

Why Europe Works Less, and Grows Taller

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Abstract

Money isn't everything. Even if national economic output per capita remains higher in the United States than in most of Europe, several European countries' output per hour worked now exceeds that of the United States because many Europeans prefer and can afford to work less by, for example, retiring earlier than Americans. Measures of the biological standard of living based on variations in human stature across countries convey a similar pattern, suggesting that in recent decades adult Europeans who used to be shorter than Americans have grown significantly taller while working less. Greater tolerance of inequality in the distribution of income and wealth in the United States than in Europe may have taken its toll.

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I. Introduction

An ideal measure of economic performance within as well as across countries would be the ratio of national economic output to the inputs used up in producing the output. The most commonly used yardstick of a nation's macroeconomic performance, gross domestic product per capita, does not match this ideal, for three main reasons. The first of these is well understood and uncontroversial. Gross domestic product (GDP) does not include significant economic activities such as home production and underground – i.e., black-market – operations, nor does this common flow measure of national product reflect the movements in underlying stocks, national assets and liabilities, including the state of the natural environment. For example, a country may ride high for a time on a rapid flow of national output produced by running up external debts or running down its natural resources, but such output flows cannot be sustained over the long haul. Indonesia's rapid economic growth since 1950 through deforestation, among many other things, followed by collapse in the late 1990s, is a case in point. The second problem with GDP is more contentious. Recent research by psychologists and economists seems to suggest that recorded GDP does not mirror survey measures of happiness. Since 1945, per capita GDP has grown rapidly in the United States, Europe, and Japan, but yet there has been no corresponding increase in recorded happiness (Layard, 2005). The cross-sectional relationship between income and happiness observed in countries with per capita GDP below USD 15,000 per year breaks down above that level of GDP.

This article focuses on the third part of the above problem that involves not the numerator but the denominator of the output per capita ratio. The point here is that people are not inputs. Some work, some do not, and of those who work, some work more than others, some because they want to, others because they have to. Put another way, dividing national output by the number of a country's inhabitants fails to distinguish work, most naturally viewed as an input, from leisure that is perhaps better regarded as an output. The distinction between output and input in this context arises because most wage earners would, at the margin, prefer leisure to work for given income. For this reason, conventional national income rankings such as the one shown in Figure 1 need to be taken with a grain of salt. The United States boasts a national output per head that is second only to that of Luxembourg in the figure, but even if it is adjusted for purchasing power in order to take into account the differences in prices

across countries, this measure tells us little about the effort behind the output. Even so, per capita GDP figures are informative in that they reflect among how many people, working or not, the output is divided. Figure 1 also shows Iceland's output per inhabitant in fifth place without warning the reader that many Icelanders work long hours and that Iceland's gross external debt has increased from 60 percent of GDP in 1995 to 350 percent of GDP in mid-2006 without a commensurate increase in foreign or domestic assets. A high level of national output per head without the need for such hard work and without escalating foreign indebtedness would be more impressive, and more likely to last.

A better way of assessing economic performance and comparing it across countries is to divide GDP by hours of work. A major advantage of this measure, GDP per hour worked, i.e., labor productivity, is that it reflects national output per unit of input – not all inputs, true, but the single most important one. Take education, for instance. A well-educated nation can expect to be able to derive a high income from relatively light work and to enjoy long hours of leisure, using its income from work and investment and its free time to maintain a high standard of life. A poorly educated and poorly endowed nation does not have this option: it must either work long hours or postpone retirement to make ends meet, thus forgoing desired leisure, or it must resign itself to a low level of income, and its standard of living will suffer either way. An ideal way of assessing economic performance within and across countries would be to divide sustainable GDP – i.e., the flow of national output that is deemed consistent with the maintenance of sustainable and optimal levels of relevant national assets and liabilities – by an appropriate index reflecting hours of work as well as other domestic and imported inputs. This, however, would take us too far afield. In this article, instead, we let it suffice to focus on international comparisons of hours of work and GDP per hour worked, and these, in turn, will help shed new light on the intercontinental relationship between inequality, economic performance, and biology. If you haven't encountered anthropometrics before, you will be surprised.

II. Hours of Work

For some time, the Organization of Economic Cooperation and Development (OECD) in Paris has published data on hours of work in its member countries. These data have not, however, been widely used for international comparisons, neither by the OECD

itself nor by others, because of well-founded fears that the data may not be easily comparable across countries. Counting hours of work is notoriously difficult because some countries deduct lunch and coffee breaks from hours worked, some include them, and so on. Besides, shirking is always difficult to deal with. They pretend to pay us and we pretend to work, was a common refrain in the former Soviet Union.

Recently, economists at the University of Groningen in the Netherlands under the leadership of Professor Angus Maddison have tried to come to grips with this problem by putting together a new macroeconomic database for up to 103 countries from 1950 to the present, including hours of work for 40 countries.¹ The estimates of hours worked are intended to include paid overtime and to exclude paid hours that are not worked because of sickness, vacations, holidays, and such. As described on the Groningen website (<http://www.ggd.net>), estimates of hours worked are fraught with problems of measurement and international comparability. In individual countries it is common for different estimates to circulate side by side, some obtained from labor force surveys, others from establishment surveys. Estimates based on labor force surveys are comprehensive in nature as they include adjustments for overtime, sickness, and so on, but they tend to overestimate hours actually worked even if only by a small margin. Figures based on establishment surveys usually cover only hours paid, and may include overtime and require further adjustments along the lines described in Maddison (1980) to account for various types of absence from work. For each country, the estimates are based on a judgment as to which sources have made the most appropriate adjustments in order to achieve the preferred measure of “actual hours worked per person employed.” In some cases (e.g., France, Germany, the United Kingdom, and the United States), national sources are used. The numbers for the United States are based on a combination of unpublished total working hours from the Bureau of Labor Statistics Productivity Database divided by smoothed employment series from the Current Population Survey. In other cases, the economists at Groningen have relied on estimates from the OECD Growth Project.² For the European countries, the latter data set relies on the Eurostat Labor Force Survey, with downward adjustment to account for an overstatement of hours actually

¹ For a detailed description of the data, see <http://www.ggd.net>. The sample represents about 93 percent of the world’s population and about 98 percent of world GDP because some small and poor countries are not yet included in the database.

² See updates in Scarpetta *et al.* (2000, Table A.13).

worked. For later years the trend of the OECD Employment Outlook has been used. The chief purpose of this ambitious undertaking is to build up a set of internationally comparable numbers that describe the amount of work behind the output produced in different countries so as to facilitate cross-country comparisons of labor productivity, thereby also making possible more meaningful cross-country comparisons of living standards than those based on output per capita that have thus far been most commonly used for this purpose, with misleading results.

So what, then, do the new data tell us? Figure 2 shows hours worked per person employed in 2005 in the same 35 countries as those shown in Figure 1.³ South Korea leads the pack. Why do the South Koreans work almost twice as much as the Dutch? Perhaps the Koreans are more industrious than the rest of the nations in the figure. Perhaps they have to work hard to be able to reach the living standards they aspire to. The only other countries in the figure with a heavier work load than the United States are various emerging countries in Central and Eastern Europe as well as Cyprus, Malta, Turkey, and Greece. Thus, American workers put in longer hours than their fellow workers throughout Western Europe as well as Japan and the antipodes. Why? Are American workers more industrious? Does their economic culture – their values, attitudes, morals, and beliefs – perhaps differ from that of European workers as suggested by Phelps (2006)? If so, the cultural difference seems unlikely to cut deep because in 1950 European workers actually put in more hours than workers in the United States (Gordon, 2006). The Groningen numbers bear this out. In 1950 wage earners in the United States worked fewer hours than workers in all other industrial countries except Italy, Japan, and Sweden. Since then, annual hours of work have decreased more rapidly in Europe and elsewhere than in the United States. This is shown in Figure 3 that covers 24 of the 35 countries (information on hours worked in 1950 is not available for eleven of the 35 countries shown in Figures 1 and 2). Over the 55 years since 1950, American wage earners have reduced the amount of work they do by three and a half hours a year on average compared with eight hours a year in Sweden, nine in the United Kingdom, ten in Denmark, eleven in France, twelve in Norway, fifteen in the Netherlands, and seventeen in Germany. Thus, the Europeans have to a much larger extent than Americans taken out their increased prosperity since

³ As before, and throughout this section of the article and the next, the source of the data used is The Conference Board and Groningen Growth and Development Centre, Total Economy Database, May 2006, <http://www.ggdc.net>.

1950 in more leisure as well as in higher income and consumption. The question is: Why did this happen in Europe and not in America?

Gordon (2006) reviews several explanations that have been put forward in recent debate of this puzzle. Blanchard (2004) argues that Europeans like leisure more than Americans do, in which case the reduction in hours in Europe would be voluntary across the board. Alesina *et al.* (2005) blame Europe's strong labor unions for having managed to jack up wages for their members as intended, thereby reducing employment and hours. If so, the decrease in hours worked in Europe has been voluntary on the part of the unions but involuntary on the part of non-union workers. Prescott (2004) suggests that Europe's higher labor income taxes deter labor supply and hours, implying that Europeans would probably want to work no less than Americans if the tax regimes and welfare systems were the same on both sides of the Atlantic. All these explanations probably have some validity, in varying proportions.

To this list of possible explanations it can be added that Europe's way of organizing its mixed market economy through a judicious mixture of public services, including social security, and private enterprise combined with reasonable equality in the distribution of income and wealth may give rise to economic efficiency gains that reduce individual wage earners' need for work and private consumption, thus paving the way to shorter workweeks and earlier retirement. Consider this: from the age of 25 to 50, labor force participation rates in Europe – i.e., in the fifteen member states of the European Union prior its expansion to 25 members in 2004 – is virtually the same as in the United States (Gordon, 2006). This does not suggest a smaller propensity to work or a weaker work ethic – a stronger leisure ethic! – in Europe than in America. In their early sixties, three of every four European wage earners have quit work while half of the United States labor force still continues to work. In their early seventies, moreover, one in four Americans continues to work compared with one in twenty Europeans. These differences in retirement patterns seem to suggest that the more rapid reduction in European hours of work since 1950 has at least to some extent been voluntary as many wage earners like to retire early to find time for other activities, and experience seems to show that, increasingly, many Europeans feel they can afford to do so. If so, early retirement is a sign of economic strength, not of weakness, especially if it is accompanied by high productivity of labor to which we now turn.

III. Labor Productivity

Figure 4 shows GDP per hour worked in the same 35 countries as before. Here we see that seven countries in Europe have a higher level of GDP per hour than the United States. The seven countries (Luxembourg, Norway, France, Ireland, Belgium, Austria, and the Netherlands) used to make less output per hour than the United States, but they caught up and eventually overtook the United States through a mixture of more production and less labor (and, in Norway's case, by discovering oil). Germany's GDP per hour is only marginally less than that of the United States. We see, again, that the world's second largest GDP per capita, that of the United States (recall Figure 1), depends on hard work. Figure 4 also exposes the inefficiency (e.g., from excessive farm protection with food prices to match and lack of competition in some other areas as well) that continues to plague the economies of, for example, Japan and Iceland where it still takes a lot of work – almost as much as in the United States! – to sustain a high level of GDP per capita.

Figure 5 sheds further light on the relationship between output and efficiency from a different direction. The figure shows a scatterplot of GDP per hour in 2005 from Figure 4 and hours worked in 2005 from Figure 2. We see a clear and statistically significant pattern: hours of work are inversely related to labor productivity. Of all the countries making more than USD 30 an hour, only Greece – a country where one-sixth of the labor force is still tied up in agriculture, compared with one-fiftieth in the United States – carries a heavier work load than the United States.

How can we explain the pattern shown in Figure 5? – a pattern that can be observed also in earlier years. To some, the scatterplot may look like a picture of labor demand across countries with hours of work varying inversely with real wages that equal, or are proportional to, average labor productivity in equilibrium. This interpretation accords with the stories told by Alesina *et al.* (2005), Blanchard (2004), Prescott (2004), and Gordon (2006). To others, the pattern may look like a picture of labor supply, or rather the downward sloping segment of a backward-bending cross-country labor supply schedule, suggesting that an increase in real wages stimulates the demand for leisure and thus discourages labor supply in the relevant range. Most likely, there is an element of both phenomena behind the pattern observed. Further, it is conceivable that too much work – tired workers! – may result in diminishing returns, thereby reducing labor productivity.

Let us now summarize the argument thus far. With the sole exception of Luxembourg, an international banking center, European countries produced less output per capita than the United States in 2005. The United States, however, stands apart from other the high-income countries in that its workers toil much longer hours and retire later than their European counterparts. In Europe, there has been a strong and persistent downward trend in hours of work since 1950 as European families have become more prosperous. In the United States, the decrease in hours of work has been slower. This divergence could reflect a stronger work ethic, lower taxes, less public consumption, or weaker labor unions in the United States than in Europe, the main factors stressed by Gordon (2006). Alternatively, the slower decline in hours worked in the United States than in Europe since 1950 could reflect a need to keep working long hours in an attempt to resist a relative decline in living standards that American workers have become accustomed to. In order to assess the alternative hypothesis, we need a measure of economic conditions that is independent of hours of work and of output per capita or per hour. If such a measure can be found, it may signal whether American wage earners have reason to work hard in order to maintain their high level of income in the face of a relative decline in economic conditions *vis-à-vis* Europe. This brings us to measures of the biological standard of life.

IV. Enter Anthropometrics, and Income Distribution

The United States has fewer doctors and nurses per capita than many European countries despite significantly higher private and public expenditures on health care relative to GDP (World Bank, 2005). As is well known, Americans do not live as long as most Europeans. In 1960, life expectancy at birth was on average ten months shorter in the United States than in other high-income countries. By 2003 the difference had increased to fifteen months (same source). Less well known is the fact that differences in human stature suggest a similar long-term divergence between the United States and Europe. According to Komlos and Baur (2004), white Americans, males and females, in their sixties are two to three centimeters (about one inch) taller than Germans of the same age. By contrast, white Americans in their twenties are two

to three centimeters *shorter* than their German counterparts.⁴ In one generation, since about 1960, Germans have thus outgrown Americans by four to six centimeters on average. Adult American females (including only those born in the United States, thus excluding many immigrants) are shorter than European females with the sole exception of the United Kingdom. Adult American-born males are also shorter than European males except for Spanish, British, Italian, French, and Swiss males (Komlos and Lauderdale, 2006).⁵

Human height is easy to measure, and always was. Height is determined during certain spurts of growth in infancy and adolescence, and depends on nutritional intake among other things. Nutrition, in turn, depends on social and economic conditions, including household income. Unlike body weight, which reflects the balance between food intake and physical energy expenditure and can rise and fall over a person's life span, a grown adult's height is terminal and incorrigible (although it may recede a bit in old age, starting in the late forties), and most likely reflects economic and social conditions in youth. Unlike weight, human height may convey important information on a nation's prosperity far back in time – about its nutrition, environment, health, housing, stress, and so on. Here are some other anthropometric findings reported by Komlos and Baur (2004), all suggesting a link between economic conditions and height:

- West-Germans in all age groups from 20 to 70, males and females, are on average one centimeter taller than East-Germans.
- High-income Americans of both genders and all ages are one to two centimeters taller than low-income Americans of the same gender and age.
- American university graduates of both genders and all ages are on average three to four centimeters taller than their fellow Americans of the same gender and age with no education beyond elementary school.

⁴ The differences were even larger in the mid-nineteenth century when American whites measured 174 centimeters on average compared with 167 centimeters for Bavarians. In the mid-eighteenth century, Americans were also seven centimeters taller than the British.

⁵ The sample also includes Australia (0.5), Finland (0.5), Austria (0.5), Canada (1.5), Belgium (1.5), Germany (1.5), Norway (2), Sweden (2.5), the Czech Republic (2.5), Denmark (5), and the Netherlands (6). The numbers within parentheses show the difference in stature in centimeters between males in these countries and American males, rounded off to the nearest half centimeter. For females, the height differences range from 0.5 centimeters in France to 6.5 centimeters in the Netherlands.

These anthropometric findings raise the following question: If physical stature reflects economic and social conditions in youth and Europeans have grown significantly taller than Americans since 1960, why do the macroeconomic aggregates such as GDP compiled in national accounts not correspond more closely to these findings? True, comparisons of hours of work and GDP per hour worked suggest, as we have seen, that there is room for discussion of the widely perceived economic superiority of the United States *vis-à-vis* Europe, but it is still puzzling why there does not seem to be closer conformity between the economic and anthropometric indicators. For a broader view, we perhaps need to measure macroeconomic performance in two dimensions like we measure the performance of financial assets: by risk as well as by return – that is, by looking at not only the average level of GDP per capita or per hour worked but also at its distribution across the population. Consider two countries with the same output. If one of them has a grossly unequal distribution of income, the bottom tail of the distribution – the underclass – may be undernourished and fail to reach normal height, thus pulling down the national average, while the top tail of the distribution has no difficulty reaching normal height and thus does not have an offsetting effect on the average. Excessive equality would reduce average incomes by stifling incentives to work, save, and acquire an education. Excessive inequality may likewise reduce average income by producing an underclass that is undernourished, undereducated, and disproportionately likely to lack employment or land in jail. If so, and if the relationship could be quantified, a possible concept of optimal equality would be equality in the range where average incomes are at a maximum. This differs from the Rawlsian-type notion that optimal equality is in the range where the lowest incomes are at a maximum as well as from the opposite notion that optimal equality is in the range where the highest incomes are at a maximum.

Figure 6 describes the distribution of disposable income or consumption in 33 of the 35 countries in Figures 1 and 2 as measured by the Gini index of inequality.⁶ Each ten-point increase in the Gini index corresponds roughly to a doubling of the ratio of the disposable income of the top quintile of the income distribution to that of the bottom quintile. Hence, the ten-point difference between the United States and the Netherlands on the Gini scale reflects a tenfold difference between the disposable income of the top quintile and the bottom quintile of the income distribution in the

⁶ Source: World Bank (2005). Data for Cyprus and Malta are not available.

United States compared with a fivefold difference in the Netherlands. In Belgium, Japan, and Scandinavia at the bottom of the figure the difference between the top and bottom quintiles is about threefold. Steckel (1995) reports an inverse relationship between inequality and average physical stature. Figure 7 confirms his finding for the cross-country data under review here. Several recent studies suggest that economic growth varies inversely with inequality across countries (Gylfason and Zoega, 2003), but overall the empirical record is mixed.

Greater inequality in the distribution of income in the United States than in Europe manifests itself in numerous ways.⁷ In the United States, about one in six children live in poverty compared with one in ten in the Netherlands and one in twenty in Scandinavia. About one-sixth of the population of the United States has no health insurance compared with virtually universal coverage in Europe. The United States now has less unemployment than Europe, true, but only about a half of the unemployed in the United States receive benefits. While Europe has all but eliminated its city slums, the United States has not. Moreover, the United States keeps two million people in jail, a number that is eight times higher relative to population than in the European Union (Rifkin, 2004) and twelve times higher than in Japan. Figure 8 may seem to suggest that crime as measured by the size of the per capita prison population⁸ goes hand in hand with inequality across countries. However, the statistical significance of the cross-country relationship revealed in the figure vanishes if the United States, shown in the far northeastern corner of the figure, is removed from the sample that includes the same countries as Figure 5. Even so, the pattern is clear: international differences in inequality go along with palpable differences in economic and social outcomes as well as in average physical stature.

In brief, the upshot of the foregoing argument is that despite its high and persistent unemployment in places, the European economy is in some respects doing better than is sometimes acknowledged. Seven European countries now have a larger GDP per hour worked than the United States. The key to this intercontinental difference in labor productivity appears to be that Europeans permit themselves to work less than Americans. One reason for the difference in hours of work, among several others, may be that Europeans can afford to work less because they enjoy a more evenly

⁷ This discussion draws on Komlos and Baur (2004) and Komlos and Lauderdale (2006) and the original statistical sources cited therein.

⁸ Source: Walmsley (2005).

distributed, and higher, standard of life as evidenced by the greater equality in the distribution of income in Europe and the Europeans' growing physical stature compared with Americans. Sorting out these possibilities by econometric and anthropometric methods will be a major challenge.

V. Conclusion

This article suggests that average GDP per capita or even per hour worked does not provide a full picture of economic performance, let alone welfare or happiness, within or across countries as long as the potentially deleterious effects of gross inequalities in the distribution of income are not taken into account. Yet, the data reviewed here do not uncover any significant relationship between either hours of work and inequality or between GDP per hour worked and inequality within the OECD region. Even so, the distribution of incomes and wealth seems likely to make a difference in the long run, especially if gross inequalities arise from public policies such as regressive taxation or discrimination rather than from natural causes because the latter causes may be easier to accept. Economic and social policies that emphasize cohesion, European style, and thus avert excessive inequality in incomes and wealth seem to matter for average physical stature. But we still don't know for sure whether this helps explain why American workers need to work so much harder than European workers, nor do we know whether the declining relative stature of Americans since about 1960 remains to manifest itself in relative economic decline that may ultimately show up in conventional measures of macroeconomic performance based on national income accounts or in indicators of labor productivity.

It is said that the revolutionaries who stormed the Bastille in Paris in 1789 were, on average, 150 centimeters tall and weighed about 100 pounds. If so, they had the looks of thirteen-year-old girls today. But this may be an exaggeration. Yet, in England, there was a height difference of 22 centimeters at age fifteen between the Oliver Twists and the gentry boys, whereas in France the average height difference between ordinary men and the elite was seven centimeters. As time passed, the descendants of the revolutionaries gradually reached the same average height as those of the clergy and the nobility. *Liberté, égalité, fraternité* are good for growth.

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Figure 1. GDP per capita 2005
(Constant 2005 US dollars at purchasing power parity)

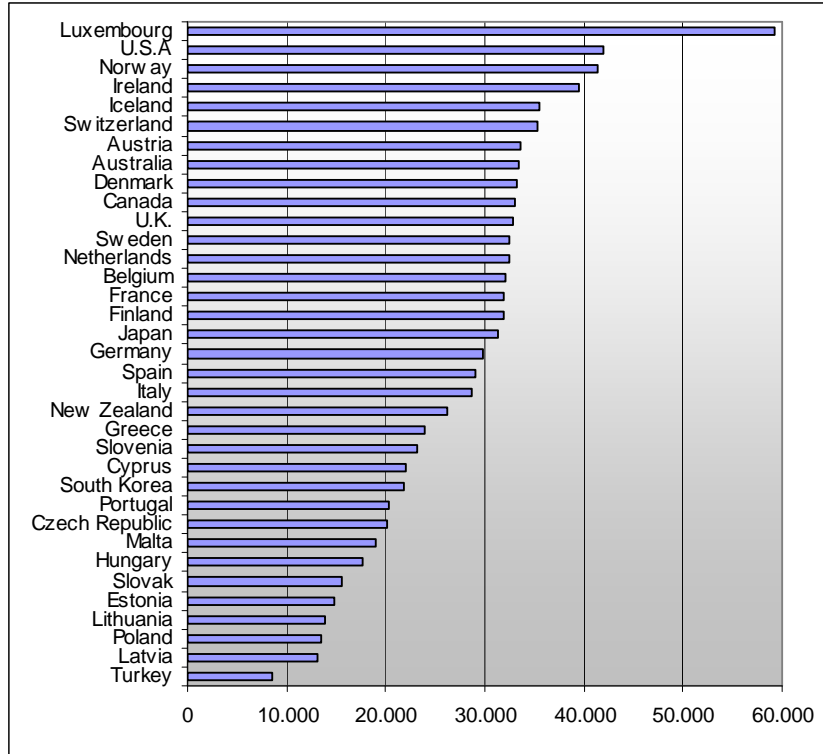


Figure 2. Annual Hours Worked 2005

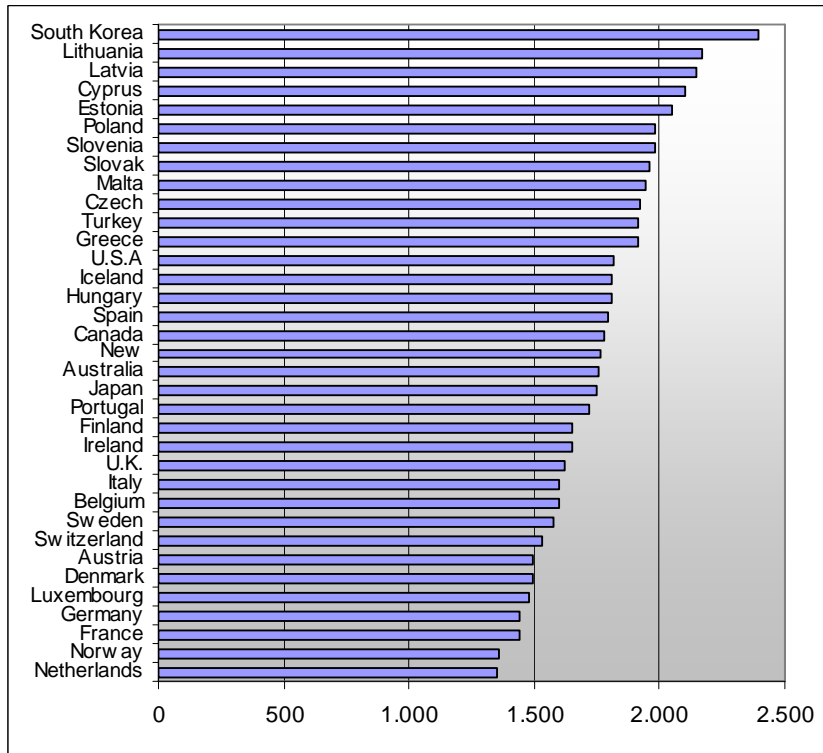


Figure 3. Annual Reduction in Hours Worked 1950-2005

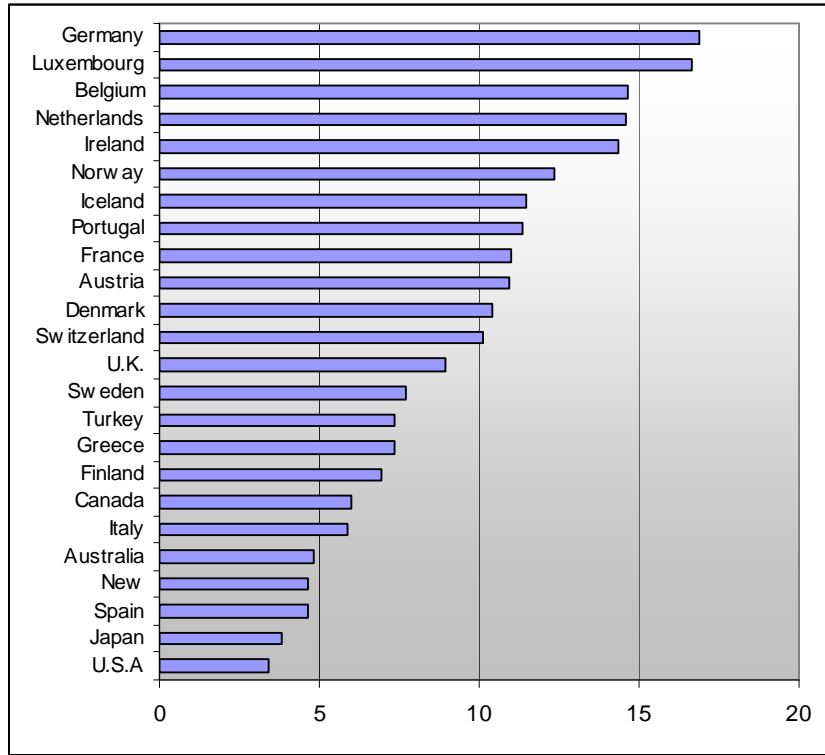


Figure 4. GDP per Hour Worked
(Constant 2005 US dollars at purchasing power parity)

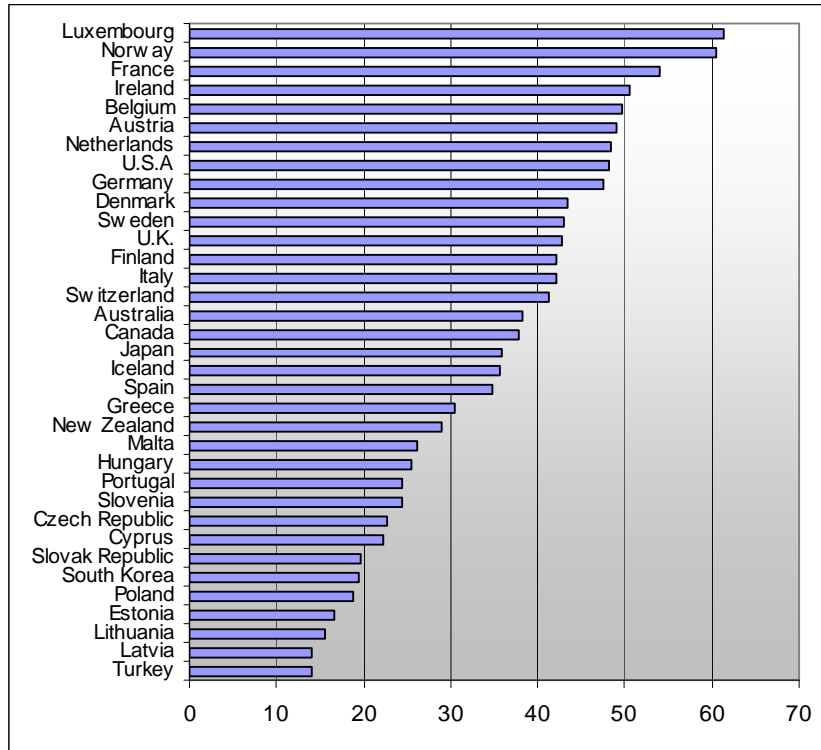


Figure 5. GDP per Hour and Hours Worked 2005

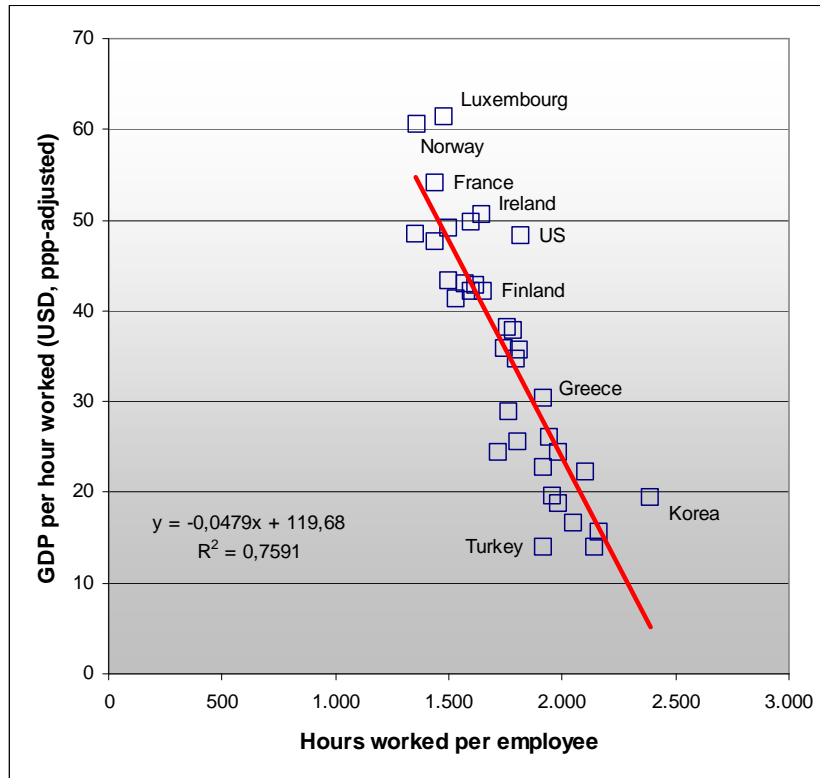


Figure 6. Gini Coefficients, Various Years

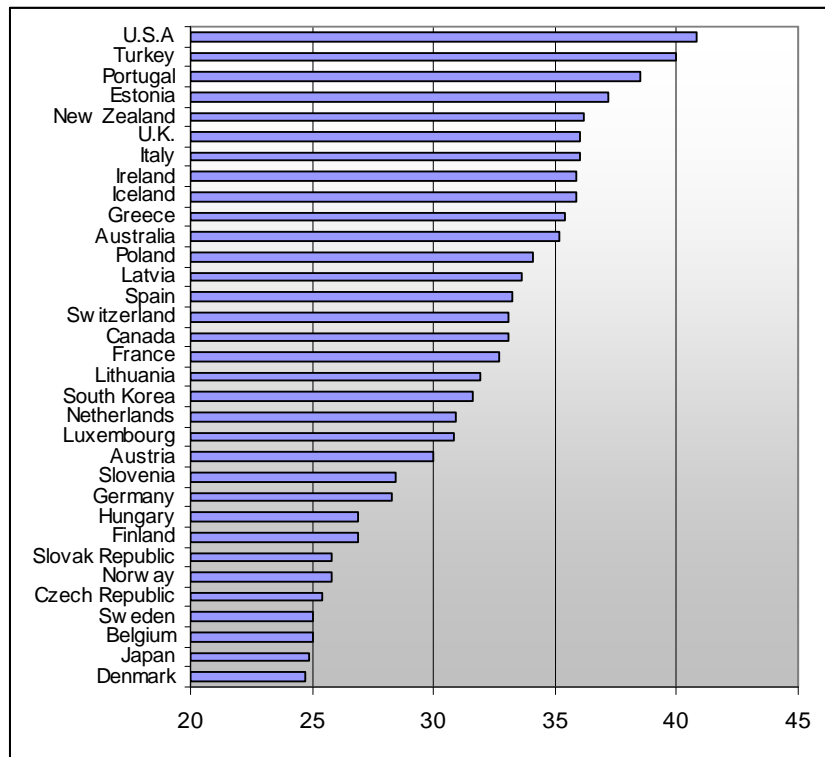


Figure 7. Human Height and Income Inequality

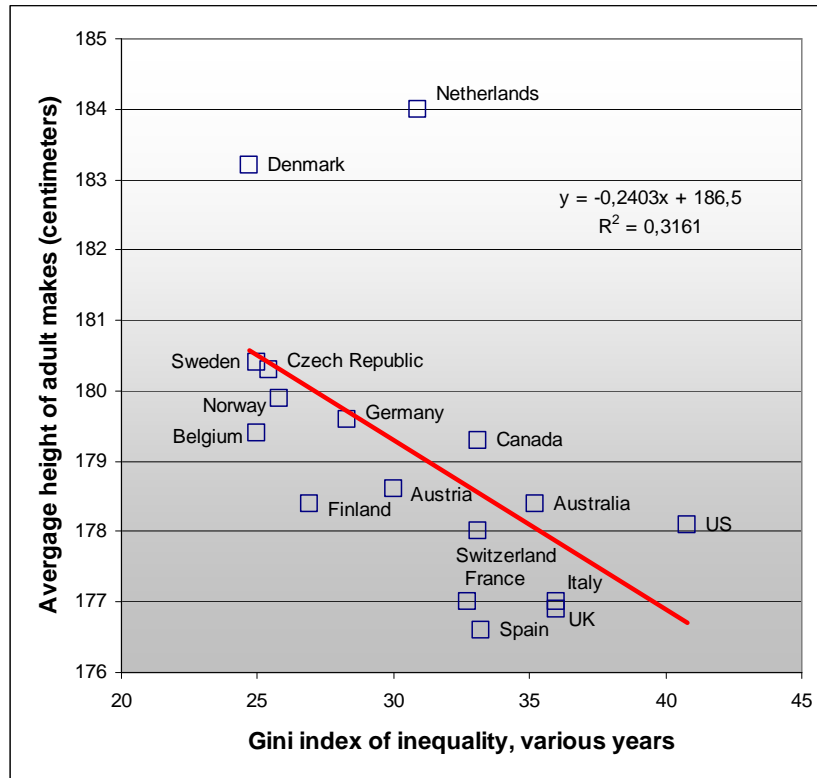


Figure 8. Prison Population and Income Inequality

