Available online at www.sciencedirect.com
ScienceDirect
Explorations in Economic History 44 (2007) 538–567
Explorations in Economic History
www.elsevier.com/locate/eeh

The times they are not changin': Days and hours of work in Old and New Worlds, 1870–2000 ☆

Michael Huberman [a,*,1], Chris Minns [b]

[a] *Département d'histoire, Université de Montréal, C.P. 6128, Succursale Centre-Ville, Montréal, Que., Canada H3C 3J7*
[b] *Department of Economic History, London School of Economics and Political Science, UK*

Received 11 April 2006
Available online 12 July 2007

Abstract

This paper brings a historical perspective to debates on worktime differences across OECD countries, exploiting new data sets on hours of work per week, and days and hours of work per year between 1870 and 2000. We contest the popular view that the divergence in worktimes between Europe and North America and Australia is a recent phenomenon. Since 1870 the decline in weekly and annual hours was consistently greater in the Old World; the New World has had fewer days off for the last 130 years. Labor power and inequality, held to be important determinants of worktime after 1970, had comparable effects in the period before 1913. We find that given their levels of income in 1870 New World workers supplied relatively too many hours of work.

Keywords: Hours of work; Vacation days; Labor supply; Comparative economic history

☆ Earlier versions of this paper were presented at seminars at the Universidad Carlos III de Madrid, University of Michigan, Michigan State University, Northwestern University, and Stanford University, and at the Berlin Colloquium in Economic History (2005), the Portuguese Economic and Social History Association (Evora, 2005), TARGET Economic History Workshop (Vancouver, 2005), and the Canadian Economics Association (Montreal, 2006). We thank participants at these meetings and Marina Adshade, Peter Lindert, Benoit Perron, Gavin Wright, and two anonymous referees and the editor of this journal for their comments. We thank Marie-Pierre Busson for assistance in collecting and assembling the data for this paper. All errors are our own. Huberman acknowledges the support of the SSHRCC INE Grant "Globalization, Technological Revolutions, and Education". Portions of this paper were prepared when Huberman was a visitor at the Institute for International Integration Studies (IIIS), Dublin.
* Corresponding author. Fax: +1 514 343 2483.
E-mail addresses: Michael.huberman@umontreal.ca (M. Huberman), c.minns@lse.ac.uk (C. Minns).
[1] Professor of History at the Université de Montréal and a research fellow at CIRANO and CIREQ.

0014-4983/$ - see front matter
doi:10.1016/j.eeh.2007.03.002

1. Introduction

The ever-growing divide between leisure-bent continental Europe and much of the rest of the world has become a vexed concern of economists and political scientists. Explanations of recent worktime differences across OECD countries are as numerous as they are diverse. Bell and Freeman (1995, 2001) attributed the trend toward longer hours in the United States to rising wage inequality; Prescott (2004) claimed that Old World tax regimes have reduced the incentive to supply labor time; Burgoon and Baxandall (2004) interpreted worktime patterns in the U.S. and among European countries as the outcome of policy choices made by liberal, social democratic, and Christian democratic regimes; and, finally, Alesina et al. (2006) ascribed the bulk of the gap in hours between the U.S. and Europe to differences in labor regulations and unionization rates. Although their points of departure differ, these views share the claim that divergences are recent in origin. Bell and Freeman (2001, p. 104), are explicit. "The gap [U.S. vs Germany] is not a long-standing historical pattern." In their view, Americans began working longer than Germans sometime between the 1970s and the early 1980s. Similarly, Prescott (2004, p.1), wrote: "Americans now work 50 percent more than do the Germans, French, and Italians. This was not the case in the early 1970s."

The attention to current developments has its shortcomings. Using contemporary data it is difficult to sort out empirically the roles of incentives and policy, and to separate these factors from culture and other fixed factors. Consider Bell and Freeman's incentive-based argument that those who work longer move up in the wage distribution and the gains for doing so are greater the more unequal the wage distribution. The wage distribution in the U.S. could well be the product of policies and institutions like the porous safety net and weaker unionization rates (DiNardo et al., 1996), but today's rules and behavior may have had their origins in an earlier industrial relations and legal regime, or a deeper work ethic based on the drive to emulate some better off reference group (Bowles and Park, 2005). There is no simple way to disentangle the chain of causality and, while certain econometric specifications improve the quality of the estimates, the pitfalls of omitted and endogenous variables remain.

The aim of this paper is to bring a historical perspective to these issues. We ask whether today's patterns of worktimes in Europe and the U.S., Australia, and Canada—the New World—can be found in the decades before 1913. We answer in the affirmative.[2] The decline in worktimes in the Old World was comparatively greater in the late nineteenth century, a pattern that was mimicked in the decades after 1950, because wage growth was more rapid. We consider whether inequality—which we measure as the dispersion of wages within occupations—had the same effect that Bell and Freeman found for the U.S. and Germany today. Again there are historical precedents. Inequality in the New World led to longer hours before 1900. We consider as well Alesina and his coauthors' hypothesis on union strength in Europe in the late twentieth century. We find that labor power, proxied by the percentage of voters in the male population, reduced working hours in Europe before 1913.

[2] Hours of work increased over the same period in New Zealand and remained stable or declined modestly elsewhere in the New World, such as in Mexico, Chile, and Brazil, despite rising levels of income (University of Groningen and the Conference Board GGDC Total Economy Database, 2005).

The upshot is that the determinants of worktimes in 1900 were comparable, although by no means identical, to those 100 years later. European hours fell faster because the Old World had more labor power, less inequality, and in certain periods larger wage gains. However, these factors do not eliminate the difference in hours between Old and New Worlds in 1870 after controlling for levels of income. Cultural attributes like religious beliefs, the work ethic, and a strong preference for schooling that immigrants brought with them from the Old World explain part of the gap, but there were unknown local factors that underlie the propensity of the New World to have labored longer. Still, the finding that trends in hours across regions is a long-standing historical phenomenon is not trivial. It casts doubt on the common view of Prescott (2004) and others that differences in the current policy and institutional environment explain the bulk of worktime divergences between Europe and the rest of the world.

Our distinction between Old and New Worlds merits justification. In 2000, annual hours of work were longer in regions of 'recent' settlement than in Europe. This club is not restricted to the richest countries, but includes Argentina, Chile, Mexico, and others. We take this group back in time. But our approach is not crude 'presentism'. The distinction between Old and New has a long tradition in economic history (*inter alia*, Habakkuk, 1962). There were stark initial differences in factor endowments across the two regions. Legal, political, and cultural arrangements also diverged in meaningful ways and it was their interaction with geography that propelled Old and New Worlds along distinctive trajectories of development. Despite a common origin, the interpretation of employment law differed in the U.S. and Britain (Steinfeld, 1991, 2001). In the New World, worktime was most often regulated by provinces and states; in the Old, primarily by central authorities. Certainly, it would be difficult to posit a common New World culture. But if culture is heterogeneous, it is also mutable. The flow of labor across the Canadian and U.S. border was a strong, albeit controversial, force in constructing a North American identity, and immigration, Jones (2006) argued, has had the effect of bringing Australia and other countries of recent settlement closer culturally and economically.[3]

The rest of the paper proceeds in four stages. First, we assemble new data sets on hours of work per week, and days and hours of work per year for a sample of European and North American countries, and Australia, between 1870 and 2000. Next we introduce the analytic framework we use to study worktimes between 1870 and 1900. We then investigate the effects of time varying factors on worktime. In the final stage, we examine the role of cultural fixed factors in explaining differences between Old and New Worlds.

2. Worktimes since 1870: The basic data

This section discusses the basic trends in worktimes from 1870 to 2000. Our aim is not to write a history of worktimes, but to compare and contrast developments in the period before 1913, the interwar years, and the decades after 1950. While the interwar years are exceptional, there are certain similarities between the early period and the decades after

[3] In their study of migration, Hatton and Williamson (1998, p. 54) observed that Australia was loosely connected to North American labor market developments.

1950, the key years in the current debate about international differences in work patterns. The resemblance is striking despite changes in the institutional environment over the last 130 years, and it underlies our claim that a historical perspective can deepen our understanding of contemporary worktimes.

We study the different components or dimensions of worktime: hours of work per week (or per day), days of work per year (or weeks of work), and hours of work per year. This breakdown is meaningful because workers and firms make different choices across these dimensions (Hamermesh, 1996). Because of the fixed costs in labor market participation, like the costs of getting to work, workers will not be indifferent between combinations of days of work and hours per day (or per week), and there may be significant variation along these lines between men and women. The preferences of firms between hours per day or days per week may depend on their investments in fixed capital. Organized labor's interests have also changed over time. European unions after 1970 pressed governments to increase vacation days, but before World War One labor's commitment was to the 8-h workday. The State has its own set of preferences. Some authorities have used worksharing policies (fewer days per week) to reduce unemployment; others have encouraged more flexible work schedules (fewer hours per day). While annual hours can often mask changes in the components of worktime, the evidence we have amassed points in the same direction. Regardless of the dimension, patterns of worktime in Old and New Worlds were established at an early date and that the period from 1870 to 1913 was a prelude to developments after 1950.

2.1. Hours of work per week

Table 1 collects evidence on the length of the workweek since 1870 for a sample of countries.[4] The unit of measurement is weekly hours of full-time production workers (male and female) in non-agricultural activities.[5] These values control for days of work. Our estimates before World War One are taken from establishment level surveys assembled by the U.S. Department of Labor in 1900. Values for 1913 are from various independent sources; where these were not available, hours are predicted based on trends from 1870 to 1900. Huberman (2004) describes the sample, the weights used in calculating national averages from sectoral figures, and the estimation method and other sources behind the 1913 figures. From 1929 to 2000 we have taken estimates from the International Labor Organization except where indicated otherwise.[6] The U.S. series from 1929 is an amalgam of individual series constructed by

[4] In this paper, hours per week and per day are interchangeable. We prefer hours per week because this was the common method of recording worktimes in the past. Hours per work per day can be inferred from Table 1. We assume full-time work consisted of 6 days from 1870 to 1913; five and a half from 1929 to 1950; and five from 1960 to 2000. Undoubtedly, there were differences between countries but there were also important sectoral variations that make identifying national patterns difficult.

[5] The unit of comparison in the macroeconomic debates on worktimes is generally hours of work per person. We prefer hours of full-time production workers because it better serves our objective of tracking differences across countries in labor supply over a long-term horizon. We are less interested in issues of labor force participation and productivity. Since the 1970s, definitions of full-time have differed across countries, but by this date the time series we collected show distinct trends across regions. Definitions of full-time adopted by national authorities often reflected usual hours worked.

[6] Until 1980, the data are from the ILO Yearbook of Labor Statistics; after 1980, from 'labor-related establishment surveys' in the ILO database LABORSTA.

Table 1
Hours of work per week, 1870–2000

	1870	1880	1890	1900	1913	1929	1938	1950	1960	1970	1980	1990	2000 (M)	2000 (F)
Belgium	72.2	69.3	66.5	64.2	*59.5*	48.2	48.0		42.5	39.9	38.5	36.6	37.3	36.5
Denmark	69.9	64.6	59.9	56.0	55.8	48.5	47.6	46.0	44.4	39.0	37.5	35.0	39.3	37.7
France	66.1	66.0	65.9	65.9	62.0	48.0	39.0	44.8	45.9	44.8	40.7	39.9	36.9	34.6
Germany	67.6	66.3	65.1	64.0	57.0	46.0	48.5	48.2	45.6	43.8	41.6	39.0	40.8	39.0
Ireland	63.8	62.0	60.2	58.6	*56.4*	46.6	48.2	45.0		42.7	41.1	42.1	40.7	38.0
Italy	63.3	63.4	63.6	63.8	*62.4*	48.8	48.5	47.8	42.4	42.9	42.5	39.6	41.4	35.4
Netherlands	65.0	63.4	61.9	60.5	*58.6*	48.1	48.5	49.2		45.1	40.8	34.0	37.6	30.1
Spain	64.7	62.7	60.8	59.1	*56.7*	48.5	47.0				40.0	38.9	36.9	34.0
Sweden	69.6	64.6	59.9	56.0	56.0	48.0	46.3	46.8	43.4		37.7	38.2	39.1	36.3
Switzerland	65.4	63.1	60.9	59.0	*56.3*	48.5	46.3	47.5	46.1		43.8	41.6		
U.K.	56.9	56.6	56.3	56.0	56.0	47.0	48.6	45.7	44.7	42.0	40.0	42.4	42.0	38.9
Australia	56.2	53.3	50.5	48.1	*44.7*	45.5	45.0	39.6	39.6	39.6	39.2	40.1	42.6	38.5
Canada	57.2	59.0	60.9	62.6	57.9	49.0	47.2	42.3	40.7	39.7	38.5	38.0	42.8	36.0
U.S.	62.0	61.0	60.0	59.1	58.3	48.0	37.3	42.4	40.2	38.8	39.1	39.7	43.3	37.2
Old World	65.9	63.8	61.9	60.3	57.9	47.8	47.0	46.8	44.4	42.5	40.4	38.7	39.2	36.1
	(4.09)	(3.16)	(3.08)	(3.66)	(2.44)	(0.90)	(2.78)	(1.51)	(1.48)	(2.18)	(1.94)	(2.76)	(1.95)	(2.70)
New World	58.5	57.8	57.1	56.6	53.6	47.5	43.2	41.4	40.2	39.4	38.9	39.4	42.9	37.2
	(3.10)	(4.00)	(5.76)	(7.56)	(7.74)	(1.80)	(5.19)	(1.58)	(0.55)	(0.49)	(0.38)	(1.12)	(0.36)	(1.25)
Old W. (weighted)	64.4	63.5	62.6	61.8	58.6	47.5	46.7	46.9	44.6	43.3	40.9	39.5	39.7	36.4
New W. (weighted)	61.4	60.5	59.6	58.8	57.7	48.0	38.4	42.3	40.2	38.9	39.1	39.6	43.2	37.2
World	64.3	62.5	60.9	59.5	57.0	47.8	46.1	45.4	43.2	41.7	40.1	38.9	40.1	36.3
	(4.92)	(4.10)	(4.08)	(4.63)	(4.13)	(1.07)	(3.56)	(2.82)	(2.33)	(2.35)	(1.82)	(2.47)	(2.35)	(2.45)

Notes. Hours of work per week of full-time production workers. Figures in italics for 1913 are predicted from 1870 to 1900 values (Huberman, 2004). Old and New World (weighted) are population weighted averages. Standard deviations in parentheses. *Sources.* 1870–1913, Huberman (2004); 1929–1938, ILO (1934–38), except for Canada (Ostry and Zaidi, 1972), U.S. (Jones, 1963; Owen, 1988), and for Australia (Butlin, 1977); the values for Spain in 1938 are for 1936; 1950–1980, ILO (1950–80), except for U.S. (McGratten and Rogerson, 2004), and Australia (Butlin, 1977); 1980–2000, ILO (2005), except for U.S. (McGratten and Rogerson, 2004), Canada (Heisz and LaRochelle-Côté, 2003), and Denmark (Eurostat, 1995).

selected authors using different definitions and sources.[7] Our U.S. series approximates the levels and trends found in the Current Population Survey (Sundstrom, 2006).

There are sources of measurement error in the method we have used, not the least because national authorities may have differed in what they recorded. It may be that some authorities reported standard or legal hours, others actual hours. We consider that the series best approximate usual or normal hours the representative production worker would have been engaged for during the year. Statutory work hours came into force in many countries in the interwar years, but the series diverge from the legal norms. As for actual hours, the underlying series do not show the peaks and valleys we would expect to find if workers supplied overtime or faced downtimes because of temporary plant closures. Changes in the composition of the labor force and in work schedules across countries complicate the task of constructing long-run series of average hours per week, but for 100 years these forces had little effect. Part-time work in the period before 1913 and into the interwar years was minimal. Only in the 1970s did a sizeable proportion of the labor force in certain countries begin to work less than full-time (OECD, 1998, 2004).[8] As for women's hours, these tended to be close to those of men in the early years. The gap between men's and women's hours in many countries widened with the rise in female labor force participation in the 1960s. But since 1980 the ratio of men's to women's hours has been stable for most countries.[9] The Table reports male and female work hours in 2000. By this date, European men *and* women worked less than their counterparts elsewhere. Of course, changes in labor supply and the rise in the number of part-timers have affected total hours worked and we control for this in constructing the annual hours of work series below. That said, since our objective is to compare national patterns, Table 1 is a reasonable starting point to examine long-term patterns in average hours worked per week by full-timers.

The contraction in hours was as universal as it was regular. The decline in hours of work per week before 1913 (0.30 percent per annum) was comparable to that after 1950 (0.35 percent). The long-run decline is generally attributed to the combined effects of the rise in income and fall in the relative cost of leisure (Greenwood and Vandenbroucke, 2005), although economic growth and the diffusion of time-using leisure goods was certainly not contemporaneous across regions and within Europe (Judt, 2005, p. 347). Notwithstanding the universal downward trend, national and regional patterns emerge. In 1870, Australia had the shortest workweek, followed closely by the U.K. All other European countries had initially longer hours than their offshoots. But the decline in hours from 1870 to 1913 was slightly greater in the Old (0.3 percent per annum) than in the New World (0.2 percent), and by 1913 the length of the workweek was about the same for all countries in our sample except for Australia, France, and Italy. The bottom lines

[7] For the period from 1929, we have tried to find the best fit with the pre-1913 series, taking into account the methodology used by the ILO after WWI which is skewed toward manufacturing. We have not integrated observations from the Current Employment Statistics which reports 33 h of work per week for Americans in 1990, or about five—unrealistic—hours shorter than the average workweek of Europeans.

[8] The increase in part-time work was most evident in the Netherlands and the U.K. (OECD, 1998).

[9] Since the early 1990s, hours per week of women (full-time) in Australia (Campbell, 2005), Canada (Heisz and LaRochelle-Côté, 2003), and the U.S. (Rones et al., 1997) have tended to approach that of men. In some European countries, large differences between genders persist, but the Netherlands and the U.K. are again exceptions.

of the Table 1 which give Old and New World hours weighted by population confirm that the so-called reversal was well under way by 1913. The trends may have flipped in the decades between 1929 and 1960 but this was due, as we discuss, to exceptional circumstances.

The resemblance between the decades before 1913 and after 1950 begs the question whether the determinants of worktimes in the two sub-periods were similar. There are several mechanisms that may lead to the coordination of worktime. Consider Alesina et al.'s argument that European unions, representing their average member, sought reduced worktimes. In the early period, union density was low in Europe and labor's demand for better working conditions was tied to the numbers who voted. In any event, governments not unions legislate hours of work. From a very low level in 1870, rates of (male) suffrage increased markedly in Europe, with the important changes occurring after 1890. The growing franchise was the thin end of the wedge of the movement to a shorter work week.

A different dynamic was in place the New Word to select hours. Suffrage rates were higher in 1870 and remained relatively stable. The New World entrusted legislation to the provinces or states and fragmentation slowed the movement to country-wide standards. Anyway, at the local level voters' interests, agricultural and urban, worker and employer, lay elsewhere (Engerman and Sokoloff, 2005). Strong labor mobility was the norm in the New World. It was the marginal worker that determined outcomes in the labor market and this meant short-job attachments, long hours of work and corresponding wage premiums. Strikes in Canada were predominantly about wages (Huberman and Young, 1999), and union campaigns in the U.S. to cut the workday had little direct impact on employers (Costa, 2000). The steady flow of immigrants locked in preferences toward long hours of work. Employers were attuned to the marginal worker, even if this meant providing hours of work that were not optimal for the median laborer. Because of relative factor prices, New World firms had a built-in incentive to invest in capital and they had a strong interest in maintaining long hours of operation. It was only under political pressure and when immigrant flows had dried up that the U.S steel industry adopted a shorter workweek in the 1920s (Sheills, 1990).

The experiences of Belgium and Canada sum up the role of state intervention before 1913. In Belgium the adoption of universal male suffrage in 1893 triggered a series of legislative reforms that curtailed the workweek (Huberman, 2007); but even in the most progressive province in Canada, Ontario, the few statutory interventions were toothless.[10] In the decades before the First War, union voice in Australia was stronger than other settler economies—Melbourne stonemasons won the 8-h day in 1856—but the exception proves the rule. McLean (2005) claimed that the low level of labor input was not sustainable as the economy adapted to the changing fortunes of the natural resource sector.

In long-run perspective, the interwar period was an outlier. After the Great War, political and social forces exerted downward pressure on the length of workday and the dispersion of hours narrowed rapidly across and within regions. At its founding conference in 1919, the ILO exhorted countries to adopt a standard workday. But the U.S. and the U.K. failed to ratify the 8-h resolution adopted by the ILO, and by the mid 1920s national authorities like Switzerland and Belgium had loosened their commitments to the common

[10] On the weak enforcement of legislation in the U.S., see Goldin (1988). Whaples (1990, p. 405), found that the rise in wages was the "most important force" in reducing the workweek in the U.S.

standard. In the wake of the depression, France and the U.S. led the way in worktime cuts, but the likeness is misleading. In France and Italy (Matessini and Quintieri, 2006), the state legislated reductions in hours; in the U.S., the executive branch used its powers of moral suasion to encourage worksharing. Australia and Canada provide an example of the third way: job sharing and hour cutbacks were relatively unimportant (Green and MacKinnon, 1988; Gregory et al., 1988). In 1929, Canadians had the longest hours in the world.

In the aftermath of World War II age-old patterns reasserted themselves. In the immediate post-war years, Europe had longer hours but this was to be expected. During a period of catch-up in Total Factor Productivity, hours worked will be temporarily long because the incentive to accumulate capital is higher (Rogerson, 2006, p. 88). From 1950 as in the early period, the steepness of decline was greater in Europe (0.4 vs 0.2 percent p.a.). While European unions pressed responsive governments to cut the length of the workday, organized labor in the U.S. forsook cuts in hours as workers joined the drive to stock up on consumer goods (Hunnicutt, 1988), a phenomenon that was reinforced by growing inequality. Regardless of the causes, when Europeans on average began to work fewer hours per week (unweighted) than the New World in the 1980s, it culminated a century long trend.

2.2. Days of work

Table 2 gives the number of days off (vacations and national holidays) over the long twentieth century for our sample of countries. We have taken values for 1870 and 1900 from Huberman (2004); those for 1938 to 1990 from a series of contemporary studies of vacation days conducted by the ILO, 1939, 1995, the U.S. Department of Labor (Monthly Labor Review, 1955) and the European Industrial Relations Review (1982); values for 2000 are from a variety of sources, including EIRO (2003), the OECD, 2001, 2004, and official websites.[11]

At the outset, days off were rooted in traditional religious and social calendars and there was much sharing of work patterns across the oceans.[12] Immigrants to the U.S. practiced certain Old World customs and rituals (Gutman, 1973), while Europeans adopted May Day, a U.S. creation. But by 1900, if not earlier, the New World had made a break with Old World habits. Firms with greater investments in fixed capital were under pressure to work as many days as possible and this may be part of the explanation of the divergences that emerged. In Catholic Europe many of the religious festivals had been transformed into secular holidays, and while in certain northern European countries the work year was long, the Old World had on average more than twice the number of days off than their offshoots. Everywhere before 1913 paid holidays and vacations were rare;

[11] There has been little change in the number of vacation days in our sample of countries since 1990. There are discrepancies between the figures in Table 2 and those reported elsewhere owing to different measures used by the ILO, EIRO, and the OECD. Alesina et al. (2006) found a similar problem with the French data.

[12] The New World was in the forefront of many innovative programs to reduce the work year. French and Belgian workers viewed enviously the handful of U.S. firms that had introduced paid vacations before WWI and admired certain American workers' tenacity in fighting for an 8-h day (Hunnicutt, 1988). Australia was in fact the first country to institute this type of legislation on a broad scale. Before World War II, continental social reformers considered the Fair Labor Standards Act of 1938 a model piece of legislation.

Table 2
Vacation and holidays, 1870–2000

	1870	1900	1938	1950	1980	1990	2000
Belgium	18	21	30	28	34	34	33
Denmark	13	14	27	27	30	35	37
France	19	23	33	28	30	36	36
Germany	13	18	31	29	29	35	42.5
Ireland	14	20	33	20	28	28	30
Italy	23	24	37	24	35	40	41.5
Netherlands	4	5	21	24	33	35	37.5
Spain	31	31	44		30	35	36
Sweden	11	13	28	29	30	37	38
Switzerland	13	18	33	25	28	28	33
United Kingdom	14	20	30	24	28	30	32.5
Australia	8	9	22	22	32	32	32
Canada	8	9	22	22	25	25	24
United States	4	5	17	18	22	23	20
Old World	16 (7.00)	19 (6.71)	32 (5.84)	26 (2.90)	30 (2.46)	34 (3.75)	36 (3.82)
New World	7 (2.31)	8 (2.31)	20 (2.89)	21 (2.31)	26 (5.13)	27 (4.73)	25 (6.11)
World	13.8 (7.31)	16.4 (7.61)	29.1 (7.09)	24.6 (3.50)	29.6 (3.44)	32.4 (4.88)	33.4 (6.16)

Notes and sources. Standard deviations in parentheses. 1870 and 1900, Huberman (2004); 1938, ILO (1939); 1950 and 1980, European Industrial Relations Review (1982), Green and Potepan (1988), Monthly Labor Review (1955); 1990, ILO (1995); 2000, EIRO (2003) and OECD (2004).

still, the parallels with the late twentieth century are evident: Europeans had more weeks off than the rest of the world.

From the end of hostilities until the 1930s the drive for more days off gathered momentum in Europe. Politics was a decisive factor. Before 1913 the average worker had limited savings for vacations, but in the interwar years, due to the insistence of unions and with the backing of the ILO, European states and employers began converting days off into paid vacation days (Cross, 1988; Furlogh, 1998). The Soviet Union and Eastern European countries first introduced paid vacations in the early 1920s, and faced by growing labor power most western and northern European states emulated their programs (ILO, 1939). From the 1930s on, the dispersion in days off across Europe narrowed steadily. In North America, legislation was not forthcoming and the story unfolded differently. Employers who had instituted paid vacations as a part of a larger plan to win over workers from unions in the 1920s appear to have dropped them in the 1930s (Jacoby, 1985). The average North American production worker had about 1-week paid vacation in the 1930s, about half that of a European and considerably fewer public holidays.

After 1950 historical patterns persisted. In Europe, state legislation mandated further increases in paid vacation time and while Canadian workers were able to negotiate similar benefits, in the U.S. and Australia there is still no statutory minimum paid leave (ILO, 1995). One would be hardpressed to say that the European preference for more days off is a recent phenomenon. Alesina and his coauthors suggested that Europeans' preference for more and continuous vacation time today is the outcome of a 'social multiplier', the joint-decision of families, neighbors, and communities to synchronize time off. But this choice appears to have been fixed at earlier date, well before the rise in female labor force participation. Although the decline in days worked was slow, about two days per decade

over the twentieth century, the cumulative effect was large. By 2000, using figures for days of work from Table 2, the greater number of vacation days in Germany compared to the U.S. corresponded to almost half of the gap in annual worktimes between the two countries.[13]

The work year in the New World was comparatively long and intense, but the representative worker may have had a shorter career than an Old World laborer; more generally, the persistent gap in days of work between Old and New Worlds could be illusory if patterns of life-cycle hours differed across regions and time. This is unlikely. There is scant evidence of intertemporal substitution. Workers everywhere had longer careers before 1913 and cross-country retirement patterns in the early and late periods appear to have been similar.[14] In sum, at least for U.S., the average worker supplied relatively more labor effort across time as well over the life cycle in the two sub-periods.

2.3. Annual hours of work

Table 3 presents hours of work per year for our sample of countries from 1870 until today. The figures for 1870–1913 are from Huberman (2004) who constructed annual measures of full-time production workers from estimates of the number of weeks worked (adjusted for days absent) and hours per week.[15] The interwar observations have been calculated from Tables 1 and 2 using the same method. The figures for both these periods are consistent with other estimates. From 1950 on, we have taken the series available from the University of Groningen and the Conference Board GGDC Total Economy Database (2005).[16] These figures are estimates of total work hours divided by the number of workers. The splice of datasets is appropriate because of the increase in women's labor force participation (and the fact that full-time women work a shorter week then men) and the rise of part-time work in the second half of the century.[17] Despite these adjustments, the trend in annual work hours moves in line with that of hours of work per week, giving support to the assumptions underlying Table 1.

The New World labored fewer hours than the Old for most of the last century, but after weighting by population there was little difference between the two regions before 1913.

[13] About five percent of the gap between the two countries is explained by the shorter workweek; the remainder is explained by differences in labor force participation. Bell and Freeman (2001) produce a similar result.

[14] In the 1990s, the average of age of retirement in France and Germany was around 60 years; in the U.S., it was 63. Similarly, before 1913 labor force participation rates of U.S. men aged 65 and older were greater than that of France, Germany, and the U.K. (Costa, 1998, p. 29). Although U.S. workers may have spent more years in school before 1913, the gap in education levels was falling across regions. Fogel (2004, p. 71), estimated that for the U.S. expected number of years in the labor force at time of entry was 40.1 in 1880 and 40.3 in 1995.

[15] Figures in italics for 1913 are predicted from 1870–1900 values (Huberman, 2004).

[16] These numbers are superior to other available estimates. In Maddison (2001, p. 347), annual figures for 1990 show remarkably no difference between Germany and the U.S.; the OECD (2001) errs in the other direction, reporting a gap of 300 h in favor of Germany. The Groningen figures fall in between these two. For a discussion, see van Ark and McGukin (1999).

[17] The 1950 figures provide a check on the estimates for the early period. The difference in annual worktime for Denmark in 1950, taking the value calculated based on the same technique employed in constructing the 1870–1939 estimates and the corresponding figure from the Groningen database, is 17 h. This assumes 44.4 h/week in 1950 (Table 1) and 46.2 weeks of work (the value for 1938 calculated from Table 2). The method used for calculating annual hours in the earlier period is inappropriate for later years owing to changes in the composition of labor supply. The difference using the technique for 1870–1939 and the Groningen estimate for Denmark in 2000 is 161 h.

Table 3
Annual hours of work, 1870–2000

	1870	1880	1890	1900	1913	1929	1938	1950	1960	1973	1980	1990	2000
Belgium	3483	3344	3177	3064	*2841*	2229	2196	2404	2289	1851	1736	1699	1547
Denmark	3434	3172	2933	2742	2731	2301	2203	2071	1929	1871	1693	1492	1473
France	3168	3165	3119	3115	2933	2198	1760	2045	2025	1849	1696	1558	1443
Germany	3284	3223	3108	3056	2723	2128	2187	2372	2144	1808	1696	1541	1463
Ireland	3108	3017	2869	2795	*2690*	2182	2171	2437	2320	2103	1954	1992	1686
Italy	3000	3008	3006	3014	*2953*	2153	2162	1951	2012	1825	1724	1674	1612
Netherlands	3274	3194	3105	3037	*2942*	2233	2281	2156	2002	1709	1667	1414	1352
Spain	2968	2876	2787	2710	*2601*	2342	2030	2052	2042	2124	1968	1832	1815
Sweden	3436	3187	2937	2745	2745	2152	2131	2009	1902	1683	1523	1550	1645
Switzerland	3195	3083	2925	2834	*2704*	2281	2085	2092	1952	1835	1721	1617	1597
U.K.	2755	2740	2669	2656	2656	2257	2200	2112	2134	1919	1758	1698	1653
Australia	2792	2647	2501	2385	*2214*	2186	2109	2023	1945	1837	1815	1806	1797
Canada	2845	2934	3017	3102	2868	2354	2212	2111	2014	1874	1825	1830	1825
U.S.	3096	3044	2983	2938	2900	2316	1756	2008	2033	1942	1853	1840	1878
Old World	3191	3092	2967	2888	2774	2223	2128	2155	2068	1871	1740	1642	1572
	(224.4)	(171.8)	(155.7)	(169.6)	(122.9)	(68.0)	(138.6)	(169.4)	(138.9)	(137.8)	(125.4)	(163.4)	(131.7)
New World	2911	2875	2834	2808	2661	2285	2026	2047	1997	1884	1831	1825	1833
	(162.4)	(205.0)	(288.6)	(375.7)	(387.2)	(88.1)	(239.2)	(55.6)	(46.3)	(53.3)	(19.7)	(17.5)	(41.4)
Old W. (weighted)	3094	3051	2971	2934	2781	2200	2102	2144	2078	1869	1755	1631	1564
New W. (weighted)	3063	3020	2964	2924	2868	2313	1807	2017	2027	1930	1848	1837	1868
World	3131	3045	2938	2871	2750	2230	2133	2132	2053	1874	1759	1682	1627
	(238.8)	(194.1)	(186.1)	(212.2)	(192.4)	(73.0)	(128.8)	(157.0)	(126.8)	(122.8)	(116.9)	(163.2)	(161.2)

Notes and sources. Figures in italics for 1913 are predicted from 1870–1900 values (Huberman, 2004). Old and New World (weighted) are population weighted averages. Standard deviations in parentheses. 1870–1913, Huberman (2004); 1929 and 1938, Tables 1 and 2 with deductions for days absent; the values for Spain in 1938 are for 1936. 1950–2000, University of Groningen and the Conference Board GGDC Total Economy Database (2005).

Fig. 1 calls attention to the greater contraction in European worktimes during two subperiods, 1870–1913 and 1950–2000. Old and New Worlds reversed positions in the mid 1970s, and thereafter the gap slowly widened. From the perspective of 130 years, however, the recent divergence emphasized in the current debate on worktimes does not look that spectacular.

The long-run perspective is doubly revealing. First, it exposes fundamental differences between Old and New World patterns, despite distinctive national histories. Consider again the cases of Australia and the U.K., the pair with the shortest work years in 1870. Into the interwar period unlike other settler economies hours of work fell steadily in Australia, but since 1950 the trend in hours has remained flat. In Britain time at work hardly fell before 1913 in contrast to its continental neighbors, but it converged to European levels by the mid 1970s well ahead of EU directives. Although their respective journeys were irregular, by the end of the century Australia and the U.K. had become representative of Old and New World regimes.

Second, a historical perspective makes clear the atypical outcomes of the interwar years. The dispersion of work hours (measured by the coefficient of variation) for our sample of

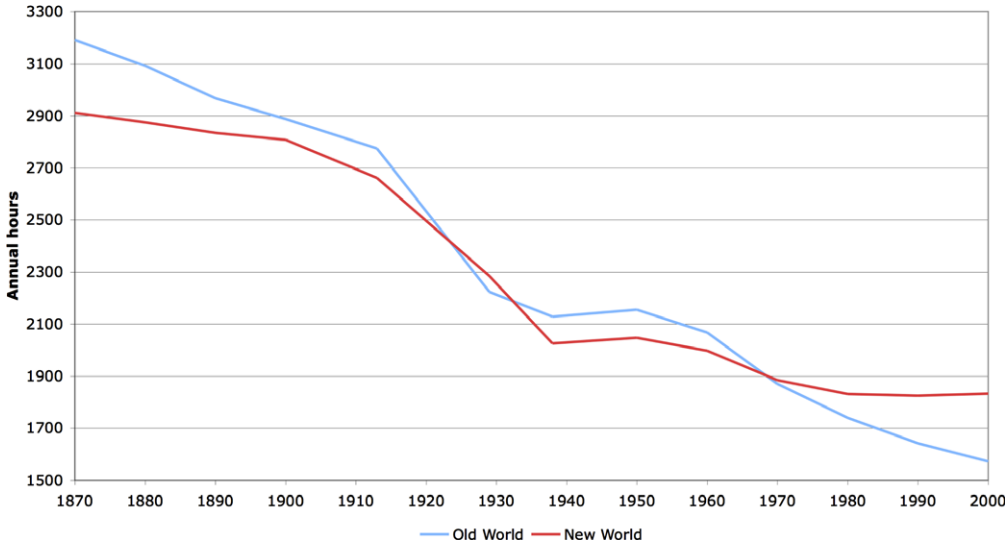

Fig. 1. Annual hours of work in Old and New Worlds, 1870–2000

countries is about the same in 1900 as in 2000, but the 1929 figure is half this value. Clearly, using 1929 or 1938 as base years leads to a distorted view of comparative trends. Despite its extraordinary nature, the interwar period casts light on debates about the impact of globalization on worker welfare. It is often asserted (Silver, 2003) that in periods of deep international integration, like that before 1913 and after 1970, wages and employment conditions have tended to converge. Hours of work in our sample show the opposite tendency. Evidently, globalization is consistent with different work patterns and conditions across countries and regions.

The relation between globalization and hours of work merits discussion because greater international integration went hand in hand with wage inequality in the periods before 1913 as it did after 1970. O'Rourke and Williamson (1999) have established that the great movements of people and goods before 1913 precipitated rising wages relative to land rents in the labor-abundant Old World and an inverse trend in the New World. The Old saw narrowing wage gaps across the skill distribution; the New saw increasing inequality.[18] Hours of work may have been linked to these global movements in wages. In Sweden and Denmark inequality and hours work fell, but in the U.S. and Canada inequality widened and contractions in hours were smaller. In the interwar years, a period of de-globalization, the inequality trend reversed itself in the U.S. and hours fell.

Of course, internal factors may have complemented international forces. In the incentive model of Bell and Freeman, it is the wage structure within the firm or industry that drives long hours. This model may be best suited to the study of salaried workers in large late twentieth century firms. Bowles and Park (2005) provide a more general model of social emulation—the craving to follow the consumption standards of the rich—in which hours of work increase in the degree of inequality. While this desire may have been present everywhere, the pressures to keep up with the Joneses may have been greater in the New

[18] On inequality in Europe and the U.S. before 1913, see Morrisson (2000) and Lindert (2000).

World because labor regulations which result in narrow wage gaps were less stringent.[19] The norm of mobility gave New World workers the opportunity to realize their goals. Regardless of its cause, the relation between inequality and hours of work has deep historical roots.

3. Analytic framework: data and specification

Our methodology is inspired by Lewis's (1957) model of hours of work over the long run. The model assumes that the individual worker faces a perfectly elastic labor demand curve. Lewis reasoned that the equilibrium real wage is the same for all employers and at this wage all compensating differentials with regard to the advantages and disadvantages of work, different work schedules, and the productivity of workers have been accounted for. The long-run labor supply of the individual is assumed to be negatively sloped. As the economy develops demand shifts upward; equilibrium hours are traced along the supply curve. Although Lewis (1957, pp. 198–199), was unambiguous, "I submit that...employers' preferences have played only a minor role in the long-run trend of hours of work," he himself recognized the model as "a first approximation". Most clearly, the assumption that firms are indifferent to the type of schedule offered to workers does not mesh with the historical record in which employers of the world signaled different preferences for days of work and hours of work per day, perhaps because of the nature of their capital investments. But Lewis's model has the virtue of being tractable, and given the data we have available do not allow us to estimate jointly labor supply and demand equations, we rely on it, as other have done (Costa, 2000), as a convenient starting point for empirical work on differences in and the determinants of hours across countries and regions.

Our baseline model employs the establishment level data for 1870–1900 from the U.S. Department of Labor study previously referred to. The Appendix reports the descriptive statistics of the key variables and other sources used in our analysis. Along with weekly hours, the report contains information on the year of observation, the occupation and sex of workers, and the maximum, minimum, and average wage paid in each establishment. Wages in the report are typically given as weekly or daily rates and these have been converted to hourly wages in the work that follows. Eq. (1) outlines the baseline model that includes these 'micro' variables:

$$h_{ijkl} = \beta_0 + \beta_1 w_{ijkl} + \beta_2 male_{ijkl} + \beta_3 nw_k + x_j\alpha + t_l\gamma + \varepsilon_{ijkl}, \quad (1)$$

where h_{ijkl} denotes the log weekly hours in establishment i, in occupation j, country k, and year l; w is log hourly average wage; *male* indicates if the observation is for male employees; and nw_k is equal to one if the observation is from one of the three New World economies. The vectors x_j and t_l are series of dummy variables for occupation categories and year of observation. These dummies will absorb occupation or time-specific shocks in hours that are common across countries.

Our main interest is the coefficient B_3: the difference between New and Old World (log) hours net of controls for wages, sex, year, and occupation. The wage coefficient B_1 has often been interpreted as the uncompensated wage elasticity. But as Pencavel admonished (1986, p. 34) care needs to be taken. Our data do not allow for the estimation of a structural labor supply model nor do we have plausible exogenous demand shocks from which

[19] On the relation between labor regulation and inequality, see Alesina and Zeira (2006).

a supply response can be identified. We do, however, want to control for the fact that New World countries offered substantially higher wages for similar work than did most Old World economies.[20]

In the next stage we add a group of 'macro' variables to the baseline model. These variables are mostly available at the country level and over decadal intervals. The additional variables in Eq. (2) are factors that serve to shift the position of the labor supply curve (or in our case, cause the labor supply curve to be at different positions in different countries and/or over time). As many of these variables are of much lower frequency than the micro variables used in Eq. (1), their inclusion will have little effect on the wage coefficient B_1; it is plausible, though, that accounting for country characteristics will explain a sizeable share of any Old–New World differences in hours found in the estimation of Eq. (1). The modified regression equation takes the form:

$$h_{ijkl} = \beta_0 + \beta_1 w_{ijkl} + \beta_2 male_{ijkl} + \beta_3 nw_k + x_j\alpha + t_l\gamma + \lambda_0 age_{kl} + \lambda_1 agri_{kl} + \lambda_2 kl_{kl} + \lambda_3 incdev_{kl} + \lambda_4 vote_{kl} + \lambda_5 ineq_{jkl} + \varepsilon_{ijkl}. \quad (2)$$

The variable *age* is the average age in country k. The decision to supply labor effort varies over the life-cycle. Older workers with more dependents would be expected to labor longer hours. The share of the population in agriculture is captured by *agri*. In less-developed, more agricultural economies, one might expect the marginal worker to have a lower reservation wage in manufacturing. This would cause hours to be high (at a given wage level) in economies with large agricultural labor forces. The capital–labor ratio (*kl*) measures the economy-wide level of capital intensity.[21] We would normally expect wages to take into account differences in capital per worker, but this variable will pick up any additional impact beyond what is transmitted through wages, like employers' preferences for certain work schedules. Although our underlying model is supply driven, the actual labor market outcomes we observe are from periods of expansion and recession. We approximate business cycles with *incdev* which measures deviations from trends in income per capita for each of the countries in our sample. While much of the effect of booms and recessions should work through changes in the wage, if labor hoarding is present because of job-specific human capital recessionary periods could lead to deeper cuts in work time.[22] Whereas the contemporary debate on worktimes has established the effect of strong unions on hours, historians of late nineteenth-century labor markets have exposed the absence of a well-organized union movement; nonetheless, it is possible that hours of industrial workers were constrained by legislation and informal institutions that are difficult to observe or measure. Based on our historical account we use voter turnout (*vote*) to pick up any such effect, as this seems the best available indicator as to whether the median voter was likely to have any interest in the issues facing the industrial worker of the day. We have also constructed a measure of inequality (*ineq*) from the original data set. This measure is computed as the log difference between maximum and minimum wages in an occupation in

[20] Using Williamson's database (1995) for our set of countries, the New World wage in 1900 was twice as great as that of the Old. We find a similar result for our sample for 1870–1900. See the Appendix.

[21] Historical estimates of capital stocks tend to be measured with error. We rely on the international series assembled by Baier et al. (2006) which is the most extensive available.

[22] To the extent that the economies in our sample were part of a well-integrated global economy, we might expect the year dummies to proxy for business cycles. We will want to see, therefore, how *incdev* varies with and without the inclusion of the time controls.

a country in any given year. We contrast below this measure of inequality and that used by Bell and Freeman (1995) and others.

Eqs. (1) and (2) consider the effect of time varying factors on hours of work. In the final stage we ask: If location still matters, can initial fixed conditions explain the gap between regions? Sample size and data availability limit the range of factors we can examine. We have chosen to look at two attributes immigrants from the Old World brought with them to the New World—what Adam Smith (1937, p. 64), called "baggage"—that the historical literature has associated with the predisposition to give more labor time: religious affiliation (beliefs) and the work ethic (preferences).[23]

$$h_{ijkl} = \beta_0 + \beta_1 w_{ijkl} + \beta_2 male_{ijkl} + \beta_3 nw_k + x_j\alpha + t_l\gamma + \lambda_0 age_{kl} + \lambda_1 agri_{kl} + \lambda_2 kl_{kl} + \lambda_3 incdev_{kl} + \lambda_4 vote_{kl} + \lambda_5 ineq_{jkl} + \mu_0 prot_k + \mu_1 enrol_k + \varepsilon_{ijkl}. \quad (3)$$

In Eq. (3), *prot*, indicates whether the country was predominantly protestant in 1870. We use primary school enrolment rates in 1870 (*enrol*) to capture preferences for long hours of work. While the first variable is self-explanatory, we elaborate below on the link between education levels and the work ethic. In a nutshell, greater investments in schooling are associated with a stronger attachment to the culture of self-improvement and more years of education signal a preference for market work.

4. The determinants of worktime in 1900 through the prism of 2000

Column 1 of Table 4 gives the baseline results.[24] For males, a 10-percent increase in the hourly wage led to a shorter workweek of 1.2 percent, about 40 min based on the figure for 1900 from Table 1. The coefficient on the New World dummy indicates that conditioning on wage levels the workweek was about 10 percent longer in the New World. The inclusion of occupational and year dummies has little impact on this result (column 2). Because our sample is unbalanced, in the next two columns we have weighted the observations by the relative size of each country in the sample. Although the New World dummy is smaller, it remains significantly different. The baseline results hold when the sample is restricted to manufacturing (column 5). Across all specifications, the estimated wage coefficient remains stable and it is slightly greater than estimates reported for the period after 1950, but this is to be expected.[25] The large income effect in the early period is not surprising given the average length of the workday. Workers in the past had little opportunity to shift leisure over time and took lower hours when they could as opposed to more days off or a shorter work life (Costa, 2000, p. 176).

Did the "demand for leisure", to use Fogel's (2000, p.186), phrase, vary across regions? The coefficient of the interaction term, *New World* × *wage*, is significant in column 6,

[23] On the distinction between beliefs and preferences, see Guiso et al. (2006).

[24] The data were classified into five occupations: services, manufacturing, textiles, mining and construction, and iron and steel. We have deflated hourly wages (which the Department of Labor recorded by the day) using the price indexes cited by Williamson (1995). Regressions like those in Table 4 may perform poorly because of a built-in spurious correlation. Daily earnings found in the report are themselves constructed from information on weekly earnings and on hours per week (Costa, 2000, p. 165). To check for this possibility, we regressed hours on lagged wages. We were limited to U.K. observations because of data availability. The results did not change substantially. As an additional check, we used GDP per capita instead of wages. Again the results were similar to those reported in Table 4.

[25] Pencavel (1986) reported 'uncompensated labor supply elasticities' in the range of 0.0 to −0.07 for post-1950.

however its magnitude is small. The New World dummy in this specification, which allows for the differential wage sensitivity of workers in Australia and the Americas, is twice as large compared to column 1. The last specification in Table 4 restricts the sample to the seven richest countries, as measured by income per capita in Maddison (1995). While the New World dummy is still positive, the interaction term is insignificant. All told, it is difficult to find a consistent pattern in the preferences for leisure between the Old and New.

4.1. Macro variables and labor supply

The main results of the baseline model go through after including the first of the macro-level variables: average age, population share in agriculture, and the capital–labor ratio. Based on a comparison of the R^2s in Tables 4 and 5, wages are doing much of the work in determining hours. In column 1 of Table 5, the variables have the expected sign, except for capital intensity. A drawback of our capital measure is its level of aggregation. Assuming that capital intensity at the macro level does track establishment levels, there may have been a limit to how long firms could have extended the length of the workday without doing harm to their workers and capital stock. This was the case in manufacturing (column 3). Although we do not have detailed data on days of operation, it is plausible that firms may have substituted days for hours per week along the lines suggested by Atack et al. (2003). The business cycle indicator is negative and highly significant in column 1, but of low magnitude and significance when year dummies are omitted in column 2.[26] In column 4, we consider whether there was an Anglo-American model of the work week and restrict our sample to the U.K. and the U.S. We reject this view.[27] The last column reports a positive coefficient for capital intensity at the 10-percent level when the sample is restricted to the richest countries. Advanced technology in this group of countries may have led to long hours because it had less harmful effects on workers' productivity. Only in this specification with a reduced sample size is the New World dummy eliminated—in all other cases the regional distinction persists.

Tables 6 and 7 extend the study of macro variables to include those factors believed to explain worktime patterns after 1970. Recent papers by Alesina et al. (2006) and Burgoon and Baxandall (2004) make the strong case that union power was behind the recent decline in worktimes in Europe. Before 1913 union density was low and, as observed in the previous section, suffrage rates are a good indicator of labor power in this period because an increase in the number of voters was often manifested in pro-labor legislation. The sizeable increase from an initial low level in 1870, and in particular after 1890, was a European phenomenon.[28] In the Belgian case, laborers tied their fate to the Workers' Party because unions were unsuccessful in bargaining for wage gains. Favorable labor legislation was the vehicle by which the average Belgian worker improved his lot. Workers in the labor scarce

[26] As a result, we have excluded *incdev* from the remaining tables. See Footnote 22.

[27] We have estimated separate regressions for the U.S. and the U.K. to explore differences. For the U.S., the coefficient on *kl* is positive and significant; for the U.K. it is negative and significant. We speculate that this was the result of labor power in the two countries. Unions were stronger in the U.K. and there may have been substitution away from labor inputs, while in the U.S. mobile workers benefited from more capital intensity and longer hours.

[28] For our sample of countries, voter turnout as percentage of voting age population increased from 0.20 to 0.42 in Europe between 1870 and 1910. In the New World the figure actually fell from 0.58 to 0.55. *Source*. Lindert (2004).

Table 4
'Micro' determinants of hours of work, 1870–1900

	1	2	3 (weighted)	4 (weighted)	5 (manufacturing)	6	7 (rich countries)
Log wage	−.123 (−88.15)	−.134 (−109.41)	−.116 (−27.40)	−.128 (−31.75)	−.111 (−29.56)	−.160 (−73.62)	−.125 (−24.39)
Female	−.077 (−37.30)	−.095 (−47.69)	−.070 (−13.82)	−.083 (−15.57)	−.093 (−17.54)	−.094 (−47.06)	−.087 (−41.39)
New World	.095 (58.57)	.103 (66.94)	.053 (13.47)	.059 (14.76)	.065 (15.21)	.181 (32.29)	.041 (2.80)
New World × log wage						.034 (14.33)	−.0003 (−0.05)
Year dummies	Yes	No	Yes	No	No	No	No
Occupation dummies	Yes	No	Yes	No	No	No	No
Constant	3.84 (673.78)	3.76 (1221.66)	3.91 (218.72)	3.81 (372.70)	3.82 (409.16)	3.70 (694.25)	3.84 (267.58)
R^2	.42	.37	.42	.35	.22	.38	.38
F-test	410	4122	77	504	314	3173	2603
N	20,890	20,890	20,890	20,890	3267	20,890	16816

Notes and sources. The dependent variable is (log) hours of work per week. OLS estimates. *t* statistics in parentheses. All data from United States Department of Labor (1900). Columns 3 and 4 are estimated by weighted least squares with observations weighted to approximate the relative population size of each country in the sample. Rich countries based on GDP per capita are Australia, Belgium, Denmark, Germany, Netherlands, U.K., and U.S. *Source*. Maddison (1995, 2001).

Table 5
'Macro' determinants of hours of work, 1870–1900

	1	2	3 (manufacturing)	4 (U.S. and U.K.)	5 (rich countries)
Log wage	−.106 (−75.54)	−.120 (−95.79)	−.069 (−16.92)	−.123 (−94.93)	−.122 (−91.58)
Female	−.068 (−34.04)	−.082 (−41.91)	−.069 (−13.22)	−.085 (−41.51)	−.082 (−38.75)
New World	.052 (13.36)	.072 (19.19)	.032 (3.65)	.108 (8.16)	.002 (0.27)
Average age	.019 (17.63)	.018 (19.03)	.013 (6.00)	.007 (3.04)	.006 (1.64)
Proportion agriculture	.170 (15.86)	.156 (14.69)	.181 (7.52)	.102 (2.99)	.299 (13.37)
Log K per worker	−.022 (−6.07)	−.030 (−8.90)	−.048 (−6.27)	−.024 (−3.02)	.014 (1.84)
Deviation from GDP trend	−.102 (−5.25)	.007 (0.61)	.052 (1.79)	.023 (1.89)	−.008 (−0.61)
Year dummies	Yes	No	No	No	No
Occupation dummies	Yes	No	No	No	No
Constant	3.49 (82.20)	3.44 (118.40)	3.80 (52.06)	3.71 (55.54)	3.46 (51.68)
R^2	.48	.43	.28	.42	.39
F-test	452	2161	179	1912	1509
N	20,356	20,356	3154	18,710	16,659

Notes and sources. The dependent variable is (log) hours of work per week. OLS estimates. t statistics in parentheses. In column 4, U.S., New World. Rich countries based on GDP per capita are Australia, Belgium, Denmark, Germany, Netherlands, U.K., and the U.S. Sample size is reduced from Table 4 because of missing observations for average age and capital per worker. Age is average age of population from Baier et al. (2006); proportion of labor in agriculture from Flora (1983) and Lindert (2004); capital per worker from Baier et al. (2006); GDP from Maddison (1995). See Appendix for other details.

New World were less dependent on state legislation and market forces determined outcomes. In the U.S., Margo (2000, p. 232), wrote, reductions in work hours appear to have been the "outcome of bargains struck between workers and employers, in the context of a competitive labor market.

Table 6 examines the association between voter turnout and hours. We separate New and Old Worlds to get a clear idea if a different dynamic was in place. For the entire period, the turnout coefficient is positive and significant in the New World and there was no relation between getting the vote out and hours in the Old. But when the sample is reduced to the last 10 years during which certain sizeable increases in voting in Europe occurred (in order of importance, Belgium, the Netherlands and Denmark) voter turnout did cause shorter hours. This relation is robust when Belgium, whose suffrage rate went from 8 to 90 percent in the last decade of the nineteenth century, is omitted.

Was labor supply sensitive to inequality before 1970? Recall that Bell and Freeman (1995, 2001) claimed that those who work longer move up in the wage distribution at the workplace and the gains for working hard are greater the more unequal the distribution. In principle, we would need firm level evidence to test this model. Bowles and Park's (2005) model of social emulation and labor supply requires aggregate measures of inequality. Because of data limitations we cannot test either model directly. We do have a sufficient number of wage observations in the sample at the occupational level. For each occupation we calculated the difference between maximum and minimum wages for each year. This gives us a measure of wage dispersion within categories, but the occupations are broadly defined to capture the ratio of skilled to unskilled wages.[29] In all occupations (see the Appendix), the dispersion of wages is greater in the New World and in three of the occupations hours are longer. Our measure of wage dispersion does seem to track available measures of inequality reported elsewhere for selected countries (Lindert, 2000; Morrisson, 2000).

Table 7 reports the effect of our measure of inequality on hours in Old and New Worlds, taking into account the other macro variables. As expected, in the New World rising dispersion led to longer hours, a result that is stronger when Australia is omitted. Consistent with the historical account of the preceding section, Australia stands apart from other settler countries and biases the results against the expectation of finding a difference between regions (columns 1 and 2). In the Old World, inequality has the opposite sign. Voter turnout is not significant for the entire period. But when the regression is restricted to 1890–1900, labor power and inequality have the expected signs, although the latter is significant at the 15 percent level ($p = .112$).[30]

Table 8 examines inequality at the country level. The first line for each country gives the coefficient on wages with controls for occupation and sex. The results confirm our previous discussion that there was no obvious pattern in the demand for leisure across regions. The U.S. estimate controls for regional effects.[31] For a given wage increase, the Danes and Germans were willing to take more leisure than Americans, but the latter gave less labor time than Canadians and Australians, as well as Britons, Belgians,

[29] This indicator is close to the Theil index of interindustry wage inequality.

[30] There is the possibility that labor power and inequality are colinear. More labor power gave rise to legislation that narrowed wage differentials.

[31] Regional breakdowns are described in Huberman (2004).

Table 6
'Macro' determinants of hours of work, 1870–1900: labor power

	1 (New World)	2 (Old World)	3 (Old World 1890–1900)	4 (Old World 1890–1900, no Belgium)
Log wage	−.122 (−91.11)	−.113 (−33.17)	−.098 (−18.14)	−.096 (−17.59)
Female	−.084 (−40.07)	−.073 (−14.38)	−.056 (−6.97)	−.057 (−7.01)
Average age	.017 (8.38)	.017 (9.80)	.043 (9.39)	.037 (6.14)
Proportion agriculture	.267 (9.20)	.138 (8.55)	.052 (1.58)	.102 (2.51)
Log K per worker	−.006 (−.86)	−.040 (−7.25)	−.072 (−5.12)	−.049 (−2.66)
Voter turnout	.171 (8.99)	.009 (0.94)	−.092 (−4.49)	−.056 (−1.89)
Year dummies	No	No	No	No
Occupation dummies	No	No	No	No
Constant	3.15 (46.43)	3.59 (80.90)	3.11 (31.01)	3.09 (31.13)
R^2	.37	.56	.63	.64
F-test	1632	845	364	358
N	16,392	3985	1299	1236

Notes and sources. The dependent variable is (log) hours of work per week. OLS estimates. t statistics in parentheses. Voter turnout from Flora (1983) and Lindert (2004). For other variables see Tables 4 and 5.

Table 7
'Macro' determinants of hours of work, 1870–1900: inequality

	1 (New World)	2 (New World, no Australia)	3 (Old World)	4 (Old World 1890–1900)
Log wage	−.123 (−92.06)	−.125 (−93.05)	−.112 (−32.38)	−.097 (−4.80)
Female	−.083 (−39.28)	−.082 (−39.20)	−.073 (−14.31)	−.056 (−6.96)
Average age	.012 (5.70)	.006 (2.86)	.017 (9.71)	.045 (9.58)
Proportion agriculture	.310 (10.61)	.166 (4.79)	.139 (8.59)	.044 (1.32)
Log *K* per worker	−.002 (−0.37)	−.028 (−3.99)	−.040 (−7.20)	−.076 (−5.36)
Voter turnout	.140 (7.32)	.087 (4.51)	.012 (1.17)	−.099 (−4.80)
Inequality	.015 (10.82)	.022 (13.12)	−.002 (−2.57)	−.002 (−1.59)
Year dummies	No	No	No	No
Occupation dummies	No	No	No	No
Constant	3.33 (47.74)	3.87 (46.53)	3.42 (117.85)	3.07 (30.32)
R^2	.38	.38	.56	.63
F-test	1425	1398	1398	313
N	16,391	16,299	3980	1298

Notes and sources. The dependent variable is (log) hours of work per week. OLS estimates. *t* statistics in parentheses. Inequality is calculated as the difference between maximum and minimum wages for each year. For other variables, see Tables 4–6 and the Appendix.

and the French, all of whom preferred the opportunities of wage work. The second line in the table adds our measure of inequality to the baseline model. In North America greater inequality led to longer hours holding wage levels constant. In Belgium, Denmark, Great Britain, and Italy the opposite held, while in France, Germany, the Netherlands, Spain, and Sweden there was no relation between inequality and hours. Although Australia and Switzerland were exceptions, the dynamics seem to have been different between regions.

To be sure, our data do not allow us to test certain hypotheses on the nature of inequality. Our indicator differs from the aggregate index used by O'Rourke and Williamson to establish the effects of changes in factor prices in open and closed economies; nor does it measure wage gaps at the level of the firm. To the contrary, our findings hold in all sectors, in protectionist and open economies alike. What seems to matter was location. The results point to a more general explanation of the effect of inequality on hours in the New World, closer in spirit to Bowles and Park's (2005) model of social emulation. The economic history literature makes this point differently. In the Old World, labor power came to represent the voice of the average worker and legislation to reduce the work day had the effect of narrowing wage gaps. In contrast, in fluid and dynamic economies like the U.S. in the late nineteenth century inequality was endemic. Pope (2000, p. 139), wrote that "new participants entered relocated, changed occupations, and took risks to capture the opportunities before them." The results from our sample are consistent with this line. Across occupations, individual workers in the U.S. and Canada would not forsake the opportunity of long hours and firms would accommodate them.

Table 8
Hours regressions by country: 1870–1900

	Log wage	Log wage gap	R^2	F-test	N
Belgium	−.089 (−4.85)		.13	23.5	158
	−.085 (−4.44)	−.005 (−1.85)	.14	12.2	155
Denmark	−.165 (−7.53)		.59	56.6	42
	−.122 (−4.98)	−.032 (−3.61)	.70	43.3	41
France	−.063 (−10.06)		.15	101	583
	−.063 (−9.89)	−.002 (−0.55)	.15	50.7	583
Germany	−.112 (−15.67)		.32	246	524
	−.111 (−15.47)	−.003 (−1.28)	.32	124	524
Ireland	−.044 (−4.47)		.07	20.0	268
	−.056 (−4.73)	.005 (2.20)	.09	12.4	253
Italy	−.058 (−7.24)		.17	52.4	261
	−.046 (−5.68)	−.012 (−4.54)	.22	38.5	261
Netherlands	−.031 (−1.72)		.02	3.0	140
	−.034 (−1.87)	.003 (1.20)	.03	2.2	140
Spain	−.102 (−3.53)		.15	12.5	75
	−.099 (−3.39)	−.008 (−1.07)	.16	6.7	74
Sweden	.018 (0.76)		.03	0.6	21
	.015 (0.61)	.002 (0.52)	.04	0.4	21
Switzerland	−.076 (−9.27)		.46	86.0	103
	−.076 (−8.32)	.003 (1.90)	.42	34.8	99
United Kingdom	−.087 (−22.56)		.18	509	2311
	−.087 (−22.70)	−.007 (−2.77)	.18	259	2311
Australia	−.058 (−3.03)		.09	9.2	93
	−.037 (−2.10)	−.011 (−4.64)	.25	14.8	92
Canada	−.018 (−2.56)		.01	6.6	452
	−.020 (−2.80)	.006 (2.18)	.02	5.7	452
United States	−.107 (−66.13)		.30	6752	15859
	−.093 (−72.42)	.007 (3.95)	.30	3379	15859

Notes. The dependent variable is (log) hours of work per week. OLS estimates. t statistics in parentheses. Inequality is calculated as the difference between maximum and minimum wages for each year. These regressions include dummies for occupation and sex. The U.S. regression includes regional dummies.

5. What explains the gap between Old and New Worlds?

Tables 4–8 consistently find that location did matter even after controlling for micro and macro variables. Fig. 1 identifies the puzzle from a different optic. In 1870, the New World labored about 10 percent less than the Old when its GDP per capita was about one-third higher. By comparison, Belgium was richer than Chile by the same order of magnitude in 2000, but the average Chilean worked about 500 h *longer* or about 25 percent more than a Belgian. Based on this standard, the New World worked too long in 1870 given its level of income.

The establishment data we have collected are consistent with the view that a persistent gap existed between regions. The first column in Table 9 reports the average predicted weekly hours for each country by decade from a regression of actual hours on log wages with micro and macro controls. In the second column we report predicted hours if each country had U.S. wages during the decade. All European countries would have worked less if they had higher wages—in fact many Old World countries would

have labored *less* than Americans. By 1913, if the Danes had earned U.S. wages they would have worked two hours less per week than Americans. In contrast, Australians in the 1870s and 1880s would have worked more if they had U.S. wages. These patterns cannot be attributed to differences in the relative price of leisure which was probably stable across our sample of countries over the 30-year period. We conclude that from an early date there is something different in the dynamics between work and pay in Old and New Worlds.

5.1. The culture gap

The literature on deep-factors that explain why New World workers gave—and continue to give—long hours independent of their levels of income is crowded, but religious affiliation and the work ethic (Landes, 1999), legal origins of contract law (Steinfeld, 1991, 2001), selective immigration, and climate are usually at the top of the list. Since our data set is composed of developed (OECD) countries only for which there is limited variation in some of these variables (for example, legal origins), we are restricted in the factors we can adequately study. We have selected to examine two dimensions of culture that immigrants would have brought with them from the Old World: religious affiliation and the work ethic (beliefs and preferences). Combined these factors are associated with a popular if not the dominant narrative (Lebergott, 1964) of comparative economic history in which immigrants to the New World were inclined to give greater labor effort, pushing outward the geographical frontier and creating legal, social, and economic institutions that secured the rewards for working hard.

Religious affiliation has been salient to the immigrant story. Landes (1999, p. 175), evoked the Puritan mantra of the seventeenth century, 'Time is short and the work is long', and Rodgers (1978, p. 9), observed that Puritans "threw out the irregular carnival of saints' days, and replac[ed] it with the clocklike rhythm of the weekly Sabbath." Undoubtedly, religious beliefs of the nineteenth century did not have the theological trappings of earlier versions, but "the ascetic injunctions of the Protestant ethic [were] retained and multiplied their force (Rodgers, 1978, p. 11)." There was variability in religious affiliation across our sample of countries. The U.S., Germany, and the Netherlands exhibited a high degree of pluralism in 1870. In that year, 52 percent of the Old World was Protestant; the figure in the New World was 62 percent.[32]

An alternative and complementary view is that the work ethic was embodied in a wide body of institutions and was not restricted to religious attendance. We follow recent studies (Tabellini, 2005) and use educational attainment, in our case primary school enrolment in 1870, as an indicator of cultural attitudes. The idea here is that education instills and transmits cultural traits. From an economics perspective individuals who have increased their earning power through education are expressing a commitment to market work, which is consonant with historians' claim that greater levels

[32] These figures are uncorrected for population. We are interested whether the religion affiliation of the waves of settlers until 1870 affected work habits. Immigrants after this date may have had different religious affiliations than the representative worker in the New World in 1870, but only in the U.S. did the percentage of Protestants in the population actually fall (from 57 to 54 percent); in Australia and Canada the share was stable. See Appendix for values and sources for 1870–1900.

Table 9
Hours of work around the world with U.S. wages, 1870–1900

	1870s country wage	1870s U.S. wage	1880s country wage	1880s U.S. wage	1890s country wage	1890s U.S. wage
Belgium	68.3 [67.3, 69.4]	61.0 [60.1, 61.9]	67.9 [67.1, 68.7]	60.9 [60.2, 61.6]	67.0 [66.3, 67.8]	58.4 [57.8, 59.1]
Denmark	64.8 [63.4, 66.2]	56.5 [55.2, 57.7]	62.1 [60.8, 63.5]	58.0 [56.7, 59.2]	57.6 [56.3, 59.0]	54.7 [53.4, 56.0]
France	62.9 [62.2, 63.5]	57.9 [57.3, 58.5]	65.3 [64.8, 65.7]	59.7 [59.3, 60.2]	64.9 [64.5, 65.3]	58.6 [58.2, 58.9]
Germany	64.3 [63.8, 64.8]	58.8 [58.3, 59.3]	64.9 [64.5, 65.4]	59.2 [58.8, 59.7]	63.0 [62.5, 63.5]	57.5 [57.0, 57.9]
Italy	63.9 [63.3, 64.5]	55.0 [54.4, 55.6]	63.8 [63.2, 64.4]	56.5 [56.0, 57.1]	63.9 [63.3, 64.5]	54.8 [54.3, 55.4]
Netherlands	66.5 [65.4, 67.5]	57.6 [56.6, 58.5]	64.2 [63.5, 65.1]	58.9 [58.2, 59.7]	65.0 [64.2, 65.9]	58.5 [57.7, 59.2]
Spain	63.1 [62.0, 64.1]	59.0 [58.0, 59.9]	64.9 [63.9, 65.9]	60.1 [59.1, 61.1]	65.5 [64.4, 66.7]	59.0 [58.0, 60.0]
Sweden	68.5 [66.5, 70.6]	60.9 [59.1, 62.8]				
Switzerland			62.3 [60.7, 64.0]	58.4 [56.9, 60.0]	62.0 [60.4, 63.7]	55.5 [54.1, 57.0]
U.K	55.3 [55.0, 55.5]	52.5 [52.3, 52.8]	55.0 [54.9, 55.2]	53.0 [52.8, 53.1]	53.9 [53.7, 54.2]	52.3 [52.0, 52.5]
Australia	49.9 [49.1, 50.7]	51.3 [50.5, 52.1]	50.3 [49.6, 51.0]	50.8 [50.1, 51.6]	49.7 [49.0, 50.4]	49.7 [49.0, 50.4]
Canada			60.0 [59.6, 60.4]	58.6 [58.2, 59.0]	58.4 [58.0, 58.8]	57.6 [57.2, 58.0]
U.S.	61.1 [60.9, 61.2]	61.1 [60.9, 61.2]	60.6 [60.5, 60.7]	60.6 [60.5, 60.7]	58.7 [58.6, 58.8]	58.6 [58.5, 58.7]
Old World	64.2	57.7	63.3	58.3	62.5	56.6
New World	55.1	56.2	57.0	56.7	55.6	55.3

Notes. First column for each decade reports the predicted weekly hours in each decadal interval from a regression of (log) weekly hours on log wages, with controls for sex, average age, proportion in agriculture, and log capital per worker. The second column gives the predicted weekly hours if each country had the U.S. average (log) wage in the decade. Confidence intervals, calculated from the standard error of the prediction, are in square brackets. Old and New World averages are unweighted averages across countries.

of schooling are associated with a stronger attachment to the culture of self-improvement. This effect is different than that associated with an increase in investments in human capital caused say by an exogenous increase in the demand for labor of a certain quality. The wage variable accounts for this.[33] Here, the emphasis is on deep-seated preferences that get passed on from one generation to another. Drawing on Lindert (2004) and Mitchell (1980), primary school enrolment rates in 1870 were indeed almost 50 percent higher in the New than in the Old World in 1870 and 40 percent greater in 1913.[34] If education is a cultural trait, it would be expected that countries with initially high levels of enrolment would have put in place incentives that perpetuated the relation between schooling and work.

5.2. Estimating the contribution of deep variables

Our goal is to see whether the introduction of deep variables unlocks the puzzle why the New World labored differently than the Old. We use a binary variable to measure religious affiliation in 1870 (1, where more than 50 percent of the population was Protestant; 0, otherwise); we use primary school enrolment rates in 1870 to represent cultural preferences. Column 1 in Table 10 reproduces the main result of Table 5, a positive New World coefficient after controlling for micro and macro variables. In the next columns we evaluate the contribution of the deep variables. Protestantism did lead to longer hours, but the coefficient is significant only at the 10 percent level ($p = .078$).[35] The effect of schooling on lengthening the workday was more pronounced. Combined, religion and schooling reduce the size of the New World coefficient by less than a half, but they do not eliminate it. Our measures may be misspecified and there are undoubtedly aspects of culture we have not captured. It appears, however, that immigrant values were not the entire story behind long hours in the New World. Rather, it was the environment that migrants encountered in Australia, Canada, and the U.S. that may have mattered more, a result consistent with Clark's (1987) evocation of "local effects".[36] However, we prefer not to argue by elimination and conclude that a proper test of culture requires a larger data set of countries for which there is greater variability in fixed factors.

6. Conclusion: *Plus ça change, plus c'est la même chose*

The debate on worktimes in OECD countries has tended to focus on the period after 1970, if not later. We believe that historians can contribute to the conversation. To this end, we have assembled new data series on various dimensions of worktime and then offered an interpretation of the major trends. We have found strong parallels

[33] Put differently, the regressions reported in the previous section omit the separate role of education as a transmitter of cultural values and hence bias upward the estimated wage coefficients.

[34] Our schooling measure is primary-school students per 1000 children of ages 5–14. *Source*. Lindert (2004) and Mitchell (1980). See Appendix for 1870–1900 values.

[35] In other regressions we used values for the percentage of Protestants in each country. The estimated coefficient was negative and insignificant.

[36] Fogel (2004) provides an alternative explanation of the gap in hours: greater levels of nutrition in the U.S.

Table 10
Culture and hours of work, 1870–1900

	1	2	3
Log wage	−.120 (−95.72)	−.120 (−95.74)	−.120 (−95.86)
Female	−.082 (−41.87)	−.082 (−41.85)	−.082 (−42.04)
New World	.071 (19.17)	.065 (12.31)	.042 (6.86)
Average age	.018 (19.02)	.018 (18.83)	.014 (12.83)
Proportion agriculture	.157 (14.85)	.173 (12.46)	.190 (13.53)
Log K per worker	−.030 (−8.84)	−.028 (−7.72)	−.018 (−4.86)
Primary enrolment 1870/1000			.086 (7.33)
Protestant 1870		.008 (1.76)	.005 (1.17)
Year dummies	No	No	No
Occupation dummies	No	No	No
Constant	3.45 (128.41)	3.41 (94.88)	3.40 (94.81)
R^2	.43	.43	.43
F-test	2530	2169	1910
N	20,377	20,377	20,377

Notes and sources. The dependent variable is (log) hours of work per week. OLS estimates. t statistics in parentheses. Enrolment from Lindert (2004) and Mitchell (1980). These values are rescaled. Protestant is a dummy variable = 1 where the majority of the population was protestant in the late nineteenth century. *Source*. Lindert (2004). For other variables, see Tables 4–6 and Appendix.

between the years before 1913 and after 1950. In both periods, the Old World had more days off and saw a faster decline in hours per week. There is no evidence of a sea change in the determinants of worktimes. Labor power and greater equality contributed to the contraction of worktimes in the Old World in the late nineteenth century as they do today.

It has been fashionable (Baldwin and Martin, 1999) to compare and contrast the periods before 1913 and after 1970 as if they were two separate episodes. But the historical perspective on worktimes suggests that there was continuity in causes and outcomes since 1870, despite different institutional frameworks across time and space. We have isolated an initial gap in the labor supply of New and Old Worlds that cannot be explained by micro or macro factors or by the cultural values of immigrants. The New World predisposition to give more labor time in the past as today, we speculate, may be a home-grown phenomenon, rooted in location and not in peoples.

If history does matter, then policy proposals to transform the Old World into the New, or vice versa, by changing tax schedules or consumption patterns in one direction or another need to be reconsidered. Hours of work began to fall well before the introduction of modern institutions like the welfare state or tax codes. Once put in place, these institutions have had the effect of codifying past behavior, thereby promoting further divergences in outcomes. Because of this feedback mechanism, it is problematic to claim that policy is transferable and will have similar effects everywhere. Since worktimes across regions have diverged over a long period, we cannot be certain that workers of the world today are intrinsically alike and will respond similarly to the same incentives. Over time, the distinction between nurture and nature has become blurred.

Appendix A

Micro and macro variables

	Full sample	Old World	New World
Hours per week (establishment)	60.0 (6.1)	59.5 (7.5)	60.2 (5.6)
Average wage (establishment)	.174 (.092)	.102 (.047)	.194 (.092)
Maximum wage (establishment)	.220 (.075)	.124 (.038)	.246 (.059)
Minimum wage (establishment)	.153 (.057)	.089 (.037)	.170 (.048)
Log average wage	−1.90 (.600)	−2.42 (.554)	−1.76 (.526)
Male (%)	.88	.892	.874
Services (%)	.10	.06	.12
Average hour	64.4 (8.5)	66.2 (9.9)	64.2 (8.3)
Average wage	.147 (.072)	.074 (.037)	.156 (.069)
Textiles (%)	.21	.21	.22
Average hour	62.1 (4.9)	61.4 (6.7)	62.3 (4.2)
Average wage	.103 (.068)	.065 (.040)	.113 (.071)
Iron and steel (%)	.27	.26	.27
Average hour	.186 (.065)	60.5 (7.6)	60.7 (4.3)
Average wage	.186 (.065)	.110 (.043)	.207 (.054)
Mining and construction (%)	.26	.30	.25
Average hour	56.9 (5.1)	56.2 (6.1)	57.1 (4.6)
Average wage	.232 (.106)	.125 (.040)	.267 (.097)
Manufacturing (%)	.16	.17	.15
Average hour	58.4 (5.3)	59.4 (6.8)	58.1 (4.7)
Average wage	.175 (.075)	.102 (.045)	.198 (.067)
GDP per capita	3218 (554)	3192 (859)	3226 (435)
Average age	32.4 (.782)	31.8 (1.31)	32.5 (.484)
Proportion in agriculture (%)	.41	.29	.45
Voter turnout (%)	.62	.39	.68
Capital per worker	9.1 (.362)	8.6 (.432)	9.2 (.235)
Primary enrolment/1000	736 (104)	569 (121)	781 (12)
Protestant in 1870 (%)	.56	.52	.57

Notes and sources. New and Old World countries from Table 1. Mean hours and wages, proportion male, and occupational breakdown of 'micro' sample for 1870–1900 from United States Department of Labor (1900). Standard errors in parentheses. For other variables, sample size varies because of missing observations for some countries and years. Reported means (unweighted) for 1870–1900, unless indicated otherwise. Wages are in U.S. $ per hour. Age is average age of population from Baier et al. (2006); proportion of population in agriculture from Lindert (2004); voter turnout from Flora (1983) and Lindert (2004); capital per worker from Baier et al. (2006); primary enrolment from Mitchell (1980) and Lindert (2004).

References

Alesina, A., Zeira, J., 2006. Technology and Labor Regulations. NBER Working Paper #12581.

Alesina, A., Gleiser, E.G., Sacerdote, B., 2006. Work and leisure in the U.S. and Europe: why so different? In: Gertler, M., Rogoff, K. (Eds.), NBER Macroeconomics Annual 2005. MIT Press, Cambridge, Mass.

Atack, J., Bateman, F., Margo, R.A., 2003. Productivity in manufacturing and the length of the working day: evidence from the 1880 census of manufactures. Explorations in Economic History 40, 170–195.

Baier, S.L., Dwyer, G.P., Tamura, R., 2006. How important are capital and total factor productivity for economic growth? Economic Inquiry 44, 23–49, Data set available at: www.jerrydwyer.com.

Baldwin, R.E., Martin, P., 1999. Two waves of globalization: superficial similarities, fundamental differences. In: Siebert, H. (Ed.), Globalization and Labor. Mohr Siebeck, Tübingen, pp. 3–58.

Bell, L., Freeman, R.B., 1995. Why do Americans and Germans work different hours? In: Butler, F., Franz, W., Schettkat, R., Soskice, D. (Eds.), Institutional Frameworks and Labor Market Performance. Routledge, London, pp. 101–131.
Bell, L., Freeman, R.B., 2001. The incentive for working hard: explaining hours worked differences in the US and Germany. Labour Economics 8, 181–202.
Bowles, S., Park, Y., 2005. Emulation, inequality, and work hours: was Thortsen Veblen right? Economic Journal 115, F397–F412.
Burgoon, B., Baxandall, P., 2004. Three worlds of working time: the partisan politics of work hours in industrialized countries. Politics & Society 32, 439–473.
Butlin, N., 1977. A preliminary annual database 1900/01 to 1973/74. Reserve Bank of Australia, Research Discussion Paper #7701.
Campbell, I., 2005. Extended Working Hours in Australia. Unpublished mimeograph, RMIT University, Australia.
Clark, G., 1987. Why isn't the whole world developed? Lessons from the cotton mills. Journal of Economic History 47, 141–174.
Costa, D., 1998. The Evolution of Retirement: An American Economic History, 1880–1990. University of Chicago Press, Chicago.
Costa, D., 2000. The wage and the length of the work day: from the 1890s to 1991. Journal of Labor Economics 18, 156–181.
Cross, G., 1988. Worktime in international discontinuity, 1886–1940. In: Cross, G. (Ed.), Worktime and Industrialization: An International History. University of Pennsylvania Press, Philadelphia.
DiNardo, J., Fortin, N., Lemieux, T., 1996. Labour market institutions and the distribution of wages, 1973–1992: a semiparametric approach. Econometrica 64, 1001–1046.
EIRO, 2003. Working Time Developments. Available at: http://www.eiro.eurofund.ie/2004.
Engerman, S.L., Sokoloff, K.L., 2005. The evolution of suffrage institutions in the New World. Journal of Economic History 65, 891–921.
European Industrial Relations Review, 1982. Annual holiday rights in 12 countries. 102, pp. 14–19.
Eurostat, 1995. Le temps dans L'Union européenne: estimation de la durée effective annuelle (1983–1993). Statistiques en bref, No. 4., Luxembourg.
Flora, P., 1983. State, Economy and Society in Western Europe, 1815–1975. Campus Verlag, Frankfurt.
Fogel, R.W., 2000. The Fourth Great Awakening and the Future of Egalitarianism. University of Chicago Press, Chicago.
Fogel, R.W., 2004. The Escape from Hunger and Premature Death, 1700–2100. Europe, America, and the Third World. Cambridge University Press, New York.
Furlogh, E., 1998. Making mass vacations: tourism and consumer culture in France, 1930s to 1970s. Comparative Studies in Society and History 40, 247–286.
Goldin, C., 1988. Maximum hours legislation and female employment: a reassessment. Journal of Political Economy 96, 189–205.
Green, A., MacKinnon, M., 1988. Interwar unemployment and relief in Canada. In: Eichengreen, B., Hatton, T.J. (Eds.), Interwar Unemployment in International Perspective. Kluwer, Dordrecht, pp. 353–396.
Green, F., Potepan, M.J., 1988. Vacation time and unionism in the U.S. and Europe. Industrial Relations 2, 180–194.
Greenwood, J., Vandenbroucke, G., 2005. Hours worked: long-run trends. NBER Working paper #11629.
Gregory, R.G., Ho, V., McDermott, L., 1988. The Australian and US labour markets in the 1930s. In: Eichengreen, B., Hatton, T.J. (Eds.), Interwar Unemployment in International Perspective. Kluwer, Dordecht, pp. 397–429.
Guiso, L., Sapienza, P., Zingales, L., 2006. Does culture affect economic outcomes? Journal of Economic Perspectives 20, 23–48.
Gutman, H.G., 1973. Work, culture, and society in industrializing America, 1815–1919. American Historical Review 78, 531–588.
Habakkuk, H.J., 1962. American and British Technology in the Nineteenth Century: The Search for Labour-Saving Inventions. Cambridge University Press, Cambridge.
Hamermesh, D.S., 1996. Workdays, Workhours and Work Schedules: Evidence for the United States and Germany. Upjohn, Kalamazoo, MI.
Hatton, T.J., Williamson, J.G., 1998. The Age of Mass Migration: Causes and Economic Impact. Oxford University Press, New York.

Heisz, A., LaRochelle-Côté, S., 2003. Working hours in Canada and the United States. Statistics Canada, Business and Labour Market Analysis Division, #209.
Huberman, M., 2004. Working hours of the world unite? New international evidence of worktime, 1870-1913. Journal of Economic History 64, 964–1001.
Huberman, M., 2007. Ticket to trade: Belgian workers and globalization before 1914. Unpublished mimeograph, Université de Montréal.
Huberman, M., Young, D., 1999. Cross-border unions: internationals in Canada, 1901–1914. Explorations in Economic History 36, 204–231.
Hunnicutt, B., 1988. Work Without End: Abandoning Shorter Hours for the Right to Work. Temple University Press, Philadelphia.
International Labor Office (ILO), 1934–38, 1950–80. Yearbook of Labour Statistics. Geneva.
ILO, 1939. Studies and Reports, Series G (Housing and Welfare), No. 5, Facilities for the Use of Workers' Leisure During Holidays. Geneva.
ILO, 1995. Conditions of Work Digest: Working Time Around the World. Geneva.
ILO, 2005. Labour establishment surveys. LABORTSTA, Available at: http://laborsta.ilo.org.
Jacoby, S., 1985. Employing Bureaucracy: Managers, Unions, and the Transformation of Work in American Industry, 1900–1945. Cambridge University Press, New York.
Jones, E.B., 1963. New estimates of work per week and hourly earnings, 1900–1957. Review of Economics and Statistics 45, 374–385.
Jones, E.L., 2006. Cultures Merging: A Historical and Economic Critique of Culture. Princeton University Press, Princeton.
Judt, T., 2005. Postwar: A History of Europe since 1945. Penguin, New York.
Landes, D., 1999. The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor. Norton, New York.
Lebergott, S., 1964. Manpower in Economic Growth. The American Record since 1800. McGraw-Hill, New York.
Lewis, H.G., 1957. Hours of work and hours of leisure. In: Proceedings of the Ninth Annual Meeting, Industrial Relations Research Association, pp. 196–206.
Lindert, P., 2000. Three centuries of inequality in Britain and America. In: Atkinson, A., Bourguignon, F. (Eds.), Handbook of Income Distribution, vol. 1. Elsevier, Amsterdam, pp. 167–216.
Lindert, P. 2004. Growing Public: Social Spending and Economic Growth Since the Eighteenth Century. Cambridge University Press, New York. Data set available at: http://www.econ.ucdavis.edu/faculty/fzlinder/.
Maddison, A., 1995. Monitoring the World Economy, 1820–1992. OECD, Paris.
Maddison, A., 2001. The World Economy: A Millennial Perspective. OECD, Paris.
Margo, R.A., 2000. The labor force in the nineteenth century. In: Engerman, S.L., Gallman, R.E. (Eds.), The Cambridge Economic History of the United States, vol. II. Cambridge University Press, New York, pp. 207–244.
Matessini, F., Quintieri, B., 2006. Does a reduction in the length of the working week reduce unemployment? Some evidence from the Italian economy during the Great Depression. Explorations in Economic History 43, 413–437.
McGratten, E.R., Rogerson, R., 2004. Changes in hours worked, 1950–2000. Federal Bank of Minneapolis Quarterly Review 28, 14–33.
McLean, I.W., 2005. Why was Australia so rich? School of Economics, University of Adelaide, Working Paper #2005-11.
Mitchell, B., 1980. European Historical Statistics, 1750–1975, second ed., Facts on File. New York.
Monthly Labor Review, 1955. Paid vacations for workers in Western Europe. 78, pp. 88–89.
Morrisson, C., 2000. Historical perspectives on income distribution. In: Atkinson, A., Bourguignon, F. (Eds.), Handbook of Income Distribution, vol. 1. Elsevier, Amsterdam, pp. 217–260.
OECD, 1998. Employment Outlook. Paris.
OECD, 2001. Trends in working hours in OECD countries. Labour Market and Social Policy, Occasional Papers #45.
OECD, 2004. Employment Outlook. Paris.
O'Rourke, K.H., Williamson, J.G., 1999. Globalization and History: The Evolution of a Nineteenth-Century Atlantic Economy. MIT Press, Cambridge, Mass, New York.
Ostry, S., Zaidi, M.A., 1972. Labor Economics in Canada, second ed. Macmillan, Toronto.
Owen, J., 1988. Work-time reduction in the U.S. and Western Europe. Monthly Labor Review 111, 51–54.

Pencavel, J., 1986. Labor supply of men: a survey. In: Ashenfelter, O., Layard, R. (Eds.), Handbook of Labor Economics, vol. 1. North-Holland, Amsterdam, pp. 4–102.
Pope, C., 2000. Inequality in the nineteenth century. In: Engerman, S.L., Gallman, R.E. (Eds.), The Cambridge Economic History of the United States, vol. II. Cambridge University Press, New York, pp. 109–142.
Prescott, E.C., 2004. Why do Americans work so much more than Europeans? Federal Reserve Bank of Minneapolis Quarterly Review 28, 2–13.
Rodgers, D.T., 1978. The Work Ethic in Industrial America. University of Chicago Press, Chicago.
Rogerson, R., 2006. Comment on Alesina, Glaeser, and Sacerdote. In: Gertler, M., Rogoff, K. (Eds.), NBER Macroeconomics Annual 2005. MIT Press, Cambridge, Mass.
Rones, P., Ilg, R.E., Gardner, J.M., 1997. Trends in hours of work since the mid-1970s. Monthly Labor Review 120, 3–14.
Sheills, M.E., 1990. Collective choice of working conditions: hours in Britain and U.S. steel, 1890–1923. Journal of Economic History 55, 379–392.
Silver, B.J., 2003. Forces of Labor. Workers' Movements and Globalization since 1870. Cambridge University Press, New York.
Smith, A., 1937. The Wealth of Nations. New York.
Steinfeld, R., 1991. The Invention of Free Labor: The Employment Relation in English and American Law and Culture, 1350–1870. University of North Carolina Press, Chapel Hill.
Steinfeld, R., 2001. Coercion, Contract, and Free Labor in the Nineteenth Century. Cambridge University Press, New York.
Sundstrom, W.A., 2006. Hours and working conditions. In: Carter, S., Gartner, S.S., Haines, M.R., Olmstead, A.L., Sutch, R., Wright, G. (Eds.), Historical Statistics of the United States: Millennial Edition, vol. 2. Cambridge University Press, New York, pp. 301–335.
Tabellini, G., 2005. Culture and institutions: economic development in the regions of Europe. CESifo Working Paper #1492.
United States Department of Labor, 1900. Fifteenth Annual Report of the Commissioner of Labor: Wages in Commercial Countries. 2 vols. GPO, Washington, D.C.
University of Groningen and the Conference Board GGDC Total Economy Database, 2005. Available at: www.eco.rug.nl/ggdc.
van Ark, B., McGukin, R.H., 1999. International comparisons of labor productivity and per capita income. Monthly Labor Review 122, 33–41.
Whaples, R., 1990. Winning the eight-hour day. Journal of Economic History 50, 393–406.
Williamson, J.G., 1995. The evolution of global labor markets since 1830: background evidence and hypotheses. Explorations in Economic History 32, 141–196.