..	..	..	..	41.45	34.08	31.68	32.64
France		..	47.20	45.50	42.89	39.65	33.13	26.46	25.96
Germany		..	64.85	60.13	56.44	56.45	56.83	49.93	48.20
Greece		..	..	..	..	34.01	35.25	32.51	35.35
Italy		..	35.55	31.63	41.20	40.37	40.78	34.09	34.28
Netherlands		..	..	48.74	47.34	49.13	60.85	63.54	69.96
Portugal		..	..	63.10	61.39	55.98	54.43	39.69	41.00
Spain		..	..	52.09	47.84	44.28	47.68	42.95	43.28
Switzerland		..	..	..	..	..	..	62.09	66.26
Japan		51.81	53.45	45.63	43.87	43.18	44.79	47.24	46.64
Denmark		..	..	..	..	72.19	70.35	69.44	68.76
Finland		54.70	55.06	53.50	52.41	54.90	56.92	39.48	51.08
Norway		..	..	48.35	55.15	57.39	56.94	53.67	61.76
Sweden		60.55	59.41	66.12	71.02	67.18	69.05	52.69	51.22

Note: Beginning of period, initial value 1966.

Table 4.A6 Male labor force participation rate (65+ years of age)

	1960–64	1965–69	1970–1974	1975–79	1980–84	1985–89	1990–94	1995–99	2000–2004
Australia		..	..	..	11.22	9.12	9.17	9.62	10.04
Canada		..	..	15.37	13.19	11.76	10.80	9.94	9.50
Ireland		48.43	..	28.20	..	16.34	16.45	15.25	14.73
New Zealand		..	..	..	..	..	10.41	9.85	11.76
UK		..	..	..	..	8.54	8.81	8.21	7.85
US		27.28	26.75	21.64	18.97	15.80	16.33	16.76	17.73
Austria		..	..	..	..	..	..	5.46	4.25
Belgium		..	..	..	..	2.58	1.92	2.28	2.21
France		..	19.48	14.03	8.37	5.28	3.74	2.53	1.89
Germany		..	17.20	10.58	6.84	5.11	4.65	4.23	4.42
Greece		..	..	..	..	14.98	11.81	11.69	8.43
Italy		..	12.90	10.40	12.62	8.40	7.13	6.41	5.83
Netherlands		..	11.33	7.98	4.77	3.47	..	5.38	5.51
Portugal		..	..	37.75	28.05	20.18	19.81	23.60	25.02
Spain		..	..	18.75	12.71	6.06	3.81	2.98	2.55
Switzerland		..	..	..	..	..	..	20.15	20.32
Japan		56.25	49.38	44.36	40.98	36.96	36.47	37.32	34.10
Denmark		..	..	..	..	13.15	13.00	4.68	3.91
Finland		18.00	41.03	29.41	17.01	10.64	9.21	5.56	6.25
Norway		..	..	37.58	34.34	26.40	25.00	15.29	14.19
Sweden		37.73	28.91	19.90	14.29	11.17	12.60	13.90	14.99

Note: Beginning of period, initial value 1966.

Table 4.A7 Female labor force participation rate (65+ years of age)

	1960–64	1965–69	1970–1974	1975–79	1980–84	1985–89	1990–94	1995–99	2000–2004
Australia		..	..	..	2.82	2.14	2.42	2.61	3.07
Canada		..	..	..	3.88	4.06	3.60	3.35	3.31
Ireland		13.23	11.33	7.20	4.76	3.87	3.40	3.00	2.94
New Zealand		..	..	..	..	4.50	3.63	2.96	4.40
UK		..	..	..	..	3.03	3.38	3.19	3.39
US		9.74	9.68	8.24	8.07	7.27	8.63	8.83	9.38
Austria		..	..	..	..	..	..	2.36	1.61
Belgium		..	..	..	..	0.86	0.57	0.97	1.14
France		..	8.60	5.83	3.43	2.19	1.52	1.19	0.92
Germany		..	6.10	4.62	3.21	2.30	2.21	1.55	1.49
Greece		..	..	..	..	5.42	4.54	3.71	2.73
Italy		..	2.60	2.10	3.48	2.07	2.21	1.76	1.56
Netherlands		..	2.23	1.77	0.94	0.65	..	0.91	1.46
Portugal		..	..	10.67	8.59	7.81	7.66	11.32	13.25
Spain		..	..	6.29	4.01	2.29	1.71	1.41	0.97
Switzerland		..	..	..	..	..	..	9.97	9.67
Japan		21.61	17.94	15.26	15.55	15.54	16.16	15.64	14.40
Denmark		..	..	..	..	3.24	3.35	0.95	1.60
Finland		3.85	10.99	8.49	5.58	4.82	3.40	2.01	1.64
Norway		..	..	12.11	12.69	13.55	11.98	9.00	8.47
Sweden		11.59	8.74	6.08	3.82	2.91	5.09	5.28	6.27

Note: Beginning of period, initial value 1966.

Table 4.A8 Hourly productivity relative to US levels

	1960–64	1965–69	1970–1974	1975–79	1980–84	1985–89	1990–94	1995–99	2000–2004
Australia			0.82	0.81	0.83	0.84	0.82	0.86	0.86
Canada			0.85	0.87	0.87	0.86	0.84	0.85	0.84
Ireland			0.48	0.56	0.65	0.70	0.80	0.91	1.03
New Zealand			0.70	0.67	0.63	0.64	0.65	0.64	0.62
UK			0.70	0.72	0.79	0.80	0.81	0.86	0.86
US			1.00	1.00	1.00	1.00	1.00	1.00	1.00
Austria			–	–	–	–	–	0.91	0.89
Belgium			0.84	0.94	1.05	1.09	1.15	1.18	1.14
France			0.73	0.80	0.89	0.96	1.02	1.05	1.05
Germany			0.70	0.78	0.85	0.87	0.94	1.00	0.98
Greece			–	–	0.67	0.68	0.67	0.66	0.69
Italy			0.66	0.73	0.81	0.84	0.86	0.90	0.84
Netherlands			0.88	1.03	1.08	1.12	1.13	1.16	1.11
Portugal			–	–	–	0.46	0.50	0.54	0.54
Spain			0.59	0.67	0.79	0.88	0.88	0.90	0.82
Switzerland			–	–	–	–	0.88	0.89	0.85
Japan			0.47	0.52	0.58	0.61	0.70	0.73	0.72
Denmark			0.73	0.79	0.85	0.88	0.92	0.98	0.91
Finland			0.53	0.58	0.64	0.69	0.75	0.82	0.83
Norway			0.89	1.01	1.12	1.19	1.26	1.38	1.39
Sweden			0.80	0.82	0.84	0.84	0.83	0.87	0.87

Table 4.A9 Real GDP per capita relative to US levels

	1960–64	1965–69	1970–1974	1975–79	1980–84	1985–89	1990–94	1995–99	2000–2004
Australia	84.63	80.56	84.65	84.19	82.11	77.7	76.01	77.17	75.18
Canada	81.08	80.75	79.20	87.90	89.13	83.16	81.36	77.01	78.05
Ireland	40.69	40.69	44.55	46.75	47.92	46.39	51.82	57.32	72.60
New Zealand	91.85	90.81	79.10	78.91	69.37	67.08	63.28	63.77	59.43
UK	76.62	72.14	72.12	71.63	71.38	69.02	72.55	71.64	71.78
US	100	100	100	100	100	100	100	100	100
Austria	65.48	65.62	74.06	81.50	84.61	80.33	83.72	81.96	78.57
Belgium	61.97	64.14	72.20	77.07	79.05	70.39	77.60	77.08	71.77
France	66.40	69.19	77.52	80.62	80.99	75.45	79.43	75.70	72.88
Germany	–	–	77.53	77.88	80.80	73.60	79.22	79.90	72.93
Greece	31.38	37.59	46.40	52.14	53.36	45.17	43.20	41.56	40.69
Italy	55.47	57.50	67.35	67.31	71.74	68.59	73.65	70.94	65.44
Netherlands	81.53	80.35	87.67	88.85	85.58	77.50	79.32	77.70	76.51
Portugal	27.48	30.06	38.81	40.81	43.06	39.03	48.91	50.61	50.41
Spain	37.49	44.71	52.48	58.84	54.24	49.55	56.96	56.10	56.85
Switzerland	117.47	113.93	116.80	108.72	108.02	100.91	101.07	94.43	83.90
Japan	35.91	45.12	66.76	70.04	72.35	72.73	81.84	79.78	69.75
Denmark	85.73	89.74	93.01	88.94	85.73	83.11	82.04	83.45	80.98
Finland	60.31	62.14	68.22	74.32	74.36	72.03	75.85	64.48	66.17
Norway	73.14	74.20	78.36	85.47	95.11	93.72	82.46	85.74	96.30
Sweden	86.89	88.61	92.68	94.75	85.82	81.13	82.78	76.24	73.42

APPENDIX 4.2: ESTIMATION OF EQUATION (4.3)

Table 4.A10 Estimated happiness equation (4.3)

Dependent variable: happiness									
Constant	**Log(GDP)**	**Freedom**	**Open**	**Trust**	**Conf. civil s.**	**PC1**	**PC2**	**PC3**	**R^2**
−488.76	38.13	0.76	0.08	0.06	0.36	−2.94	−2.28	2.59	0.86
(4.40)	(4.30)*	(3.07)*	(2.31)*	(0.60)	(1.08)	(2.65)*	(2.68)*	(2.69)*	

Note: White heteroskedasticity-consistent standard error & covariances. Significance at 5% level indicated by a star.