Time on the Ledger: Social Accounting for the Good Society

by Tom Walker

The characteristics of a good society are typically itemized as abstract nouns such as "justice", "compassion", "liberty", "prosperity" or "security." Those nominalizations imply a concrete sequence of actions: a narrative. Take, for example, the narrative in Matthew 25, 35-36 from the *New Testament*:

> *For I was hungry and you gave me something to eat, I was thirsty and you gave me something to drink, I was a stranger and you invited me in, I needed clothes and you clothed me, I was sick and you looked after me, I was in prison and you came to visit me.*

In the biblical passage, the actions (done for "one of the least of these brothers and sisters of mine") certify the worthiness of those who perform them for entry into the kingdom of heaven – a metaphor for the good society if ever there was one. The *New Testament* might thus define a good society as a *charitable* one in which citizens come to the aid of their needful neighbors, regardless of wealth or status. That society ultimately reflects the moral qualities of its individuals.

Since the Enlightenment, this episodic, individualistic kernel has been supplemented with the idea of secular progress. As a society's knowledge and productive powers increase, its capacity for doing good also grows. Goodness, then, would translate expanded capacity into action – even to the extent of institutionalizing the prevention of deprivation and distress, rather than relying on personal charity.

When we think about how society might be improved, we usually also have in mind some sort of metric or political arithmetic – the calculation either of an aggregate sum, of some descriptive ratio, a distribution or a *per capita* allotment. Such arithmetic takes double-entry bookkeeping as its model. It indicates the capacity to act and changes in that capacity. Adam Smith (1790) highlighted the "distribution of the necessaries of life." Benjamin Franklin (1834) pondered the computation "by some political arithmetician" of a four-hour working day. Thomas Jefferson's friend, the Marquis de Chastellux (1774), proposed a formula for calculating public happiness.

Would an alternative vision of the good society display a similar fascination with numbers and methods for deriving them? I will argue that it would indeed. An outline for the kind of reckoning required – of the curtailment of unwarranted toil – was hinted at already in Chastellux's and Franklin's speculations and has been a recurrent, if subterranean, theme in political economy since the earliest days. Even Smith upheld "ease of body and peace of mind" as "what constitutes the real happiness of human life."

How does one measure "ease of body and peace of mind?" We will get to the question of *how* later, but first I would like to explain why it is crucial to calculate the objective and not merely to commend it.

Accounting vs. Double Counting

Werner Sombart (1952) described the concept of capital as something that "did not exist before double-entry book-keeping." "Capital," he wrote, "can be defined as that amount of wealth which is used in making profits and which enters into the accounts." Rob Bryer (2006) identified a capitalist "mentality" that uses accounting information to control the labor process "by holding the collective worker accountable for the rate of return on capital" (p. 592). Such control from the bottom line is central, not incidental, to both the domination of the labor process by capital and to the evolving ways domination has been implemented through successive waves of technology. An alternative to domination requires the development of a counter-mentality that "turns the capitalist development of calculation and accountability to other ends" (p. 593).

Bryer defined such counter-mentality as socialist but I would amend that to a "social-accounting mentality" to enlist and implicate an existing social-accounting tradition as well as to differentiate the alternative mentality from advocacy of state socialism. Ownership of the means of production may be beside the point or suitable forms of ownership may be more eclectic than traditional socialism assumes. It is not private ownership *per se* that is onerous but the domination over the labor process that capital decrees and a one-dimensional accounting mentality enforces.

Social accounting is simply the kind of accounting that needs to be done when two or more accounting entities are aggregated. It differs from the accounting of a single enterprise in the way that interactions between the constituent parts are treated. Great care needs to be taken in defining the boundaries between parties to avoid the double-counting errors that are pervasive in exercises of social accounting.

When bookkeeping practices are naïvely transferred to social accounting problems, including collective bargaining, they produce confusion and error. Today, national income accounting, the Gross Domestic Product (GDP), is the most prominent example of social accounting. Although economists acknowledge that GDP is flawed as a measure of welfare, they nevertheless promote GDP growth as an imperative for achieving full employment or some other normative goal, citing correlations between GDP and the other, more appropriate, measures of welfare. Critics of this growth imperative suggest those correlations are misleading.

When the U.S. Commerce Department released its first comprehensive report of national income and product accounts in 1947, the national priority of maximizing production was manifest in their methodology. Simon Kuznets, who in the 1930s had led the NBER national income measurement project, was asked by *The Review of Economics and Statistics* to review the Commerce Department's report. His critique was scathing. Kuznets (1948) objected that the Commerce Department's report lacked a clear definition of the end goal of economic activity and thus counted the activity itself rather than the *product* of that activity.

Technically, the issue was one of distinguishing final consumer goods from intermediate goods, the inclusion of which would constitute duplication or "double counting." Most pointedly, Kuznets objected to the inclusion of all goods purchased by the government as final products, arguing that a great deal of government activity – particularly during wartime – adds nothing to final utility but only measures the auxiliary costs of maintaining society at large.

In reply, Commerce Department economists (Gilbert, et al., 1948) defended their methodology on the grounds of expediency and the excessive cumbersomeness and subjectivity of examining each purchase to determine whether it was a final or intermediate good. Besides, they claimed, their approach avoided "moralistic" judgments and its focus on material production served important national concerns arising out of the Depression and wartime mobilization. The Commerce economists had a strong case regarding feasibility and relevance to urgent priorities of the recent past. As to moralistic judgments, though, they overlooked the irony that to abstain from judgement is itself a moralistic judgment.

More recently, Roefie Hueting (2008) adapted Kuznets's analysis of duplication to the issues of social and environmental externalities, introducing the term "asymmetrical entering" as a more inclusive description than double counting for the type of accounting error that occurs. Asymmetrical entering refers to the costs of repairing or substituting for an environmental or social free good after it has been damaged or destroyed. Because there is no monetary exchange involved, there is no subtraction from the GDP for the original damage to the environment or social wellbeing. But this creates an asymmetry when the cost of repair is counted in GDP. Even the calculation of net domestic product (NDP), which subtracts estimated capital depreciation from GDP, ignores the environmental and social impacts.

Stefano Bartolini (2006) has made a related point about what he terms negative externality or negative endogenous growth (NEGs). This describes a vicious cycle in which the products required to substitute for the free goods of nature and society destroyed by the negative externalities of industrial activity count as growth even as they too are generating additional negative externalities, which then lead to more substitution, more growth and so on.

A Case Study: The Newcastle Engineers' Strike

On May 29, 1871, engineers in Newcastle, England went on strike for a nine-hour working day. The strike lasted for four and a half months and ended when employers conceded to the workers' demand to reduce the workweek from 59 hours to 54. In the wake of the strike's successful conclusion, agitation for the nine-hour day quickly spread throughout England, meeting with singular success.

The climax to the strike revolved around an exchange of letters to the editor of the *Times of London* between Sir William Armstrong, spokesman for the employers, and John Burnett, president of the Newcastle Nine Hours League. In one of his letters, Armstrong presented a cost calculation whose error was disarmingly subtle and a lesson in the allure of double counting. Armstrong reckoned that the move from a 59-hour week to a 54-hour week, at the same weekly pay, would result in an eight-percent hourly wage gain for the workers (actually it would be over nine percent). Estimating the cost to the employer was more difficult, Armstrong maintained. The workers' gain, he assumed, would register as a corresponding loss, of the same percentage, to the employer. In addition to this increased wage cost, however, the employer would also face a loss of revenue due to the diminished output during the shorter week. Armstrong estimated that this indirect cost would amount to roughly the same as the direct loss from the higher wages.

Armstrong's double-counting mistake was not easy to detect. Burnett appears to have overlooked it in his reply, although he did challenge Armstrong's assumption that output would decline in proportion to the reduction in hours. In retrospect, Armstrong's assumption of a proportionate decline could be viewed as "naïve" (Robbins 1929) but it was less egregious than his double-counting error, which arose from mixing up hourly wage *rates* and weekly output.

Assuming, as Armstrong did, that output would change in direct proportion to hours worked, hourly output would remain constant after the change to the shorter workweek while hourly wages increased by nine percent. Meanwhile, weekly wages would remain constant while weekly output would decrease by nearly eight and a half percent. Each of these accounts sums up the full effect of the change, viewed from the two different accounting periods. What Armstrong did, though, was to add together the percentage *hourly* increase in wage costs and the percentage *weekly* decrease in output (and resulting revenue) thus counting the same effect twice.

In the Nineteenth century, Newcastle was synonymous with coal. "To carry coals to Newcastle," remains a proverb signifying a useless, redundant activity. Coal was literally and figuratively the bedrock of the industrial revolution. In his presidential address to the British Association for the Advancement of Science in 1863, Sir William Armstrong asked whether England would one day run out of coal and if so, what would be the consequences.

William Stanley Jevons undertook to answer Armstrong in *The Coal Question* (1865), best known today for its perspective – known as the Jevons paradox or rebound effect – regarding the perverse effects of efficiency improvements on the conservation of coal resources. That paradox challenges expectations of technological optimists that efficiency improvements alone can solve either supply limitations or the threat to climate stability from carbon emissions. Jevons's argument was not novel. As he explained, it applied "a principle recognized in many parallel instances." The principle is most

familiar in connection with the introduction of machinery, where the economizing of labor, "for the moment, throws labourers out of employment. But such is the increased demand for the cheapened products, that eventually the sphere of employment is greatly widened" (p. 140).

Jevons contended that this same principle applied, "with even greater force and distinctness, to the use of such a general agent as coal." Whether it applies with greater force is an empirical question, depending on the relative elasticities of demand for labor and energy resources. The evidence is not encouraging, though. For example, the energy intensity of employment in the United States, measured in BTUs consumed per employed person, increased by 60 percent from 1949 to 1973. From 1973 to 1986, consumption per employed person decreased by a little over 20 percent but since 1986 it has remained virtually level. Overall, it took about 20 percent more energy consumed to employ each person in 2009 than it did 60 years earlier. Comparable global statistics are harder to come by but they are likely to be even less encouraging because of the shift of high energy using manufacturing industries overseas from the U.S.

On the day engineers and employers in Newcastle settled the strike, the London correspondent for the *New York Times* filed a dispatch with the untimely assessment that no resolution of the strike was in sight. The *Times* correspondent concluded his report with a peculiar allegation. Although he conceded the reasonableness of the strikers' announced aims and a respectable third party – A. J. Mundella, M.P. – attested to the sincerity of those objectives, the *Times* correspondent wasn't having any of it.

"I find it very hard to take this view," he objected to the suggestion that the union was sincere in its motives. Instead, the London correspondent alleged "some ulterior design," underpinning the workers' long and determined struggle. "The League," he asserted, "is only an offshoot of the Unions, and the great object of the Unions is to surround production with all manner of restraints and restrictions, so that it shall not be accomplished too fast or by a small number of workmen." Allegedly underlying this obstructionism was a fallacious belief "that the amount of work to be done is a fixed quantity, and that in the interest of the operatives, it is necessary to spread it thin in order to make it go far."

There was a context for the London correspondent's suspicious outburst, but it had little to do with the Newcastle strike itself. The claim about a belief in a fixed amount of work to be done would congeal some 20 years later into what is now known as the lump-of-labor fallacy. It then drifted into introductory economics textbooks where it remained a staple for much of the 20th century, appearing in each edition of Paul Samuelson's *Economics* from 1948 to 2009. Paul Krugman (2003) recited the fallacy claim in his *New York Times* column:

> *Economists call it the "lump of labor fallacy." It's the idea that there is a fixed amount of work to be done in the world, so any increase in the amount each worker can produce reduces the number of available jobs... As the derisive name suggests, it's an idea economists view with contempt, yet the fallacy makes a comeback whenever the economy is sluggish.*

While economists may indeed view the idea with contempt, it is not clear who actually believes in it. Economists present no evidence in support of their attribution of the idea to unions or workers; advocates of shorter hours have repeatedly repudiated the alleged belief. So where exactly did this elusive idea that economists, and the London correspondent for the *New York Times,* view with such contempt come from?

The clue to the alleged fallacy's origin is contained in the correspondent's allegations about the unions' objective "to surround production with all manner of restraints and restrictions" and in his suspicion of an "ulterior design." These two indictments were staples of anti-union rhetoric in England since the 1830s. The *locus classicus* for these allegations, as they applied to the hours of work, would most certainly be the heavily-promoted pamphlet, *Character, Object and Effects of Trades' Unionism*

(1834) by the assistant Poor Laws commissioner and examiner for the 1833 Royal Commission on Employment of Children in Factories, Edward Carleton Tufnell.

During the 1833 Royal Commission inquiry, Tufnell asked Manchester cotton manufacturer, Peter Ewart, what he supposed was the chief motive of the cotton spinners' union in advocating the Ten-hours Factory Bill. Ewart's reply was speculation from a political opponent of the union and of the factory legislation, quite possibly influenced by the novelized popular political economy of Harriet Martineau whose best-selling novel, *A Manchester Strike*, "made considerable use of the wages fund analysis [of classical political economy] to argue that strikes are futile" (Vint 2007). Tufnell appropriated the gist of Ewart's commission testimony, embellished it with a tone of indignation and presented it as blunt fact in his anonymously-published pamphlet:

> *The Union calculated, that had the Ten-hour Bill passed, and all the present factories worked one-sixth less time, one-sixth more mills would have been built to supply the deficient production. The effect of this, as they fancied, would have been to cause a fresh demand for workmen; and hence, those out of employ would have been prevented from draining the pockets of those now in work, which would render their wages really as well as nominally high. Here we have the secret source of nine-tenths of the clamour for the Ten-hour Factory Bill, and we assert, with the most unlimited confidence in the accuracy of our statement, that the advocacy of that Bill amongst the workmen, was neither more nor less than a trick to raise wages -- a trick, too, of the clumsiest description; since it is quite plain, that no legislative enactment, whether of ten or any other number of hours could possibly save it from signal failure.*

Thirty-seven years later, the Newcastle strikers stated unequivocally that what they wanted was to work fewer hours so they could have time to advance their education and thereby improve their skills and usefulness. They wanted the shorter day so that they might have more energy left at the end of the day to devote to their studies. They sought the health benefits of spending less time breathing factory air and having more time for physical recreation and sport.

Toward a Republic of Leisure

The prospect of a perpetually expanding amount of work runs up against both human and natural limits. Even if there is always more work, there is not an unlimited amount of coal, fossil fuels or atmosphere to absorb their greenhouse gas emissions. Those limits may not immediately halt exploitation but at first divert it into a feedback loop of growing negative externalities whose cost of repair perversely counts as economic growth. Within conventional economic theory, a possible solution would be to price the externalities and ensure that their costs are taken fully into account through taxation, for example. The alternative presented here may best be considered as an implementation of that solution, which, however, relies on popular initiative rather than government regulation and technocratic expertise. It involves two main components, one institutional, and the other statistical.

The institutional innovation envisions a non-market, non-governmental constituency I call the "labor commons union." The statistics needed to guide the union's decision-making are produced within a social accounting framework that, unlike the current GDP and traditional enterprise bookkeeping, explicitly recognizes the costs of unemployment and the value of free time. I begin with the labor commons union.

The labor commons union

In "Foundations for Environmental Political Economy," John Dryzek (1996) explored the prospects for an environmentalist economic subject, *Homo ecologicus*, as an alternative to the traditional rational

actor or economic man. Dryzek criticized previous efforts at positing an ethical, environmentalist subject, saying they were flawed by wishful thinking and reductionism. The alternative Dryzek proposed instead was based on his interpretation of Elinor Ostrom's (1990) case study work on managing common pool resources.

The new political economy, Dryzek argued, would be one that can account for instrumental rationality – even deploy it in its proper place – but that can also point to alternatives grounded in something firmer than wishful thinking. Dryzek's alternative wouldn't rely exclusively on subjectivity but also would take into account communication between people (other than purely economic exchange). Such a communicative model of economic behavior already exists in Ostrom's work. Communication and interaction between individuals was what distinguished the successful resource management regimes she studied from the unsuccessful ones. In successful common pool resource management institutions, participants learned to distinguish whom to trust, discern the effects their own actions will have on others and on the shared resource, behave more straightforwardly toward each other and build institutional arrangements for resolving conflicts.

Ostrom's framework for distinguishing different types of goods and services classifies them as having either high or low subtractability (also referred to as rival goods). – meaning that one person's use of a resource leaves less available for others – and as either more or less excludable, depending on how difficult or costly it is to exclude people from access to the good (Ostrom, 2009). Taken together, those two pairs constitute a matrix, shown in Table 1.2, that specifies four ideal types of goods. These characteristics are not binary and therefore many types of goods can shift from category to category depending on changes in demand, supply, technology or administration. Private goods are subtractable and excludable (that is it is not difficult to exclude beneficiaries). Examples would include food and clothing. Public goods, such as lighthouse services, for example, are neither highly subtractable nor excludable. The remaining sectors are common pool resources, such as fisheries and forests, which are subtractable but difficult to exclude and toll goods, such as golf courses or swimming pools, which have low subtractability but are not difficult to exclude people from.

		Subtractability of Use	
		High	Low
Difficulty of Excluding Potential Beneficiaries	High	Common pool resources:	Public goods.
	Low	Private goods.	Toll goods.

Table 1.2: Source: "Beyond Markets and States." Elinor Ostrom (2009).

Employment as a good

Labor demand is commonly treated by economists as a commodity the employer purchases with a wage or salary. On the supply side, the canonical model alleges a subjective choice for the worker between income and leisure. This model has consistently "been refuted by evidence" (Pencavel, 1986). An alternative way to view a job position, with its income, status and promotional opportunities, would be as a composite good that the worker, in part, purchases with his or her time, relevant skill and credentials and search activity. From the perspective of the job seeker, job positions would arguably rank within Ostrom's analytical grid as both highly subtractable and difficult to exclude potential

competitors from. Employment thus could count as a common pool resource in that framework.

The labor commons union is proposed here as an experimental institution that would treat employment as a common pool resource. Such an undertaking has various precedents. The traditional workers' ethic of the craft guilds viewed the work available as something akin to a common resource. Guild principles included the practice of dividing up the custom equitably among the available tradesmen. In addition there are worker co-ops, works councils, syndicalism and the movement unionism such as the eight-hour leagues and nine-hour leagues in the U.S., Canada and the U.K. in the Nineteenth century.

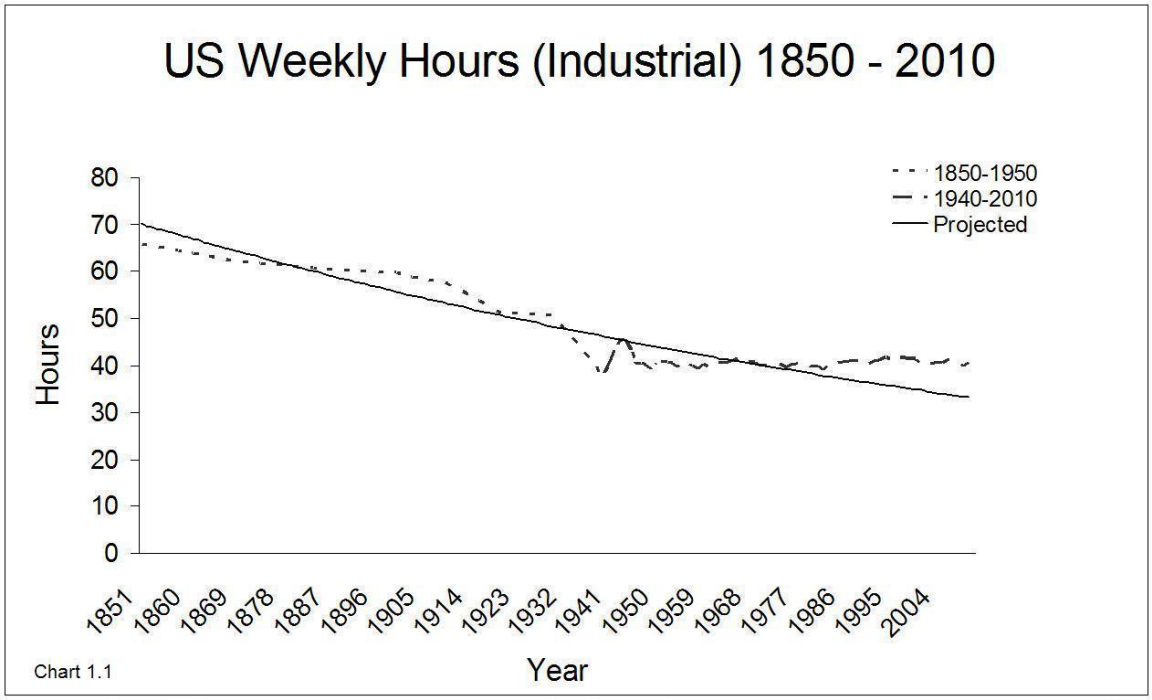
As an ethical proposition sharing work is the reciprocal gesture – like the gift – expressing and reinforcing co-operative working arrangements. John Maurice Clark's (1923) analysis of social overhead costs, discussed below, suggests that the notion *also* makes economic sense, given an appropriate social accounting framework. Collectively, working people would be better off if they joined in refusing to compete in a race to the bottom. By collectively conserving work effort, the workers acting co-operatively might achieve higher levels of productivity than otherwise as well as build greater social solidarity and job security.

The potential for reduced hours to result in higher productivity – in some cases, even higher total output – is explicit in Sydney Chapman's theory of the hours of labor, discussed in the next section. In his theory, Chapman documented market failure in the allocation of hours of work, often resulting in hours of work that were too long from the standpoint of both worker welfare and optimal output.

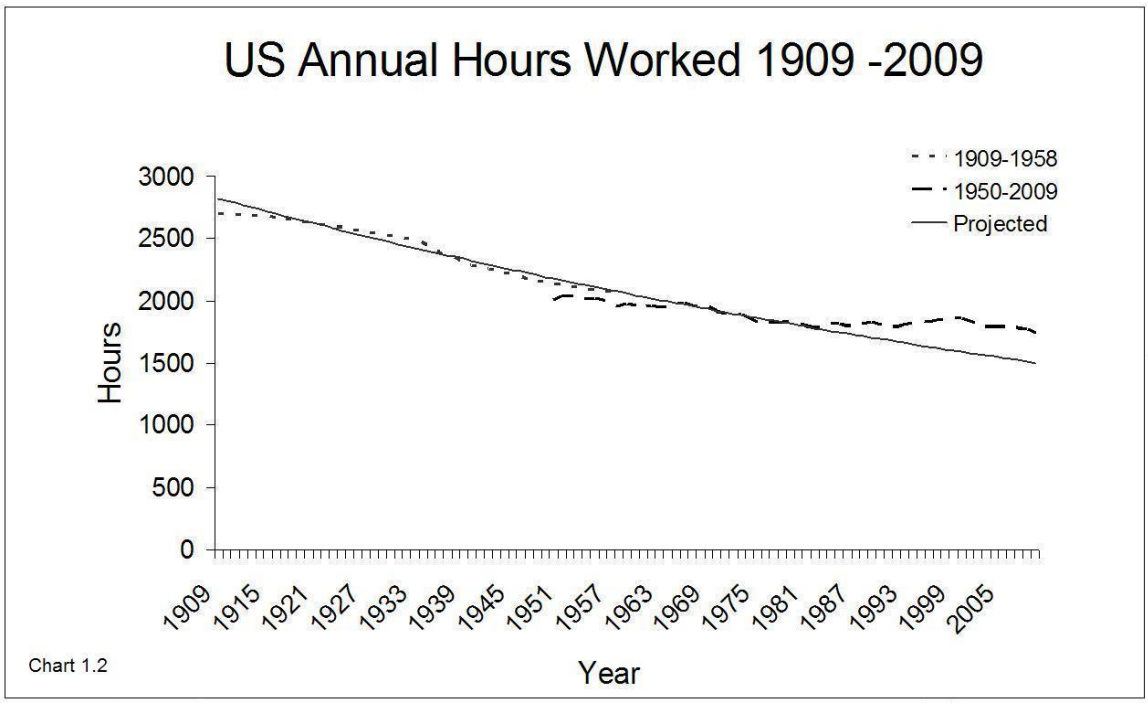
Are today's labor unions up to the challenge? In the U.K., the U.S. and Canada, unions have long abandoned their traditional strategies of prioritizing the demand for shorter hours, especially in response to unemployment. Instead, the preferred employment strategy has been to call for fiscal stimulus through increased government spending. How, then, would the labor commons union come into existence? How might it be organized and governed? What principles would it uphold and tactics would it employ? These important details must be left for future elaboration, not least because they differ from case to case and in many instances would involve the reorientation of and transition from established institutions. One particular, however, can be specified. That is the analytical model for guiding decision making within the union.

The hours and output spreadsheet

In the early 1960s, Edward Denison (1962) estimated that roughly one-tenth of the economic growth that occurred between 1909 and 1957 in the U.S. could be attributed to the "effect of shorter hours on quality of a man-hour's work." A few years earlier, labor economist Joseph Zeisel (1958) called the long-term decline in the industrial workweek, "one of the most persistent and significant trends in the American economy in the past century." That is, it *had* been a persistent and significant trend up until around 1940. After a brief spike during World War II, however, the length of the average workweek in manufacturing quickly subsided to pre-war levels and then remained virtually flat for the next 65 years (see Chart 1.1). By March 2010, the average manufacturing workweek lasted six minutes longer than had the average workweek in August 1945.



In the broader economy, annual hours of work continued to decline after World War II, but at a slower rate than they had previously (see Chart 1.2). Part of that decline, however, can be attributed to the increased participation of women and students in the labor force, often as part-time workers, and to a sectoral shift of employment away from manufacturing and toward services. Annual hours for full-time workers and for adult, non-student men showed less movement. Nevertheless, had the annual hours of work continued to decline at the rate that prevailed from 1909 to 1958, average annual hours in 2009 would have been nearly 14 percent lower than they were – an annual average of around 1500 hours instead of 1742.



What might the effect of shorter hours have been on job creation? Intuitively, it is tempting to

take the total number of hours worked in 2009 (approximately 250 billion hours) and divide by the lower annual average per worker. This calculation would yield an additional 22.6 million jobs (net) created between 1980 and 2009, if hours had continued to decline in accord with the long-term trend. But wouldn't the productivity gains from shorter hours be expected to offset some or even most of that hypothetical job creation? With increased productivity, the given amount of total output produced in 2009 could simply have been produced in fewer total hours. But who says total output would have remained the same if average hours had changed and if the change in average hours resulted in higher productivity? Economists often claim that faster productivity growth leads to higher employment in the long run.

University of California economist Carl Walsh (2004) summarized this view: "there is little debate among economists about the long-run effect of productivity on employment.… In the long run, faster productivity growth should translate into an increase in the overall demand for labor in the economy." There are two ways the salutary effect can occur. The lower cost of production may so enlarge the demand for a product that it more than offsets the increased output per worker. Otherwise, technology frees workers for employment producing new products or services that were previously unavailable.

Denison deplored the surprising lack of attention given to the relationship between hours and output in published projections of economic growth – especially given the "virtual unanimity of opinion among economists" that shorter hours had in the past contributed substantially to higher output. To begin to address these issues, I have developed a spreadsheet model to evaluate the effects of shorter working time on productivity and employment. The spreadsheet model can serve as a navigational tool or "management information system" for the labor commons union. It takes empirical cues from Denison and Zeisel but analytically relies on the economics of fatigue and productivity pioneered by Sydney J. Chapman (1909).

In Chapman's theory, the output during a working day – or any other duration of work – has a discernable pattern. Setting aside the immediate effect of breaks and interruptions in the flow of work, work usually requires some set up and settling in period after which the pace of work increases until it reaches a peak or plateau – which may last several hours – after which it then declines as fatigue sets in toward the end of the day. This pace of work or rate of productivity can be ideally represented as a sine curve that first rises and then falls. The cumulative output that occurs over the course of the day can be evaluated as the area under the curve up to any given length of time.

The amplitude and period of the sine curve (its height and length) are determined by the current state of technology and the characteristics of the worker – such as health, skill and motivation. Over the longer run, there can be established an optimal length of the working day for maximizing total output. Through the accumulation of fatigue, the worker's health and motivation act on total output as a kind of feedback mechanism. For any given optimal length of the working day, the long-term effect of extending the usual working day beyond that optimum risks the accumulation of fatigue and the resulting depression of total output – not just hourly productivity – below what could have been achieved in fewer hours of work. The occasional brief stint of overtime work would probably have little or no effect on total output or perhaps even boost it a bit. But a persistent regime of scheduled overtime will tend to detract from total output because the worker will gradually adjust his or her work pace downward to offset the fatigue from the longer days. Or, if the pace isn't adjusted, the increased fatigue may result in more absenteeism, accidents, deterioration in the quality of work, et cetera.

Most significantly, Chapman's theory demonstrated market failure in the determination of the hours of work. The counter-intuitive finding of his theory was that the profit-maximizing behavior of firms in a competitive market led them to seek hours of work that are longer than optimal for output. Leading British economists of the 1920s and 1930s – including (emphatically) Cecil Pigou (1952), Lionel

Robbins (1929) and John R. Hicks (1932) – accepted that analysis as canonical. Hicks summarized the historical behavior of the firm as follows:

> *The long hours worked in the early days of the Industrial Revolution are notorious; they were reduced, it is well known, mainly by State regulation and Trade Union action. It was found, after they had been reduced, that the output of eleven hours' work might be greater than that of twelve. Employers had been working at more than the output optimum, without realising it.*
>
> *Probably it had never entered the heads of most employers that it was at all conceivable that hours could be shortened and output maintained. (Hicks p. 107)*

This conclusion of market failure remains unchallenged. Instead, it was bypassed when Hicks added a further assumption that union bargaining power could *impose* hours of work that were optimal for output. "A very modest degree of rationality on the part of employers will thus lead them to reduce hours to the output optimum *as soon as Trade Unionism has to be reckoned with at all seriously."* (Hicks p. 218, emphasis added)

The standard assumption about the hours of labor is not, as may be supposed, a straightforward story about efficient allocation through competitive markets. Instead, it is a convoluted tale of market failure and then imagined correction in response to union strike threat. Given the erosion of union density and the near total eclipse of work time reduction as a union priority, that threat is less plausible today than it may have been either in the 1930s when Hicks proposed it or in the 1950s when it became generally accepted (see Chris Nyland 1989, Walker 2007b).

Given the total quantity of output in an economy, the number of workers employed, the total hours worked and assuming that the average annual (or daily or weekly) hours of work per employee are optimal, one can construct a generic Chapman work curve for that economy. Alternatively, a counter-factual baseline model can be built by projecting the "persistent and significant" trend in the hours of work, which prevailed in the US from the mid-nineteenth century to the mid-twentieth century. Using that baseline model, we can then estimate the effect on total output of deviations from that trend. Such a hypothetical projection is undoubtedly controversial but it can be justified by reference to specific historical conditions, such as abandonment of a shorter hours strategy by unions, pursuit of demand management policies by governments, increased proportion of per-employee benefit payroll costs, ideological opposition of economists and policy makers to working time policy, and so on.

There is no sure-fire formula for translating the resulting estimate of, in this case, expanded output into an estimate of associated employment gains. A procedure sometimes used by economic forecasters is simply to apply a ratio from the empirical observation (or rule of thumb) known as "Okun's Law," which describes a relationship between the rate of economic growth and changes in the unemployment rate. Such an estimate may be suspect on theoretical grounds. The justification for relying on Okun's Law as a rule of thumb is admittedly crude: "everybody does it." But all we are trying to do here is rationalize moderating our estimate of the quantity of employment that may be created by a trend optimization of working time. Recall that we began by discounting the simple "redistribution" of a given number of total hours among a much larger number (22.6 million) of workers. Here, we are shying away from the assertion that a given increase in output will generate a *proportionate* increase in employment. After all, some unspecified portion of that increase in output must already be accounted for in the productivity gain. Okun's Law may not be the right tool but it is the only tool we have – for now.

A final objection to these calculations would have to do with how a given reduction in hours was implemented. If a government mandate imposed a one-size-fits-all regulation, it might cause inefficiencies that would impede employment creation. The institutional arrangement of the labor

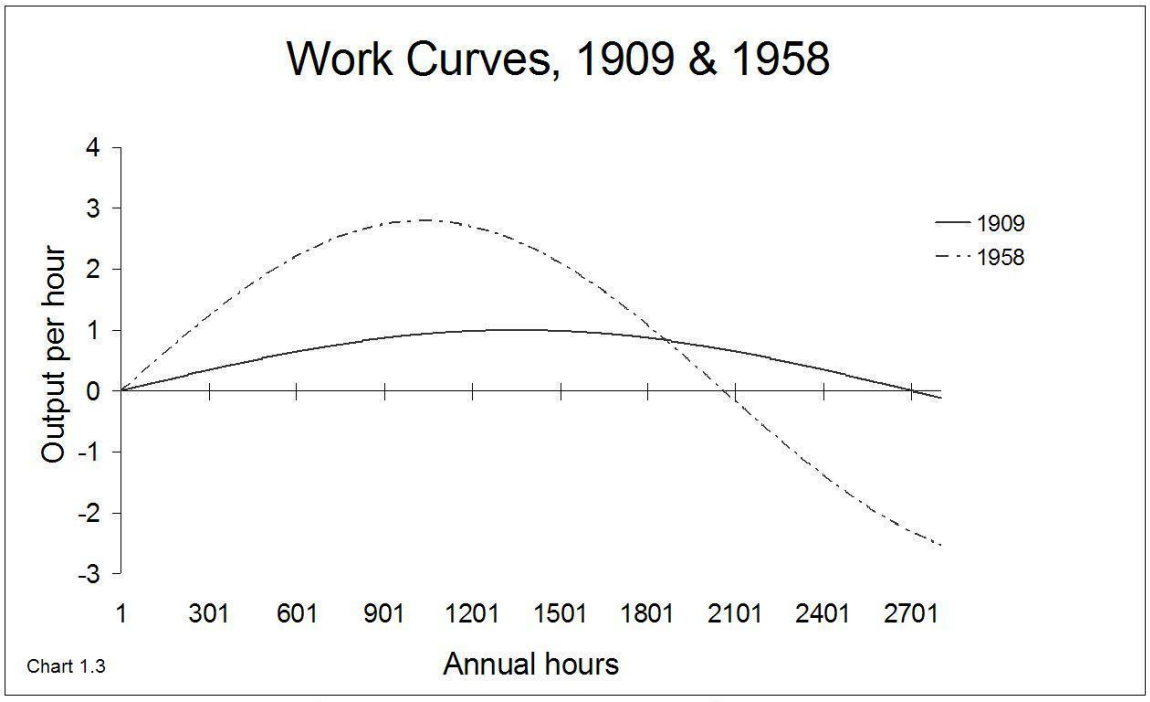
commons union was designed expressly to circumvent such pitfalls of implementation.

With all those caveats, it needs to be repeated that the purpose of the exercise is not to predict precisely how many jobs would be created through a reduction of the work week but to show that the potential for job creation is not based on an exclusive presumption of redistributing a given amount of employment.

A hypothetical example: five million jobs?

To give an example of the kind of calculation this model enables, I have estimated the job-creating potential of a workweek conforming to the historical trend in average annual hours prevailing from 1909 to 1958. This model assumes that the average length of the workweek in 1909, 52 hours, was optimal for the level of technology that existed in 1909 and that the 1958 average of 39.6-hours was also optimal, given the technology of 1958 (see Chart 1.3). The underlying hypothesis is that the long-term trend in hours – at least in the period from 1909 to 1958 – reflected an underlying technological dynamic and that deviation from that trend, especially after 1980, also represents a deviation away from the path of optimal output.

These are, of course, only assumptions. They differ from the standard assumption that the given hours of work are optimal for an explicit theoretical reason – Sydney Chapman's analysis demonstrated the tendency of the hours bargain in a competitive market to lead to longer than optimal hours, unless checked by government, trade union or other *non-economic* action. The standard assumption of optimal hours gets around that implication of Chapman's theory by tacitly, and probably unknowingly, making the additional assumption of substantial trade union strike threat. My model makes the latter assumption explicit and then rejects it as implausible.



Projecting the 1909-1958 trend suggests that by 2009 the optimal workweek would have averaged 29 hours, for example, a 32-hour workweek with five weeks annual vacation (see Chart 1.4). *By definition*, a workweek longer than that optimum would reduce output below its potential. The spreadsheet model estimates that compared to the baseline projection, excessive hours of work resulted in the loss of about six and a half percent of total potential output or about eight percent of growth since

1958. This compares with Denison's estimate of ten percent of growth attributable to higher productivity from shorter hours between 1909 and 1957. Translated into jobs lost, this could represents over five million jobs, if we assume a one-percentage point increase in unemployment for every two-percentage point drop in output. There are many unspecified variables that could upset this estimate. For example, how would the trend in optimal hours have been affected by the variation in the pace of technological change? We don't, and probably can't, know what the "true counter-factual" is. That's beside the point. The objective is to develop a new way of looking at the issue of hours of work, not to establish the optimality of a 1500 hour annual average or to ascertain the exact number of jobs actually foregone by failure to achieve that standard.

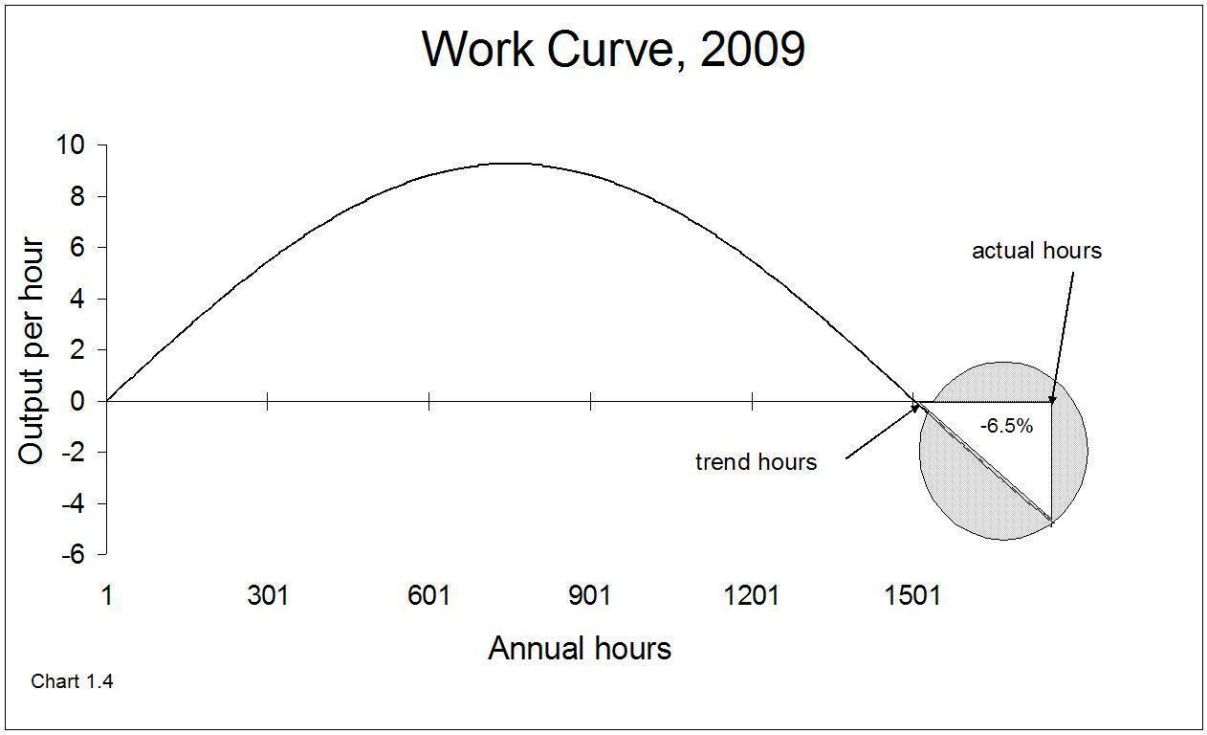


Chart 1.4

On the other hand, I've used some fairly conservative benchmarks to anchor the trend line. If I had chosen 1940 instead of 1958 as the endpoint, then the trend would have indicated an optimal working year of 1400 hours – around 11 million potential jobs foregone. Whether the additional economic growth would be a good thing is another matter. This model doesn't itself demonstrate the job-creating potential of work time reduction in the absence of economic growth but it does suggest the job-creating contribution that work time reduction can make in an expanding economy. Actual results would depend crucially on how policies were implemented but there is arguably a case for some experimentation – and for jettisoning economists' lump-of-labor contempt for work time reduction (Walker 2000, 2007).

Accounting for Labor and the Environment

Not only can employment be regarded as yet another common pool resource among others, it can also be argued that it is the common pool resource *par excellance* – the paragon that stands as the single most far-reaching and democratically vital instance of a common pool resource. Donald Stabile (1993) alluded to something in this vein when he noted that, "Human labor is also the primary constituent of the society whose values must be part of any criterion of social evaluation. The appropriate starting point in any policy directed at social costs is with those imposed on labor."

In *Studies in the Economics of Overhead Costs,* Clark (1923) offered the following parable to

illustrate his argument about the overhead costs of labor, "If all industry were integrated and owned by workers, what would be the relation of constant to variable expense? …it would be clear to worker-owners that the real costs of labor could not be materially reduced by unemployment." After all, the cost of maintaining the worker and his or her family in good stead has to be borne by someone whether or not that worker is employed. If those costs are not met, the ability of the worker to contribute to society will deteriorate. Meanwhile, the time spent out of work will amount to a dead weight loss both to the worker and to society as a whole. This is not to say that all industry necessarily *should* or *must* be integrated into a single, worker-owned enterprise in order to achieve full employment. But what is imperative is that if all industry isn't so organized, there still needs to be an appropriate accounting framework that acknowledges the worker's fixed costs as readily as the double-entry bookkeeping does the firm's. It is not only an ethical question but also a matter of basic accounting integrity.

In "Accountants and the Price System: the Problem of Social Costs," Stabile (1993) focused on the perspective introduced by Clark. Stabile criticized abortive efforts by accountants in the 1970s to change the way social costs were evaluated on the corporate account books. To explain why they had failed, Stabile cited analyses by Clark and by K. William Kapp (1950) that viewed the social costs of labor as central to any more general process of social evaluation. Such an outlook was missing from the works of social cost accountants of the 1970s. "Market values are a weak thread from which to hang a whole system of value," Stabile argued, "but accountants cling to it doggedly. Without an alteration of this basic tenet of accounting, social cost accounting cannot develop into a criterion of social value."

Returning again to Clark's thought experiment of the hypothetical state where all industry is integrated and owned by workers, we can see that it stands as an example of a non-market process of social evaluation whose results can be worked out with little hesitation. Involuntary unemployment would be regarded as sheer waste rather than as a regrettable but necessary expedient for containing labor costs. Social accounting for unemployment would come to a very different assessment of economic efficiency than would an asymmetrical, pseudo-social accounting relying exclusively on the metaphor of the firm. Gains in desired disposable time (as opposed to idleness) would need to be valued as *economic* gains and losses of free time as *economic* losses.

Conclusion

The outline above of a social accounting framework for disposable time is only a preliminary sketch. Much refinement can go into its data handling, such as breaking down the analysis into occupational and industrial classifications. Such refinement might produce a very different trend analysis. Different assumptions could be tested about the macroeconomic effects of work time reduction on consumption and the multipliers that might apply to different scenarios. I also haven't talked about the applicability of this kind of analysis to national income and product accounting but a hint of its applicability may be taken from two of the pillars of my argument, John Maurice Clark and Edward F. Denison, both of whom were pioneers of national income accounting. Over a century ago, Sydney J. Chapman, prize-winning pupil of Alfred Marshall and future chief economic adviser to the British government wrote, "The ideal working day of the future cannot be eight hours, for it must be essentially a progressive ideal. As a community advances, agitation for shorter hours will be constantly breaking out anew." A new outbreak of agitation for shorter hours is long overdue.

Bibliography

"ENGLISH AFFAIRS.; The Labor Question—The Newcastle Strike—Influence of the International—The Masters and the League—Imported Labor—The Masters' View—The Real Question at Issue." 1871. *New York Times*, October 19.

Bartolini, Stefano. 2006. "Beyond Accumulation and Technical Progress: Negative Externalities as an Engine of Economic Growth." In *Environment, Inequality and Collective Action*, edited by M. Basili, M. Franzini and A. Vercelli. London and New York: Routledge.

Bryer, Rob. 2006. "Accounting and Control of the Labour Process." *Critical Perspectives on Accounting* 17: 367-397.

Burnett, John. 1872. *Nine Hours' Movement. A History of the Engineers' Strike in Newcastle and Gateshead*. Newcastle-upon-Tyne: John W. Swanston.

Chapman, Sydney J. 1909. "Hours of Labour." *The Economic Journal* 19: 353-373.

Chastellux, Francois Jean, Marquis de. 1774. *An Essay on Public Happiness*. New York: Augustus M. Kelley, 1969.

Clark, John Maurice. 1923. *Studies in the Economics of Overhead Costs.* Chicago: University of Chicago Press.

Denison, Edward. F. 1962. *The Sources of Economic Growth in the United States and the Alternatives Before Us*. New York: Committee for Economic Development.

Dryzek, John S. 1996. "Foundations for Environmental Political Economy: The Search for *Homo Ecologicus*?" *New Political Economy*, 1: 27-40.

Franklin, Benjamin, William Temple Franklin and William Duane. 1834. *Memoirs of Benjamin Franklin, Volume 1.* Philadelphia: McCarty and Davis.

Gilbert, Milton, George Jaszi, Edward F. Denison and Charles F. Schwartz. 1948. "Objectives of National Income Measurement: A reply to Professor Kuznets." *The Review of Economics and Statistics* 30: 179-195.

Hicks, John R. 1932. The Theory of Wages, London: Macmillan.

Hueting, Roefie. 2010. "Why Environmental Sustainability Can Most Probably Not Be Attained with Growing Production." *The Journal of Cleaner Production* 18: 525-530.

Jaszi, George. 1958. "The Conceptual Basis of the Accounts: A Re-examination." In *A Critique of the United States Income and Product Accounts*, 13-145. NBER Conference on Research in Income and Wealth. Studies in Income and Wealth, Vol. 22. Princeton, N.J.: Princeton University Press.

Jevons, William Stanley. 1865. *The Coal Question*, London and Cambridge: MacMillan and Company.

Kapp, K. William. 1950. *The Social Costs of Private Enterprise.* Cambridge, Mass: Harvard University Press.

Kuznets, Simon. 1948. "National Income: A New Version." *The Review of Economics and Statistics* 30: Number 3: 151-179.

Krugman, Paul. 2003. "Lumps of Labor" New York Times. October 7.

Nyland, C. 1989. Reduced Worktime and the Management of Production, Cambridge: Cambridge University Press.

Pencavel, J. 1986. ‘Labor Supply of Men: A Survey’, in (O. Ashenfelter and R. Layard, eds.), Handbook of Labor Economics, Amsterdam: North Holland. pp. 3-102

Ostrom, Elinor. 1990. Governing the Commons: The Evolution of Institutions for Collective Action. Cambridge: Cambridge University Press.

Ostrom, Elinor. 2009 "Beyond Markets and States: Polycentric Governance of Complex Economic Systems." Nobel Prize Lecture. Accessed January 23, 2011. http://nobelprize.org/nobel_prizes/economics/laureates/2009/ostrom_lecture.pdf

Pigou, A.C. 1952. *The Economics of Welfare,* London: Macmillan. 4th Edn.

Robbins, L. 1929. ‘The economic effects of variations of hours of labour’, Economic Journal, vol. 39, pp 25-40.

Smith, Adam. 1790. *The Theory of Moral Sentiments*. London: A. Millar.

Sombart, Werner. 1952. "Medieval and Modern Commercial Enterprise." In *Enterprise and Secular Change,* edited by F. C. Lane and J. C. Riemersma, 25-40. London: Allen & Unwin.

Stabile, Donald R. 1993. "Accountants and the Price System: The Problem of Social Costs." *Journal of Economic Issues* 27: 171-188.

Walker, Tom. 2000. "The 'lump-of-labor' case against work-sharing: Populist fallacy or marginalist throwback?" in *Working Time: International trends, theory and policy perspectives,* edited by Lonnie Golden and Deborah M. Figart, London and New York: Routledge.

Walker, Tom. 2007a. "Why do economists dislike a lump of labor?" *Review of Social Economy,* LXV: 3, 279-291.

Walker, Tom. 2007b. "Missing: the strange disappearance of Sydney J. Chapman's theory of the hours of labour." Conference presentation, Amsterdam: World Congress for Social Economics. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1125543

Walsh, Carl. 2004. " The Productivity and Jobs Connection: The Long and the Short Run of It." *FRBSF Economic Letter* 2004-18. Accessed January 23, 2011. http://www.frbsf.org/publications/economics/letter/2004/el2004-18.pdf

Vint, John. 2007. "Harriet Martineau and Industrial Strife: From Theory into Fiction into Melodrama." Manchester: Manchester Metropolitan University - Department of Economics, Discussion papers in economics 2007-2.

Zeisel, Joseph. 1958. "The Workweek in American Industry 1850-1956." *Monthly Labor Review* 81: 23-29.