

## A NEW MEASURE OF COMPARATIVE WELFARE

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### ABSTRACT

The excess of wages in risky over safe occupations provides a relatively culture-free measure of the welfare level of ordinary people. In contrast, conventional welfare measures are highly dependent on culture and therefore of little use in making cross-country welfare comparisons. The available international data reveal that the incomes of individuals in European cultures must be expanded approximately *six* times in order to achieve the same welfare levels (risky/safe wage differentials) obtained in non-European cultures. Alternative hypotheses explaining this large differential are developed and tested, the most satisfactory being that 19<sup>th</sup> century Western educational reforms generated a welfare-decreasing relative-income effect

### INTRODUCTION

If we were to ask competitive runners what was the best test of a runner's true ability, we would undoubtedly find most marathon runners arguing that the marathon was the best test and most sprinters that the sprint was the best test. We would then regard each of these respondents as seriously biased by a natural desire to feel good about one's self. Should we not suspect a similar bias when we observe market-responsive economists in high-per-capita-income countries using per capita income to measure comparative international welfare?

After all, a country's per capita income is as much a measure of a typical citizen's culture-driven desperation to achieve happiness by sacrificing to obtain the goods of others as it is a measure of the citizen's ability to achieve such happiness in that country. More generally, people raised in certain cultures may evaluate the rewards from productivity-increasing sacrifice quite differently, and may even be much happier than, people who have sacrificed much more for their material benefits. Real people receive substantial utilities or disutilities from the exaggerated beliefs that the evolved institutions of their societies have induced in them, and this may dramatically affect their utilities throughout their lives.

While, in response to such complaints, economists from high-per-capita-income countries typically argue that better welfare measures do not exist, a *very obvious* alternative measure *does* exist, at least for ordinary working people. We are not thinking here of comparative real wage rates. For although such measures do eliminate the hours-of-work bias that exists in per-capita-income measures, they do not eliminate potential biases resulting from differences in labor intensities or in the

utilitarian sacrifices that acculturated individuals have been induced to make in order to enhance their overall domestic productivity. Regarding these current sacrifices, what we *are* thinking is this:

Ordinary workers in any country can receive higher wages by working in a relatively high-life-risk occupation, the wage premium offered by this occupation reflecting the extent to which the workers in the country are willing to risk their lives to earn the higher wage. In other words, the real absolute wage differential in a life-risky occupation in a given country is a measure the real value of life to a typical worker in this country. Cross-country wage differentials between high-life-risk and low-life-risk occupations thereby measure of the relative values of ordinary life in the various countries.

If economists were correct in arguing that real wages or per capita consumption (either of which is typically more relevant to laborers than the country's per capita income) is an adequate measure of welfare of the ordinary people in a country, then these hypothesized welfare measures would rise in approximate proportion to the countries' wage differentials between safe and risky occupations. Our empirical results will uniformly contradict this implication.

Since cultures may, however, differ with respect to their beliefs in the nature of their after-lives, we shall have to appropriately condition our final results.

We confess to have been using alternative measures of regional welfare in other studies, and plan to continue to do so when high-quality data on wage differentials are not available. One such alternative is to measure the pressure toward immigration into the country. However, such immigration pressure measures the potential welfare of individuals with foreign value systems when living in the country in question. It does not get at what we are really after in this paper, *viz.*, the welfare of domestic residents who have been raised in the country and therefore who have been raised with that country's value system.

## I. EMPIRICAL METHODOLOGY

### A. *Multi-Service Occupations.*

Some occupations offer their workers a choice between an ordinary, relatively safe, activity and another, unsafe use of the same worker's services. Perusing lists of available wage data has revealed one such occupation, that of an electrician. Electricians have a choice between working on the ground in the construction industry, a relatively safe activity, and working as a lineman on high-voltage long-distance lines, which is usually done on poles at many feet above ground level. Since the basic education level and amounts of specific training of these two types of labor are approximately the same, their wage differential among private employers is a relatively assumption-free measure of the value of their lives.

Therefore, assuming that the relative risks of these two uses of labor are the same across countries, an assumption that will be substantially relaxed in Section IIC below, relative wage differentials between linemen and ordinary

electricians across countries will provide us with a relatively reliable measure the comparative values of life, of at least one class of ordinary laborers.

Unfortunately for our measurement prospects, we have not found other occupations that report wage data for the occupation's safe and unsafe employment opportunities. If we are not willing to accept a single occupation as representative of the value of life for all of the workers in a society, we are going to have to employ another measurement technique.

### ***B. Cross-Occupation Wage Differentials.***

A more representative measure of the wage differential between risky and safe employments, one less susceptible to the measurement error that can plague the data for a single occupation, can be obtained by pre-selecting a group of relatively safe and relatively life-risky occupations and then subtracting the average wage of workers in the safe occupations from the average wage of workers in the dangerous occupations. The wage differential between the most dangerous occupation (that of seamen) and the least dangerous (office clerks) generally reflects numerous dimensions of relative costs and returns other than life-risk, dimensions that may themselves vary substantially across countries. However, by collecting an average wage for the several safest occupations and then subtracting that from an average wage of workers in the several most-dangerous occupations in that country, we can produce a risky-safe wage-differential for which we can reasonably expect the non-safety dimensions of the observed differentials, and the direct measurement errors as well, to substantially wash out.

The number of high-risk and low-risk employments with high-quality wage data may be so severely limited that this wash-out effect could not be reasonably relied upon. In this case some effort should obviously be made to control for non-risk-related variables. For example, skill level, a well-known determinant of wages, could be controlled for in comparing workers in risky and non-risky jobs. Thus, as between equally contented nations, approximately the same risky-safe wage differential should arise among the skilled laborers in the two countries.

However, such convenient, zero-one, control variables may not be available. Educational attainment, for example, is an essentially continuous determinant of wages. In this case, a third option is nevertheless available.

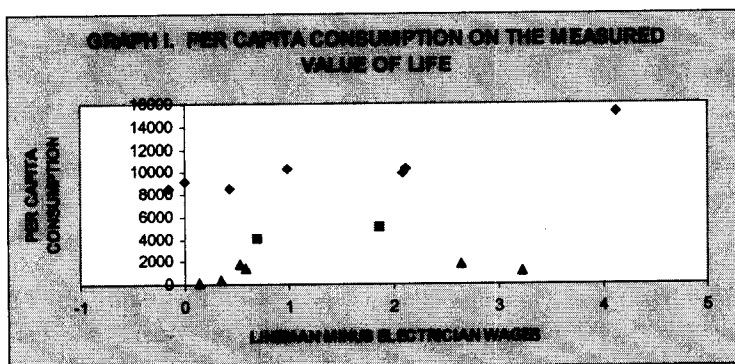
### ***C. Comparative Risk Elasticities.***

We could regress wages on education, experience, and job fatality rates. Comparing the coefficients on job fatality rates would then generate a comparative measure of the willingness of the workers in the various countries to risk their lives and thus a comparative welfare measure. Ideally, i.e., with sufficient data availability to justify all three of these measurement techniques, we would have three separate measures to check against one another to see if they yield the same welfare rankings.

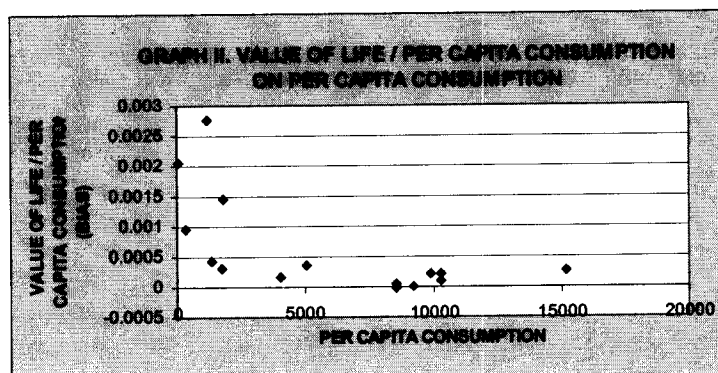
## II. PRELIMINARY EMPIRICAL RESULTS

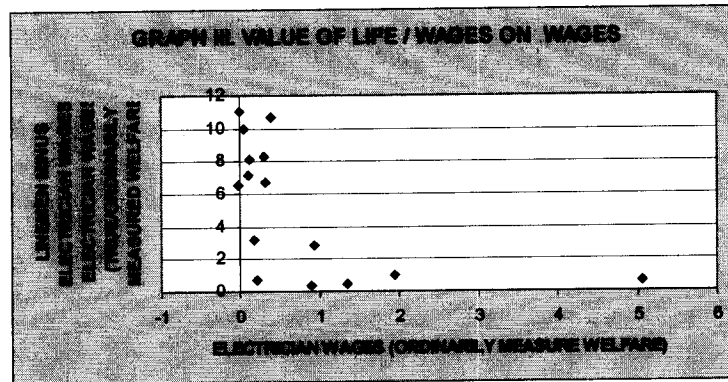
### A. Multi-Service Occupations: Linemen/Electrician Differentials.

Using our first and simplest measurement technique on data described in the Appendix, we illustrate our resulting comparison of the lineman-electrician differential with per-capita-consumption measures in the following scatter diagram:



While the scatter indicates only a roughly positive relationship between per capita consumption and a measure of true welfare, and a scatter of real wages against true welfare does the same thing, such scatters are of limited value in indicating the bias presented by the standard measures. What *does* work in this respect is to recognize that the ratio of the two welfare measures would not be related to per capita consumption or real wage levels if the latter measures were unbiased measures of per capita welfare. The following two scatters, developed from the same data, show quite clearly that true welfare compared to conventionally measured welfare falls sharply as measured welfare rises:





These graphs help confirm our introductory suspicion that conventional welfare measures greatly exaggerate the extent to which ordinary people in high-income countries are better off than those in low-income countries.

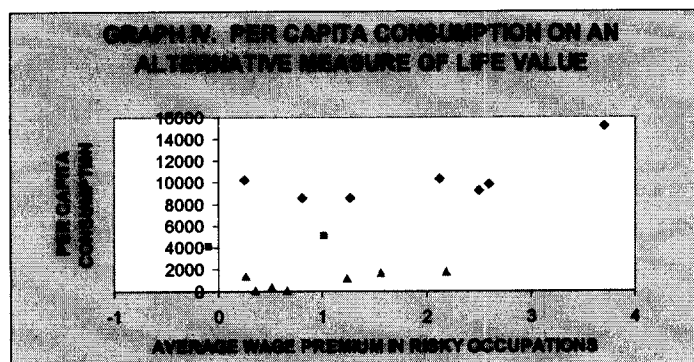
Now a perusal of the data in Graph I above -- where the data points for countries with European cultures are little diamonds, countries with incompletely European cultures are little squares, and countries with non-European cultures are little triangles -- indicates the presence of a constant and remarkably similar marginal relationship between our value-of-life measure and conventionally measured income *within* each cultural class. Regressing per capita consumption on our measure of true welfare, along with dummy variables reflecting the influence of European culture described in the Appendix, the resulting  $R^2$  rose from less than 0.1 on the raw data appearing in Graph I to 0.95. (Essentially the same result was obtained by substituting a nation's average wage rate for its per capita consumption.)

Perhaps then European culture itself has a very significant effect on the excess of conventionally measured welfare over our measure of true welfare. Indeed, European-culture-adjusted per capita consumption rose quite nicely in proportion to our measured value of life, the t-value on adjusted income becoming close to 4 and the t-value of the constant term appropriately falling from 2.5 down to a mere 0.4. (Again, essentially the same results were obtained by replacing per capita consumption with average wage rates.)

#### ***B. Our Results for Cross-Occupational Wage Differentials.***

Although a single variable, European culture, can thus be used to explain a lion's share of the errors in our original regressions, some systematic measurement errors may be lurking in the background despite our ignorance of what they might be. To check for this, we ran the same regression with our alternative measure of true welfare, the average wage-differential between risky and safe occupations. In particular, expanding the sample slightly because one nation

that failed to report both linemen and electrician wages, we regressed per capita consumption against the average wage in the 15 riskiest occupations minus the average wage in the 14 safest occupations. Once again, we reserve the discussion of our data sources and approximation procedures for the Appendix. If there were substantial measurement errors in our genuine welfare measure, it would be extremely unlikely to obtain the same pattern as was observed in the above regressions. Graph IV below contains the Graph I scatter for this new data set:



Once again, there is only a roughly positive relationship between the measures. But, also once again, the countries on the top of the scatter are the Europe-based nations and, like the semi-European countries in the middle and the non-European countries near the bottom of the scatter, form a similarly upward-sloping pattern. So it is again no surprise that regressing per capita income on our estimate of true welfare *and* dummy variables representing the extent of European influence converts a very poor fit, one with an insignificant t-statistic on our welfare measure and an  $R^2$  around 0.1 into a very good one, one with a t-statistic above 3 and an  $R^2$  slightly above .94. We thus wind up with a welfare measure that, given the appropriate adjustments for the influence of European culture, is a very good predictor of international differences in per capita consumption.

### ***C. Allowing for Internationally Variable Occupational Risk Rates.***

There is evidence that casts doubt on the above assumption of an invariant international risk rate, data suggesting that we make some sort of adjustment for the fact that some countries have much lower, and others much higher, occupational fatality rates than the others. Comparative national job fatality rates, data calculated from the International Labor Office Website listed in our Reference Page, indicate substantial cross-country variation in national average job fatality rates. This data is analyzed and displayed in the Appendix. It thus appears that the true, risk-standardized, comparative wage differentials are quite different from those implied above. Using this international-risk-corrected data, we

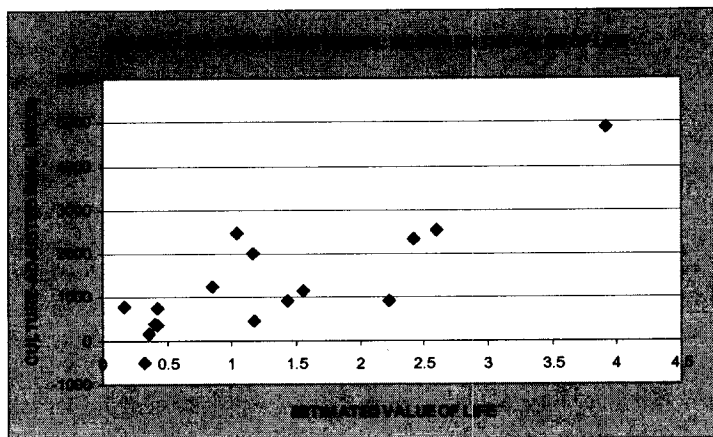
computed risk-adjusted wage differences in all of our above data by dividing these differences by the corresponding national fatality rates. We then re-ran all of the above regressions for the 14 countries that reported national fatality data. This yielded economically identical and statistically superior results, as will be reported in summary form in subsection III.B below.

### III. SUMMARY OF OUR PRELIMINARY RESULTS

#### A. A Final Amelioration of the Effects of Unsystematic Measurement Errors.

Perhaps the best method of summarizing the above results, one that further helps eliminate the influence of unsystematic measurement errors in the data, is to *average* our two measures of both welfare (wage differences between linemen and electricians and between risky and safe jobs) and real income (per capita consumption and before-tax real wages) and compute a European adjustment based on these averages. Not surprisingly in view of the unavoidable errors in all four of these measures and the likelihood that each pair of measures are approximating a single underlying variable, this turned out to provide our best fit:  $R^2$  was 0.975, and the t-statistic on our final welfare measure rose to over 5. Also, the t-statistic on the constant term was less than 0.1, indicating again that, once the European cultural bias is eliminated from our familiar per capita consumption measures, adjusted per capita consumption rises quite nicely in proportion to a measure of genuine economic welfare.

We can also provide a graphical summary of these summarizing statistical results. First we adjust the raw income measures, subtracting the European- culture dummy variables from the respective conventional income measures to obtain a *culture-adjusted income measure*. This provides an income-type estimate of a country's true welfare. The result is the following graph of the culture-adjusted incomes of the various countries on their more direct measures of true welfare, their average risky-safe wage-differential.



Subtracting the implied overvaluation of the welfare-importance of real income from a conventional-type measure for countries possessing a European cultural background, as we do in the above graph, thus shows visually that the overvaluation-of-European welfare is so systematic that a culture-corrected measure is indeed nearly directly proportional to a measure of true per capita welfare.

Although subtracting 8,067 1997 sdr's.-- an average of almost 83% – of the conventionally measured incomes of the countries with European cultures may seem rather harsh, it may be well to reflect on both the previous professional influences that have gone into selling us the conventional measurements.

### ***B. A Final Adjustment for Differential International Risk Rates.***

Finally, as Section II.C above, we adjusted the above average risky-safe wage-differentials for differential international risk rates and re-ran the above summary-form regression on the 14 countries that reported data on national fatality rates. Once again, this yielded even sharper results.  $R^2$  rose to 0.98, the t-value improved to 5.5, and essentially the same coefficients on the dummy variables and constant terms appeared.

The fact that each refinement produced economically equivalent and statistically superior results helps assure us of the robust character of the above empirical results.

### ***C. A Qualitative After-life Adjustment.***

As mentioned in the Introduction, our measure of the comparative value of working class life in one national culture relative to another is an incomplete measure of comparative welfare in that it does not account for differences in the predominant after-life beliefs between these cultures. A culture with relatively pleasant after-life beliefs is not only per-se happier but, given our measure, will appear to be less happy because its people are willing to engage in life-risky labor for relatively low wages. A substantial adjustment is in order. Qualitatively adjusting for the relatively pleasant after-life beliefs of the non-European countries in our sample, we now acknowledge a systematic underestimate of true welfare presented by the wage differentials in these countries. To account for it, we must therefore shift the non-European scatter to the right in order to represent the true welfare levels of these countries. This would create an even larger negative adjustment in the incomes of the European countries in order to reach the welfare levels of the non-European countries. Perhaps something like 90% rather than 83% would be the appropriate discount on conventional welfare measures that we should place on being a member of a European culture. In any case, a significant adjustment of this sort, would eliminate the clarity of the above-reported tendency of countries with European cultures to produce higher welfare levels despite the adjustments to their conventionally measured welfare levels.

#### IV. INTERPRETATION OF THE RESULTS

Perhaps the best way to think of the above results is to think of European culture as producing an enormous incentive to work and invest. A member of a typical peasant-family in, say, Latin America will be fairly happy working at relatively low levels of intensity and investment in human capital, whereas a neighboring European counterpart would be miserable living under the same conditions. So, with parental guidance and support, the European dramatically steps up the intensity of his or her efforts in training and work in order to generate a much higher level of income.

But are the Europeans happier? Our final graph suggests that – despite the fact that the average country with a European culture must reduce its per-capita-income measure to approximately 1/6 its current level in order to obtain a statistic that allows its people to compare its welfare to the typical country without a European cultural heritage -- the Europeans are still happier on average because they usually require higher wage differentials in risky occupations and have relatively high culture-adjusted incomes. Nevertheless, once the after-life-religion adjustment is made, even this moderate welfare-superiority loses its persuasive character. There then appears to be little to choose between the two cultures.

#### V. POSSIBLE EXPLANATIONS

##### *A. European Religion.*

In his examination of the roots of European ascendancy, Deepak Lal attributes the success to early Christian education, in which the Church Fathers came to motivate the masses with guilt and shame. Perhaps these hardly welfare-enhancing religious motivators help explain the underlying unhappiness of peoples exhibited by European cultures and the correspondingly enormous income adjustment that we have been forced to adopt in order to eliminate the cultural measurement bias present in conventional welfare measures.

However, Christian “guilt and shame,” to the extent that they are more severe than the “guilt and shame” appearing in the other world religions, are directed largely against a person’s own social transgressions and very little against the person’s lack of intensive labor. Since the corresponding reduction in social transgressions should confer substantial external benefits to the rest of the society, this religious variable is at least as likely to increase the happiness of the typical member of a Christian society as it is to decrease it.

##### *B. European Law and Ethics.*

###### **1. The Theory.**

A more basic feature of European culture is its legally induced internal

aggressiveness toward one another, its “competitively territorial” ethic, wherein its highly adversarial legal systems induce an abnormal degree of respect and material rewards for individuals who perform under rules at high levels relative to their peers. It is this hyper-aggressive ethic that is itself responsible for the emergence of Christianity, a basically grass roots religion which stresses the counter-adversarial ethic of brotherly love as a way for individuals to assure others with whom they might interact on a business basis of a more balanced social response. An extreme devotion to competitive sports has always been an excellent indicator of a society’s competitively territorial ethic.

Since very few people are consistent winners of well-recognized contests – the typical member of the above-discussed occupations are almost certainly not – very few people objectively feel that they have achieved at something resembling their hero’s level. Barring religion, only self-deception with one’s own relative capability or achievements protects the typical European from basic unhappiness. For individuals naturally have utilities for their own quality relative to that of others. Given that these quality measures are created by one’s society, which defines a set of heroes for the individual, what a competitive territorial ethic introduces is a simple *magnification* of this natural effect by insisting that being like one’s heroes means being not only *relatively* capable, but being *most* capable.

Now the rational self-delusions that emerge in response to the empirical evidence that one doesn’t really resemble his or her hero, although not simple to maintain under any conditions, are nearly impossible to maintain under a social ideology in which individuals are represented as possessing an “equal opportunity.” For equal opportunity means that one’s rivals consist essentially of his or her age cohort in the entire population. With small sets of rivals, it is not difficult for a person with a competitively territorial ethic to excuse his or her not coming out on top of the relevant contests. Not only is the probability of one’s coming out on top in some category very high, but, if one fails to do so, excuses are easily created by recognizing that the others may be just lucky. None of these devices are plausible once there are a large number of rivals, many of which are much closer to the top of any reasonable category than the typical individual.

Hence, what follows the introduction of a political-educational ethic of “equal opportunity,” which has as an invariable precursor a legal revolution putting an end to inalienable family estates, is the well-documented feeling of “angst” amongst the victimized masses. Although this seems too subjective to scientifically measure, popular philosophy, psychology, and literature come to the rescue. The early 19<sup>th</sup> century saw a legal revolution toward the end of inalienable family estates, an ended to the legal basis of the old landed aristocracies that had characterized European civilization for over 2 millennia. This was followed, on a country-by-country basis, by equally revolutionary introductions of mass public education, an invariable feature of which was “equal opportunity”.

European Philosophy almost immediately turned in a radically unpredictable direction in the growing concern for finding “meaning” and “authenticity” in an individual’s life. Psychoanalysis was similarly born out of a

simple attempt for middle class people to achieve a modicum of satisfaction out of their anxiety-filled lives. European literature clearly displays the dynamics of this turn to modernity.

## 2. The Emergence of Angst as Reflected in Modern Western Literature.<sup>1</sup>

**(a) France.** Soon after the introduction of transferable family estates and “equal opportunity” mass public education in Western European literature, the fantastic and often reform-oriented 18<sup>th</sup> and early 19<sup>th</sup> century epics and parables of Voltaire, Fielding, Defoe, Swift, Wyss and Austen were replaced with a revolutionary new brand of European literature, one that remains extraordinarily popular to this very day.

The first nation to introduce an “equal opportunity” educational system was France, early in Napoleon’s reign. What followed, given that it took a decade or two for the students to enter into the new Parisian society, was a French revolution in literature. Stendhal and Balzac became the pioneers of a new, “realist,” school of French literature. These authors found that it was more entertaining to vividly describe some of the standard types they observed in the new French society than to create more of the fantasies that had delighted Enlightenment readers and playgoers. These revolutionary works, which hit France from the 1820s through the 1840s, featured a new character in European literature – the tortured soul – a person driven to desperation and suicide because he or she could not accept their own professional mediocrity or lack of high social achievement. Remarkably, following the Bourbon Restoration and return to the old property institutions and the corresponding decay of “equal opportunity” education in French schools, France’s “realism” school fell out of fashion in favor of reformers or romanticists such as George Sand, Alexandre Dumas, and Baudelaire. There were several revealing transitions in the works of single authors. Thus, Victor Hugo’s 1831 classic *Hunchback of Notre Dame*, which reflected the “angst” created by Napoleon’s educational system through its deformed protagonist’s tortured response to his inability to attract an extremely high quality mate, was followed – after a long learning period – by his equally classic, but angst-less 1862 social-reform-oriented story, *Les Misérables*. These transitional effects are even more pronounced in the works of the extreme realist, Gustave Flaubert. Flaubert’s long-gestating 1857 classic, *Madame Bovary*, about an angst-ridden housewife educated under the Napoleonic system, thus comes in stark contrast to his subsequent *Bouvard and Pécuchet*, about two middle-class, angst-less, Restoration-educated, would-be scientists, which in turn contrasts with his 1869 masterpiece, *Sentimental Education*, about the painful disillusionment of a wealthy student educated soon after Napoleon III resumed the equal-opportunity education system of Napoleon I in the early 1850’s. Flaubert, who wrote the final work describing the angst suffered by the cohort educated under the reforms of Napoleon I, thus led the return to angst in French literature describing the results of the educational reforms of Napoleon III, a movement that then highlighted by the

compelling short stories of Guy de Maupassant and matured with Proust's *Remembrance of Things Past* and Rostand's classic, *Cyrano de Bergerac*.

**(b) England.** English 19<sup>th</sup> century was no mirror of French literature. Angst and realism did not appear in English literature during the 1830s or even early to mid 1840s despite the earlier revolution in French literature. Rather, it waited the predictable 20 years after the British introduction of mass public education and its corresponding teaching of "equal opportunity" during the late 1820s. The co-founders here are Charlotte and Emily Bronte, who both feature female angst in their respective 1847 classics, *Jane Eyre* and *Wuthering Heights*. This was followed by Anthony Trollope's thoroughly angst-ridden 1857 classic, *Barchester Towers*. The English transitional figure is Charles Dickens, whose wonderfully social reform oriented but angst-less stories of the 1840s and early 1850s *Christmas Carol*, *David Copperfield*, *Bleak House*, and *Hard Times* were suddenly transformed into his increasingly angst-ridden classics, *A Tale of Two Cities* and *Great Expectations*, the latter's very title signifying the character of the social revolution that created modern English literature.

**(c) Scandinavia.** The first Scandinavian country to combine mass, egalitarian public education with laws eliminating non-transferable estates was relatively anti-aristocratic Norway. The resulting equal-opportunity education system arose soon after the great Scandinavian liberalizations of the late 1850s (e.g. Derry.) Thus, given our theory, and the size of the Norwegian market, it is not surprising that Norway was the birthplace of the angst-ridden play. This arose in Henrik Ibsen's 1890 classic, *Hedda Gabler*. Since Ibsen was a noted realist from his early years through the early 1880s, he also represents another revealing transitional figure (like Hugo, Flaubert, and Dickens) in that Ibsen's earlier classics, from the amusing *Peer Gynt* in 1867 to the socially reforming *Pillars of Society* and *Ghosts* from 1877 to 1881, displayed a high degree of realism but no significant angst.

The movement towards the widespread transferability of all but noble estates in Denmark, which was concentrated in the early 1860s (Cecil, p. 167), was similarly followed by a thirty year lag in the Nobel-Prize winning, existentially angst-ridden novels of Henrik Pontopiddan (*The Promised Land* and *Lucky Peter*, 1891-1904) and Karl Gjellerup (*The Pilgrim Kamanita*, 1906). As in the case of Ibsen, these writers also had written several earlier works that were similarly devoid of the kind of middle-class pain we are discussing.

Although the Danish Philosopher, Soren Kierkegaard, certainly preceded, and doubtless influenced, these realist Scandinavian authors, one must recognize that Kierkegaard was writing sometimes about his personal moral dilemma concerning leaving a girlfriend because of a lack of mental connection and other times about the irrelevance of Hegel. Although Kierkegaard regularly expresses mental anguish, much of it is expressed in terms of Christian morality and does not at all concern Kierkegaard's failure to achieve a high level of material or social

success. Such anguish is therefore not what we are calling “angst.” Although many later existentialists converted Kierkegaard’s moral and philosophical anxiety into genuine angst, their inspiration was not angst-ridden.

In fact, it may well be that a confusion of the psychological pain of suffering from a moral dilemma with angst, the psychological pain of failing to achieve at one’s expected level, is what made Scandinavian authors slower to react to equal-opportunity education than France and England.

**(d) Germany and Austria.** Although Germany introduced transferable estates early in the 19<sup>th</sup> century, the expansion of Prussia and her conservative education system has assured the ascendance of her hierarchy-accepting values in Germany.<sup>2</sup> Hence, we see no sign of transformation in German literature. In contrast, Austria introduced a mass public education system in 1879. Correspondingly, soon after the turn-of-the-century work of Freud noted in Section V.C of this chapter, Austria experienced a literary revolution centered around the highly existential, angst-filled novels of Franz Kafka, in particular, *The Trial* and *The Castle*.

The scientific and philosophical nature of these early Austrian responses to social malaise, like that of their precursors, is quite different than the more western European responses, which concentrate their attention on realist-fiction rather than science or philosophy. This appears to be a reflection of the formulaic idealism of the German mind-set in contrast to the empirical mind-set of the British and French. The progenitors of 20<sup>th</sup> century Germanic angst can thus be found in the emotional character of the early 19<sup>th</sup> century Germanic reactions to Hegel’s abstract and idealistic concentration on entire social systems rather than on actual individuals and their feelings. In particular, Schopenhauer, although largely ignored in his own time, became popular in various European countries only after people there began to adopt liberally individualistic values and subsequently begin, with the help of Nietzsche, to see insight in the atypical angst expressed by this Germanic pessimist. The exceptional and personal nature of the anti-Hegelian writings of both Kierkegaard and Schopenhauer appeared not because they were expressing the angst of their times but because of the former’s individual-religion-based doubts about the psychological viability of a non-Christian life and the latter’s psychologically painful life and study of Eastern religions.

The writings of Adorno and the popular Frankfurt school of social thought that arose during the interwar period in 20<sup>th</sup> century Germany to emphasize the psychological cost of modern society may appear to be a counter-example because equal-opportunity education had not yet arrived in Germany. However, as discussed in Section V.B of this chapter in reference to Marx, rather than reflecting any basic angst in Germanic society, these arguments represent failed attempts at a cohesive social analysis of trends in Western society. As in the writings of Marx, there is an inherent absence of logical and empirical validity in these neo-Marxist arguments, which cannot be interpreted as more than deceptive methods of convincing romantic thinkers to participate in a social revolution. The reason in

the case of the Frankfort School is that although the mass media may well be influenced by large companies to manipulate preferences in order to create a higher demand for their products, no market failure is implied. People willingly experience advertising as a cost of the entertainment or information products they consume. If developing preferences for particular goods were more costly than it is worth to the consumers, they would simply avoid the mass media. Moreover, if a more efficient method of collection were available to the mass-media companies, say by simply collecting suitably discriminatory monetary fees for their services, they would prefer such a collection over the highly imperfect collection device supplied advertising through the mass-media.

**(e) America.** Although education has, even before the Revolution, been significantly public, the localities providing it were largely religious. Since the various Christian sects essentially competed with one another on the basis of their qualitative differences, their schools typically did not preach an “equal opportunity” value system. Each locality’s educational leaders typically regarded their value system as superior to that of their neighbors. So we find, in an autobiography of Mark Twain, Twain’s assertion that there was “no envy” in his local public school (Paine). The relatively secular, mass public educational systems that we observe now did not emerge until around the turn of the 20<sup>th</sup> century. For only then had the U.S. sufficiently industrialized, and the labor force become sufficiently religiously heterogeneous through massive immigration, did it pay the producers to assert their interests over the local Churches to work toward the fulfillment of Horace Mann’s earlier dream of a universal and secular system of public education. (See, e.g., Wiebe, or Meyer, Tyack, Nagel, and Gordon.)

What followed, again with the predictable 20-year lag, was a revolution in American literature. Although realism had already entered American literature after the Civil War, as is apparent from the later Works of Mark Twain, and the works of Bret Harte, Steven Crane, and Jack London, this realism was not transformed into a vision of middle-class angst until the 1920s, when it emerged with a vengeance through Theodore Dreiser’s *An American Tragedy* and the numerous powerful plays of Eugene O’Neill, Tennessee Williams, and Arthur Miller.

While these durable works and their successors are often regarded as concerning the “American Dream,” we would counter that optimism has necessarily characterized America from her very beginnings as a country of pioneering immigrants and has justifiably continued because of her impressive relative success. Occasionally disappointed, but nevertheless rational, expectations do not generate the widespread middle-class angst under discussion. What had really changed to generate this apparently unjustified malaise was the growth of secular, industry-influenced, public schools that joined parents in teaching equal opportunity as a way to enhance the student’s work and savings ethics.

What these American authors were actually witnessing was no different than the angst that had already appeared in English and French literature. This, of course, is why the authors and books we have referred to for those countries have

had such a powerful effect on U.S. as well as European readers, who saw their lives depicted in these works as well as the American classics.

America is a large country. Regarding the West Coast, San Francisco society in the 1920s and 30s had a decidedly Catholic play-going ruling class. Catholic schools respected the existing social hierarchy and did not teach equal opportunity. Correspondingly, rather than the angst that dominated the East Coast plays, San Francisco's popular plays featured optimistic, life-affirming 1930s dramas such as those of William Saroyan, whose stories were largely written about and for San Francisco. It is not surprising that angst would be absent from Saroyan's tales.

**(f) Russia.** Although Russia has never adopted the kind of equal-opportunity system of public education we are discussing, and has correspondingly failed to produce a domestically popular literature similar to the "angst" literature we are discussing, both environmental realism and psychological suffering are highlighted in the complex Russian novels of the late 19<sup>th</sup> century.

Regarding the beloved Tolstoy, this suffering does not appear to be what we are calling "angst." It does not appear to be the result of failing to achieve at an exceptionally high level. Rather, the suffering is largely caused by "excessive" material concerns and *anomie* caused by the adoption of the western European values of secular humanism and democracy that are gradually infiltrating Russia in the 19<sup>th</sup> century. Tolstoy thus appears to be issuing environmentally realistic dystopian tales to caution their people against abandoning their old religion and nobility in favor of the earlier Enlightenment values that are being imported from the West.

Dostoevsky is another story. While angst is clearly highlighted in several of his novels, especially *Crime and Punishment*, we must recognize that these novels were not very popular in Russia. And they only became popular in the West after the corresponding country had come to adopt equal-opportunity education systems so that readers came to see the angst in Dostoevsky's novels correspond to the angst in their own lives. What made Dostoevsky so peculiar a Russian author is that he spend a good part of his youth translating Balzac into Russian for the Francophilic Russian intelligentsia. Dostoevsky thus emphasized the psychological pain of angst in identifying the costs of the western European values that he was warning his people against. Hence, while western European readers were eating up *Crime and Punishment*, Russian readers found the novel to be unreal.

### **3. Statistical Evidence for the Hypothesis.**

When a country rapidly adopts an equal-opportunity education system, the predicted effect on wages, *cet. par.*, is to substantially lower the risky-safe wage differential in that country, albeit with a substantial lag. An episode of this kind occurred during the 1960s and 70s, when Great Britain, which had previously adopted a trade-school approach to educating her poor, finally spread equal-

opportunity-education to her entire population. Britain's prior equal-opportunity education system had previously been limited to her middle classes. Thus, we see, from the data sources used in the Appendix, that British linemen, who had required a 27.3% wage differential in 1987, required only an 18.7% differential only a decade later, which was a sharp reversal of an earlier trend easily attributable to a fairly steady increase in British welfare from the end of WWII through the 1970s.

Other, single-service occupations can also be examined if there is a economically similar country that has not changed its educational system. In this case, the predicted effect is a lower risky-safe wage-differential in the educationally reformed country relative to the other. Thus, since the U.S. had already long had such a universal educational system, our theory predicts that the wages of the relatively low skilled workers in the riskiest occupations would decline in the U.K. relative to the U.S.. One of the riskiest occupations is that of a pilot. And the risk is shared by the pilot's crew. While British pilots prior to the 1960s were educated in the equal-opportunity mode, cabin attendants (stewards and stewardesses) were not. Thus, our theory predicts a substantial decline in the wage of cabin attendants relative to pilots on British Airlines relative to American Airlines. In fact, from 1981 to 1999, while U.S. cabin attendants steadily earned about one-fourth of U.S. pilots throughout the period, the wages of British cabin attendants fell from about one-half of the level of pilots to approximately one-quarter of the level of British pilots (Congressional Hearings on Civil Aviation).

## V. CONCLUSIONS

The preliminary empirical results of our international comparison of domestic wage differentials between risky and safe occupations, differentials providing a more theoretically justifiable measure of genuine welfare than conventional income measures, indicate that there exists an enormous pro-European bias in the conventional welfare measures. In particular, we estimate that societies with a European culture must have their conventional welfare measures decreased to approximately 1/6 of their current levels in order to compare their welfare to that of a nation without a European culture.

An explanation for this differential can be found in the final 19<sup>th</sup> century abandonment of the non-transferability of family estates and consequent public teaching of "equal opportunity." Such institutions force individuals into relatively objective comparisons of their human qualities to that of others in their large educational cohort. Because people have such a substantial utility for their own relative quality that they typically evaluate themselves in the top quartile of the population despite the fact that on average they are average, forcing them into realistic interpersonal quality comparisons is highly disutilitarian to ordinary individuals. It's equivalent to placing them on a treadmill because such education induces them to work artificially hard in order to reinforce their high self-evaluation, but since they all do so, they end up no happier than they were in the first place. Prior to the 19<sup>th</sup> century, the difficulty of transferring family estates away from one's

potential heirs allowed individuals to excuse their mediocre performance by convincing themselves that the wealthier cohorts had special advantages and the few individuals who out-performed them despite the lower inheritance were both exceptional and had to work harder to compensate for their financial handicaps.

A consequence of the new psychological cost of European society is the 19<sup>th</sup> century emergence of personal, existential, philosophies and psychoanalysis. More popularly, 19<sup>th</sup> century European novelists and their large audiences suddenly found it highly realistic and important to discuss the subtle tortures of ordinary life. People subsequently began to describe their treadmill-style lives together as a “rat race.”

Statistically, high risk occupations in nations teaching equal opportunity to the members of these occupations suddenly experienced marked decreases in wages compared to other wages. This is further support for the hypothesis that chiefly responsible for the unhappiness underlying European culture, as reflected in its disproportionately low wage differential between risky and safe wages, is the 19<sup>th</sup> century European revolution in inheritance law and public education.

## APPENDIX

We first obtained data on 1996 occupational fatality rates from the Bureau of Labor Statistics website noted in the Reference Page. Our attempts to obtain analogous data from various international sources failed (although we have not given up), and so we were unable to compute comparative risk elasticities. All we could do to proceed was to adopt the rather uncomfortable assumption that there were no significant differences among the true occupational fatality rates across the countries in our sample. However, we did, toward the end of the study, find a use for the aggregate fatality statistics that were available, as discussed in Section III.B of the text and later in this appendix.

We used the B.L.S. occupational fatality data to identify the fifteen riskiest and fifteen safest U.S. occupations. Fortunately, there was an approximately equal skill mix between the risky and safe occupations, there being eleven skilled jobs in both safe and risky categories.

We then proceeded to obtain data on 1996 and 1997 wages and salaries for these occupations for various countries from the International Labor Office, except that we were restricted to 1995 data for Sweden and Argentina. The data, which was surprisingly sparse, limited us to a single Asian, a single Middle-Eastern, and a single Indian, country. Not wanting to dwarf the significance of the numbers for these cultures, we restricted the choice of the other countries to those with particularly abundant or particularly high-quality data. This left us with wage and salary data for a total of sixteen countries, although even then there were several gaps in the data, several occupations for which some country reported no wages. Also, we had to eliminate one of the unskilled low-risk occupations because of insufficient data, leaving us with wage data for fifteen high-risk occupations and fourteen low-risk occupations.

We then generated our sample of real wages in sdr's by converting all of the salary data into hourly wages and dividing the resulting wage rates by each country's respective official 1997 sdr exchange rate, as reported by the International Monetary Fund.

As noted in the text, on perusing this data, it appeared that our sample contained two occupations, one risky and the other safe, that came from the same trained labor pool. These two occupations consisted, respectively, of linemen and ordinary electricians. International differences in trained labor supplies, differences that ordinarily generate different international wage patterns, could not be thought to be responsible for internationally contrasting lineman-electrician wage differentials. Whatever contrast does exist could therefore be plausibly supposed to be based on different life values between the workers in the respective countries. This motivated the first set of results summarized in the text. (India did not supply a wage for linemen and had to be omitted from this part of the study.) Ideally, we would like to have used after-tax wages. But such data were not available.

The absence of data on after-tax wages also affected our choice of conventional real income measures. In particular, from the same IMF source book, we used per capita consumption as well as the average before-tax wage rates, in order to obtain an alternative measure of conventional real income for the various countries. We eventually came to feel that each measure was biasing our results in an opposite direction, which is what motivated our averaging of the two real income measures in the final regression and scatter diagram appearing in the text.

To measure the average wage in risky and safe occupations in each country, we had to fill in the several gaps that unfortunately appear in the data. To do this, we first found an occupation that was represented in all of the relevant countries. This can be thought of as a standard occupation. We then computed the average, among the countries reporting data, of the wage of each of our risky and safe occupations relative to the standard occupation. Multiplying this average by the wage of the standard occupation in a particular country then gave us an estimate of the missing wage for the risky or safe occupations in that country. The only bias in such an estimate is to make the country appear more typical than it is. Since, however, we did not have an eligible occupation that had data for every country (we disqualified electricians because we did not want our overall results so influenced by the wage data for a single occupation), and since it may strain credulity to apply the same relative wage to European cultures as to the others, we computed separate averages for the former countries than the latter, finding that all of the former had carpenter wages and all of the latter had plumber wages. Since the percentage wage differentials between carpenters and plumbers were quite small for all of the countries that reported data, the absence of a single standard occupation was almost certainly not a significant problem.

The European-culture-based labor forces that appeared in the study were in Germany, Italy, the U.S., Sweden, Austria, and Australia. The partially European-culture-based labor forces were in Argentina and Korea. Korea was a special challenge because of their 50% currency devaluation in the middle of 1997. To be consistent with the exchange rates used for the other countries, we used their beginning-of-1997 exchange rate for most of the study. Toward the end, however, when we were attempting to supply our most reasonable data values as reflected in our averaging procedures, we experimented by switching to their end-of-1997 exchange rate. Fortunately, however, since Korea was also unique in receiving, along with Argentina, a separate dummy variable because of their substantially European value system, the only substantial effect of the switch was to alter the coefficient on the semi-European dummy variable. Those work-forces that we

regarded as retaining a significant amount of their original, non-European culture were India, Peru, El Salvador, Bolivia, Venezuela, and Honduras.

We will, of course, send any or all of the above data on request.

The biggest challenge was to generate a set of job-fatality rates in order to account for international differences in job safety. Although no consistent set of international data was available to correspond to each of our various occupations, aggregate national fatality rates for 1997 were reported in some form for every one of the countries in our sample. The main problem was that different countries treated traffic fatalities differently. Argentina lumped all traffic fatalities in with her occupational fatalities and made her data useless. Since Korea was the only other semi-European culture, this made the Korean fatality data useless too. This left us with only fourteen countries for our risk-adjusted wage-differential regression. At the other extreme, the U.K. did not include any traffic fatalities in her occupational fatality data and correspondingly reported an aggregate occupational fatality rate that was about 1/10 of the of most of the other European countries. We did not know how to adjust for this until we noticed that the U.S., which reported a total fatality rate that was even more favorable than the U.K., had previously, before 1993, consistently reported fatality rates that were close to eight times their post-1992 rates. What had presumably happened was that the U.S. had joined the U.K. in eliminating all traffic accidents from their occupational fatality data. Honduras and Venezuela aggregate occupational fatality rates (obtained by dividing their total work force on Table 2A into their total job fatalities on Table 8A), like the U.S. rate, were about 1/20 of the European average. We correspondingly inferred that these countries had adopted the same traffic accident convention as the U.K. and the U.S. Hence, based on the immediate eight-fold drop in the U.S. fatality rates after 1993, we adjusted the rates in all four of these countries up by eight times. The regressions reported in the text, and in the subsequent table, are based on these adjustments.

For the sake of completeness, we also ran the regression reported in the text with the raw data on aggregate fatality rates. Although a much less believable set of data, approximately the same European-culture income-adjustment resulted from this unsystematic observation error. Only the standard errors were higher,  $R^2$  was lower, and some implausible non-linearities appeared.

The following is a copy of the data used to construct the quantitative results appearing in the text.

#### PER CAPITA CONSUMPTION SDR'S/YEAR (1997)

Germany	Italy	U.S.	Peru	India	Korea	Bahrain	Australia	El Sal	Honduras	Bolivia	Venez	Argenti	Swede	Austria	U.K.
												'95	'95		
10291	856	15185	137	148	4043	1730	8567	1170	354	68.85	1811	5067	9201	10269	9881

#### NATIONAL FATALITY RATES

Germany	Italy	U.S.	Peru	India	Korea	Bahrain	Australia	El Sal	Honduras	Bolivia	Venez	Argenti	Swede	Austria	U.K.
												'95	'95		
.08	.08	.04	.09	.30	.33	.07	.06	.18	.03	.07	.036		.023		.08

**EXCHANGE-RATE-ADJUSTED WAGES SDR'S/HOUR 1997**

	Germany	Italy	U.S.	Peru	India	Korea	Bahral	Australia	El Salvador	Honduras	Bolivia	Venezuela	Argentina'95	Sweden' 95	Austria	U.K.
<b>HIGH RISK</b>																
<b>Skilled</b>																
sailors 116	7.3	3.9	8.9	0.5		6.2	2.1	10.8					2.3	2.0		
fishermen 9	8.1			0.6				9.0		0.4						
timber men 7	6.8		8.0		0.1										8.8	5.2
pilots 118	46.0	20.3	29.5	2.2	2.7	7.9		13.8	15.8						36.8	13.7
navigators 119	16.1			1.8	2.7	7.5	8.6		4.4						20.8	
coal miners 12	7.8	4.7	13.0			7.7		9.6		0.6		2.0		11.7	7.9	13.3
miners 18	10.0	4.8	14.8	0.4	0.1	7.6		9.6	1.4	0.6	1.3	1.5	11.7	8.3		
farmers 2	6.5	4.9			0.1		2.4		0.2	0.3		0.8	1.3	8.8	5.5	7.9
linemen 78	9.1	6.4	14.8	1.0		7.8	3.7	10.4	3.9	0.7	0.8	5.5	2.8	10.7	8.9	13.3
truck driver 112	6.9	4.5	10.5	0.5		5.9		7.5	1.0	0.5	0.7	4.9		9.1	4.9	
truck driver 113	7.4	5.0	10.5	0.5		5.9		8.5	2.7	0.7	0.7	5.9		9.1	5.1	
<b>Unskilled</b>																
																0.0
miner's helper 13	6.8	4.5	12.6	0.0	0.1	6.7	0.0	9.6	0.0	0.3	0.0	1.7	0.0	11.7	6.4	10.0
quarrymen 9	8.4	4.7	7.7	0.4	0.0	7.6	0.0	9.6	1.4	0.0	1.0	0.0	1.5	11.7	0.0	0.0
garbage men 144	8.3	0.0	8.2	0.0	0.0	6.0	0.0	6.9	1.6	0.0	0.4	3.0	0.0	9.2	9.7	0.0
construction 90	8.7	5.5	6.8	0.4	0.1	6.7	1.9	9.8	0.5	0.3	0.4	1.8	0.9	0.0	6.4	6.7
<b>LOW RISK</b>																
<b>Skilled</b>																
electrician 81	8.1	6.6	10.7	0.4	0.1	7.1	3.2	10.0	0.6	0.4	0.7	2.8	1.0	10.9	6.7	11.2
firemen 143	9.0		11.0		0.1		3.2	10.1	1.4						8.4	12.1
welders 67	7.8	5.0	8.4	0.3	0.1		3.6	8.4	1.1	1.0	0.6	2.0	1.5		7.6	10.3
painters 84	9.7	6.0	8.1	0.5	0.1	7.1	2.9	8.1	0.6	0.4		3.9	1.0	10.0	6.4	8.8
carpenters 88	10.4	6.0	8.4	0.7	0.1	8.1	3.2	8.5	0.6	0.4	0.7	1.8	1.0	10.7	6.3	10.0
plumbers 82	9.0	6.6	10.9	0.6	0.1	7.2	3.2	8.7	0.6	0.3	0.6		1.0	10.9	6.7	11.2
auto repairmen 159	9.1	0.0	8.6	0.3	0.1	7.4	3.9	7.2	1.5	0.4	0.5	2.3	2.3		7.6	9.5
machine setters 66	8.1	5.3	8.1	0.3	0.1	7.2	0.0	10.8	1.5	0.5	0.7	2.1	1.4		7.6	
assemblers 69	8.1	4.7	8.1	0.6	0.0	6.9	3.9	6.4	2.3			1.4			8.0	
stock clerks 92	8.5	5.2	6.8	0.3	0.1	7.5	3.8	7.9	2.2	0.4	1.9	2.6	1.7		5.2	
office clerks 142	11.4	6.7	7.7				3.3	7.7	2.1				1.3	6.5	6.6	7.0
<b>Unskilled</b>																
assemblers 174	9.3	4.7	6.2	0.3		6.4		9.2	0.8			1.6	9.8	6.6	8.3	
wood finishers 41	8.9	5.4	6.7		0.1	5.6		6.5	0.6		0.6	2.0	1.4	0.0	6.5	
cashiers 95	8.4	4.9	4.6	0.4	0.1	8.0	3.6	6.1	0.8		0.8	3.0	1.6	9.0	5.8	6.2

## ENDNOTES

<sup>1</sup> We gratefully acknowledge the help of Jonathan Treussard and Susan Woodward on the literature reviewed in this section.

<sup>2</sup> This creates a problem for our hypothesized explanation of the data. Germany should not fit the statistical pattern of the other European countries. But it does. Our rationalization for this peculiarity is that modern Germany has been suffering from an externally overseen Post WWII educational system, one which has, in recent decades, artificially encouraged rebellious individualism, which is enhanced by idealistic intellectual heroes such as Kant, Hegel, Marx, Freud, and Einstein. When students raised in this idealistic and individualistic academic environment finally enter adult life and the highly structured German industrial and business world, abnormal repression and stress should be expected to characterize their ordinary working lives.

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