

Emulation, Inequality, and Work Hours: Was Thorsten Veblen Right?

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Abstract

We investigate the importance of *Veblen effects* on work hours, namely the manner in which a desire to emulate the consumption standards of the rich influences individuals' allocation of time between labor and leisure. Our model of the choice of work hours captures Veblen effects by taking account of the influence of the consumption of the well-to-do on the marginal utility of consumption by the less well off: the main result is that work hours are increasing in the degree of income inequality. We use data on work hours of manufacturing employees in ten countries over the period 1968-1992, along with data on inequality of income to explore these hypotheses. Inequality is a predictor of work hours in both OLS and country fixed effects estimates; its effects are large, and estimates are robust across a variety of specifications. We show that in the presence of Veblen effects a social welfare optimum cannot be implemented by a flat tax on consumption but may be accomplished by more complicated (progressive) consumption taxes or by subsidizing the leisure of the rich.

Keywords: Interdependent utility, relative income, emulation, Veblen effects, work hours.

JEL classification: H23; D31; D62; J22

1. Introduction

At the close of the 19th century, Thorsten Veblen proposed what he termed *pecuniary emulation* as the foundation of a theory of consumption: spending, he maintained, is driven by relative status considerations, that is by the desire to *be* a particular type of person as much as by the desire to enjoy the consumer goods *per se*.¹ The Joneses, with whom one had to keep up, were not the neighbors but the rich; their level of living became the never-attainable objective in a consumption arms race among the less well to do. In *The theory of the leisure class* (1899/1934) he wrote:

The motive is emulation—the stimulus of an invidious comparison... especially in any community in which class distinctions are quite vague, all canons and reputability and decency and all standards of consumption are traced back by insensible gradations to the usages and thoughts of the highest social and pecuniary class, the wealthy leisure class. (1899/1934):81.

While valued by some economists as capturing common-sense aspects of consumption as a form of status seeking, Veblen's view of social preferences was soon eclipsed by the simpler and more tractable neoclassical theory of the consumer. Relegated to the underworld of economics, Veblen's ideas have nonetheless resonated over the ensuing years in the writing of Duesenberry (1949), Leibenstein (1950), and Galbraith (1958) at the middle of the past century and Schor (1998) and Frank (1997) at the century's close.

We investigate the importance of *Veblen effects* in the determination of work hours, namely the influence of a desire to emulate the consumption standards of the rich on individuals' allocation of time between labor and leisure. Veblen effects are derived from a class of social-comparison-based utility functions on which there is a growing literature and some empirical evidence.² Clark and Oswald (1996) for example found that the satisfaction

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² See Bagwell (1996), Layard (1980), van Praag (1993), Sen (1983), Hirsch, (1976), Scitovsky, (1976), and Easterlin (1974). Frank (1997) Cole, Mailath, and Postlewaite (1995). Clark and Oswald (1996) provide extensive additional references to the empirical literature. By comparison to the economic literature the relevant sociological and social psychological literature is extensive and venerable: Homans (1961) and Festinger (1957) are influential contributions.

levels reported by British workers (in the British Household Panel Survey) vary inversely with the wage levels of peers. Neumark (1998), using data from the U.S. NLSY studied the labor supply decisions of relatives, finding some evidence that women whose sister's husband had a higher income than their own husband were more likely to be employed.

These studies provide some support for comparison based utility functions, but do not test Veblen effects directly. An explicitly Veblen-inspired study by Juliet Schor (1998) using a U.S. sample asked respondents how their "financial status" compared to that of those in their reference group (primarily co-workers and friends). While a majority of her sample responded that they personally did not feel pressure to "keep up with the Joneses" Schor found that independently of the effects of annual and permanent income and other standard regressors, those whose financial status was below their reference group saved significantly less than those who were better off than their reference group.

Our model of the choice of work hours, presented in the next section, captures Veblen effects by taking account of the influence of the consumption of the well-to-do on the marginal utility of own consumption of the less well off: the main result is that work hours are increasing in the degree of income inequality. We then use data on work hours of manufacturing employees in ten countries over the period 1968-1992, along with data on inequality of income to explore these hypotheses. Inequality is a predictor of work hours in both OLS and fixed effects estimates; its effects are large, and estimates are robust across a variety of specifications. We then address an alternative interpretation in which a positive relationship between work hours and inequality is due to the incentive effects of the latter (Bell and Freeman (2001)). In the penultimate section we consider some of the normative implications of Veblen effects, identifying a class of policies which can implement a social welfare optimum: included are subsidies for the leisure of the rich and a graduated consumption tax (but not a flat consumption tax).³

2. Veblen Effects on Work Hours

Veblen held that consumption is motivated by a desire for social standing as well as for the enjoyment of the goods and services *per se* (page numbers are from (1899/1934):

the proximate ground for expenditure in excess of what is required for physical comfort is ...a desire to live up to the conventional standard of decency...(81)

³ Corneo and Jeanne (1997) analyze optimal taxation in Veblen-inspired model of an indivisible conspicuous consumption good with both snobbish and conformist consumers. As in the model below the tax implications of the Veblen effects they model depend on the number of consumers.

His key idea was that the best off members of a community -- “the leisure class” -- establish the standards for the rest.

The leisure class stands at the head of the social structure in point of reputability; and its manner of life and its standards of worth therefore afford the norm of reputability for the community. (70)

But why is it the consumption of the leisure class that is emulated rather than their leisure? Veblen’s response was that under modern conditions consumption is a more visible form of display.

The exigencies of the modern industrial system frequently place individuals and households in juxtaposition between whom there is little contact in any other sense than juxtaposition. One’s neighbors, mechanically speaking, often are socially not one’s neighbors, or even acquaintances; and still their transient good opinion has a high degree of utility. The only practicable means of impressing one’s pecuniary ability on these unsympathetic observers of one’s everyday life is an unremitting demonstration of the ability to pay. ..The means of communication and the mobility of the population now expose the individual to the observation of many persons who have no other means of judging his reputability than the display of goods...71

As a result:

.... the present trend of the development is in the direction of heightening the utility of conspicuous consumption as compared with leisure. (72)

Veblen’s ideas are thus a precursor to the contemporary theory of costly signaling of otherwise unobservable qualities initiated in economics by Spence (1973) and in biology by Zahavi (1975).⁴

The following model embodies the two propositions underlying Veblen’s account, namely that people compare consumption (or wealth) but not leisure, and that they refer upwards, choosing their work and spending activities in order to be more like a higher income group rather than seeking distance from lower income groups. Suppose individuals differ in some trait that influences hourly wages and that they choose their hours of work (h) to maximize a utility function, the arguments of which are leisure (which we normalize as $1-h$) and what we term effective consumption, c^* defined as their own consumption level (c) minus a constant v (for Veblen) times the consumption level of some higher income reference group

⁴ See the works cited in Gintis, Smith and Bowles (2002).

(\tilde{c}). The individual's reference group might be the very rich, or it might be an intermediate group. The reference group's rank in the income distribution is taken as exogenous, as is the Veblen constant v . It may be convenient to think of each individual as belonging to a homogeneous income class, each member of which takes the next highest income class as its reference group (the richest class have no reference group.) Together the reference group and v measure the nature and intensity of the relevant social comparisons. Individuals do not save, so $c = wh$ where w is the wage rate. Thus for some individual not in the richest group we have

$$(1) \quad u = u(c^*, h)$$

$$u = u((wh - v\tilde{c}), h)$$

which is increasing and concave in its first argument and decreasing and convex in the second. Leisure and consumption are complements so $u_{c^*h} < 0$. The effect of increased consumption by members of the reference group thus is both to lower the utility of the individual and to raise the marginal utility of effective consumption. The individual will choose hours to be h^* , namely that which equates the marginal rate of substitution between leisure and effective consumption to the wage rate.⁵

We can now consider the effects of a mean-preserving spread of the distribution of income (raising \tilde{c} relative to wh for every income class except the richest). Differentiating this first order condition (and using the second order condition) we find that $dh^*/d\tilde{c}$ has the sign of $-(u_{c^*c^*} + u_{c^*h})$, which is positive, the effect of the larger gap between the consumption levels of the individual and the reference group being to raise the marginal utility of consumption relative to the marginal utility of leisure, inducing an increase in the hours of work. Variations in the Veblen constant have the same sign: $dh^*/dv > 0$ reflecting an increase in the intensity of social comparison and perhaps capturing the negative effect of TV watching on saving in Schor's study. It is readily shown that if the reference group were the poor (others seeking to distance themselves from the reference group) then an increase in inequality would induce a reduction not an increase in work hours, giving us an unambiguous and empirically testable Veblen hypothesis distinct from seeking distance from the poor, or social comparisons generally.

⁵ If the utility function is Cobb-Douglas in leisure and effective consumption (with a the coefficient of c^*) then the choice of hours is such that

$$h^*/(1-h^*) = a/(1-a) + v\tilde{c}/w(1-h)$$

with the increased hours indicated by the second term on the righthand side representing the Veblen effect (if $v = 0$, $h = a$).

As the purpose of the model is simply to motivate an empirical investigation, it would be unilluminating to take account of many income groups and reference groups and to study the way that an income increase among the well to do may affect a sequence of groups lower in the income distribution. One aspect of the model, however, does deserve comment, namely the assumption that individuals choose their hours of work. In a collective bargaining framework or an efficiency wage model employers play a major role in setting work hours and the relationship between individual preferences and observed hours may be considerably attenuated. Not surprisingly, a significant fraction of employees in the advanced economies would prefer hours different from what they have (Bell and Freeman (2001)) However in the studies reported, a majority preferred current pay with current hours (rather than more hours and more pay, or less hours and less pay) and Bell and Freeman report evidence from the most European Community workers would prefer increases in pay (at the current hours) to decreases in hours (at the current total earnings) suggesting that they are close to the hours they would have chosen, even if the institutional setting allows no direct relationship between individual hours choices and outcomes. This may reflect that fact that employers and unions alike have an interest in taking account of employee preferences concerning hours of work (to maximize job rents and improve labor discipline, for example), even if this interest competes with tax and benefits arrangements which sometimes produce significant differences between actual and desired hours.

3. Empirical Results on Work Hours and Inequality

We use data on annual hours of work for manufacturing workers for 10 advanced economies (provided by the U.S. Bureau of Labor Statistics.) Summary statistics of the data used is provided in an appendix available from the authors. The annual data for the ten countries presented in Figure 1 indicate substantial and growing differences between economies. The work year in Germany exceeded that in the U.S. by 380 hours in 1950 (not shown) and by 157 in 1960, and had fallen to 447 hours less than the U.S. by 1998. Most countries show some decline in hours prior to the early 1980s followed by a leveling off or increase (in Sweden the work year fell by 415 hours over the first two decades and then increased by 202 hours between 1980 and 1998).

[Figure 1 about here]

Our measures of inequality are taken from Atkinson (1995). The authors warn that even the relatively high quality Luxemburg Income Study data may be non comparable across economies, providing a reason to prefer the country fixed effects estimates below (which approximate within country comparisons). We have included any country on which we have hours data and two or more measures of inequality, restricting our sample to the years 1968-1992. Figure 2 presents the raw income inequality (Gini coefficients) data along with the annual hours, as well as the country means for these variables. The positive relationship

($r=0.84$) is remarkably strong, but could arise from covarying influences on hours and inequality.

[Figure 2 about here]

We therefore estimate a more complete model.

$$(3) \quad h^{it} = a + bg^{it} + cx^{it} + \lambda^i + \mu^{it}$$

where h^{it} is the natural logarithm of hours in country i in time t , g is the gini coefficient or some other measure of inequality, x^{it} is a vector of other possible exogenous influences on hours (with c its vector of estimated coefficients), λ^i is a country fixed effect and μ^{it} is an error term. The country fixed effects will take account of cultural and institutional differences and other country specific unobserved influences on hours. Among the x -variables we considered union density (to capture possible institutional differences), real gross domestic product per capita (to measure possible influences of income levels on consumption and leisure preferences) and real manufacturing wages (to capture possible labor supply effects).⁶ The latter two were expressed in common units using purchasing power parity conversions. Because hours vary cyclically in ways which do not reflect the underlying structure of this model, we also include a measure of the deviation of total manufacturing employment from its five year moving average. Finally we included a linear time trend to capture the possible effects of changes in preferences (or other determinants of work hours) possibly reflecting the diffusion of what Inglehart (1977) terms “post materialist values.”

We begin with three ordinary least squares estimates (suppressing the λ^i in (3)). In equations (1) to (3), the coefficient of g is highly significant with the positive sign consistent with the hypothesized Veblen effects. The quite substantial fraction of the variance of h explained by g alone is striking. Equations (2) and (3) suggest that unions reduce work hours, along with other influences which covary with time. The highly significant negative coefficient of the wage in equation (3) could reflect a backward bending individual labor supply function but as it is estimated from aggregated data is consistent other interpretations as well.⁷

[Table 1 about here]

⁶ We treat g as exogenous. Changes in manufacturing hours affect total labor supply and thereby might influence g , but this effect would operate via wage rates, and we assume that these effects, if they exist, are captured by our wage variable.

⁷ Our estimate of the coefficient of the logarithm of wages is very close to the simple average of all the estimates of the labor supply elasticity (-0.12) reported in Pencavel(1986).

Equation (4) to (6) present the country fixed effect specifications. The size of the coefficient of g is substantially reduced (as would be expected because fixed effect estimation greatly exaggerates the downward bias in the coefficient if there is measurement error in g); but it remains highly significant. In none of the fixed effects estimates was the union density variable even marginally significant and its coefficient was drastically reduced (equation (6) is typical of many specifications in this respect), so we conclude that its significance in the OLS equations may have been due to covarying unobserved characteristics of the different countries. By contrast notice that size of the coefficient on wages is unaffected by the fixed effects, and its significance greatly enhanced; we conclude that the wage variable is not picking up country effects.

The specific country effects (from equation 4) indicate major differences among the countries due to idiosyncratic effects uncorrelated with the regressors. Sweden and Norway are similar in their short work year while the English-speaking countries are distinct and not significantly different from one another in their long work hours; the remainder of the continental countries occupy a middle ground with Belgium closest to the Nordic pattern. The country effect difference between the English speaking and the Nordic group is about 300 hours per year, indicating large idiosyncratic effects presumably due to cultural political and other differences.

The estimated effects of inequality on work hours are also quite substantial: a standard deviation change in the gini coefficient is associated with a change in work hours of somewhere between 7 per cent and three percent (using the coefficients from equations 3 and 6, respectively). Taken literally the fixed effects estimate of the coefficient indicates that the difference in the U.S. and Swedish gini coefficient in 1992 accounts for about 40 percent of the difference between the hours of work in the two countries.

The fact that inequality predicts work hours of is consistent with the Veblen effects proposed at the outset, but there are other consistent explanations. Linda Bell and Richard Freeman (2001) have suggested that inequality induces longer work hours because those who work longer hours attain a higher percentile rank in the wage distribution at the workplace and an increase in rank implies greater wage gains the more unequal is the wage distribution. They provide evidence for the U.S. and Germany that wage inequality within detailed occupation/industry cells is positively correlated with work hours for those working more than thirty-five hours per week and longer.

Discriminating empirically between this incentive-based account and the Veblen effects interpretation offered here may be impossible, and is very likely that both incentive and Veblen effects are at work. However, we are not persuaded that Bell and Freeman are correct. First, Bell and Freeman treat long hours an effective signal of a difficult to observe quality likely to result in promotion; and while this may be true for young lawyers as in the

account by Landers et al (1996), we think it more likely that hard work when on the job (that is, effort, not hours) is a more common way to move up. Second, while hours may be set by employers or employees and unions jointly to take account of employees preferences concerning work hours, this is not generally done on an individual basis, and there is often little flexibility for the individual to vary work hours, thereby making the signaling argument they advance irrelevant in many jobs. Third, the fact that their inequality hours relationship is much weaker (in both the U.S. and Germany) for all workers (rather than just those working full time or more) is not easy to reconcile with their model. Finally Bell (1998) found that black workers in the U.S. in 1990 are more responsive to measures of earnings inequality among blacks only. Bell suggests that this may be because the black-only distribution is a better indicator of the gains to working longer hours (but points out that it is not easy to explain why this would be so). A more parsimonious explanation might be that the relevant reference group for black workers is other blacks, and their response to measures of black-only inequality is picking up a Veblen effect.

4. Normative implications

If Veblen effects of the type modeled here are important, there may be a case for public policies to limit consumption on the conventional grounds that it generates social costs not accounted in the private calculations of the consumer. Frank (1997) and others have recently proposed exempting savings from taxable income on just this grounds.⁸ Veblen effects are an example of this class of consumption externalities, but with the two following special characteristic.

First, while the usual consumption externalities are symmetrical (my consumption reduces the well being of the Jones' I am trying to keep up with, just as theirs reduces mine), Veblen effects are asymmetrical: if the Jones' are richer than me, they do not care about my consumption but instead are trying to keep up with some richer reference group. Thus Veblen effects cascade downward through the income distribution with the richest group inflicting subjective costs on the next group, whose emulation of the consumption of the rich then augments its own consumption level thus passing additional subjective costs to the groups further down.

A second difference is that the influence of a reference group may be substantially independent of its size, so a relatively small number well-off consumers may constitute the reference consumption standard for a much larger number of less well off individuals and their consumption decisions may inflict subjective costs on large numbers of less well off individuals. For both reasons -- the asymmetry of the effects and the differing sizes of various

⁸ Among others, Boskin (1978), Ireland (1994) and Oswald (1983) have made similar proposals.

ranks in the income distribution -- an appropriate policy response to Veblen effects may be a progressive consumption tax rather than the flat consumption tax implied by symmetrical consumption externalities.

To see why this is true take a simple two class society in which there is are a number (normalized to unity) of well off individuals indicated by the superscript r, and a larger number, n, of less well off people. As our point is to clarify the logic of Veblen-effect correcting policies rather than to advocate particular policies, we will retain our simplifying assumptions (including that there is no saving); we also set the wage of the less well off at unity. Suppose that all (the rich and the not so rich) share the following utility function (a variant of (1) used above).

$$(4) \quad u = \ln c^* - \delta h$$

which in the absence of Veblen effects ($v = 0$, so $c^* = wh$) would lead each utility maximizing individual to set $h = 1/\delta$. With $v > 0$ the work hours of the rich are unaffected, but the rest will now set their work hours (h^n) at

$$(5) \quad h^n = 1/\delta + vw^r h^r$$

that is, they work more hours, as we would expect.

Suppose a social planner wished to know what level of work hours of both groups would maximize the sum of utilities in this society or

$$(6) \quad \omega = \ln(h^r w^r) - \delta h^r + n[\ln(h^n - vw^r h^r) - \delta h^n]$$

The planner would know that in the social optimum the consumption of the well off will be less than under private optimization, and because there are no savings, the only way to accomplish this is to reduce the work hours of the well off. As the work hours of the lower group generate no externalities (they are the reference group for no-one) the planner would simply vary h^r to maximize ω , using (5) to take account of the endogenous response of h^n to the planner's chosen level of h^r . While private optimization induces the rich to equate the marginal contribution of work to (private) consumption utility ($1/h^r$) to the (private) disutility of labor (δ), the planner's optimum problem shows that social welfare optimization requires

$$(7) \quad 1/h^{r*} = \delta + \delta n v w^r$$

where the first term on the right is the private cost (disutility of labor) and the second accounts for the marginal social cost imposed on those attempting to emulate the well to do. The aggregate-welfare maximizing level of work hours of the rich is thus given by

$$(8) \quad h^{r*}(1 + nvw^r) = 1/\delta$$

which shows that the welfare optimum requires the rich to work less than $1/\delta$ by a proportional amount nvw^r which is equal to the sum of the loss in effective consumption imposed on the lower income group. The required change in the work hours of the rich is proportional to both the relative size of the two income groups and to their wage rates.⁹ As the social optimum requires a change in the labor leisure allocations of the higher income reference group but not of the lower income group, the social planner will not introduce an across the board consumption tax (applying to both groups). A well designed policy will target the consumption of the rich specifically, as it is this which generates the negative externalities.

It is obvious from (7) that the implied reduction in the work hours of the rich could be implemented by policies which enhance their marginal utility of leisure (or what is equivalent, increasing their marginal disutility of labor) by a proportional amount δnvw^r . Under these conditions the rich would maximize

$$(9) \quad u^r = \ln(h^r w^r) - \delta h(1 + nvw^r)$$

and their private optimization would give the first order condition (7) thus implementing (8). Implementing h^{r*} in this manner does not maximize aggregate utility of course unless the required policies have no other effects.

Suppose the social planner's only instrument is a linear tax which he may apply to the consumption of the well off. The particular utility function used in this model implies that the tax will not affect the labor hours they perform so a tax at rate τ will reduce the consumption of the reference group by the same rate. Assuming that the tax revenues, when spent, yield a per dollar contribution to aggregate welfare of β , the planner will vary τ to maximize (10)

$$(10) \quad \omega = \ln(h^r w^r (1 - \tau)) - \delta h^r + n[\ln(h^m - v w^m h^r (1 - \tau)) - \delta h^m] + \beta \tau w^r h^r$$

The optimal tax rate τ^* will equate the marginal benefits (reduced Veblen effects for the less well off, as well as β) to the marginal costs (in reduced consumption) to the well off. This can be seen (using (5) and $h^r = 1/\delta$) to require that

$$(11) \quad nvw^r + \beta w^r h^r = 1/(1 - \tau^*),$$

⁹ Were there m members of a third (poorer) class with a wage rate w^o and hours of work h^o , a tedious calculation shows that

$$h^{r*}(1 + vw^r(n + mv/w^o)) = 1/\delta$$

so, assuming $\beta=0$ (as we are not concerned with unrelated benefits of the tax policy), and $nvw^f < 1$,

$$(12) \quad \tau^* = 1 - 1/nvw^f$$

which as expected is increasing in the relative size of the less well off group, the size of the Veblen effect, and the relative wages of the better off group.¹⁰

5. Conclusion

The design of policies to attenuate possible market failures arising from Veblen effects requires attention to considerations wholly absent above, including their effects on savings, distributional impacts and political viability (the public might not favor subsidizing wilderness retreats for the well off, even if, as the leisure subsidy example requires, they were inconspicuous!) We will not address these issues here. It is clear, however, that policies designed to discourage consumption *per se* (such as the flat consumption tax discussed by many authors) are not optimally designed to address Veblen effects. The reason is that where Veblen effects are important, the social costs imposed by consumption depends on who is doing it, on the structure of reference groups (who cares about whom) and the size of the hierarchically ordered reference groups. The consumption of those who, like the well to do, are directly or indirectly reference models for many would ideally be treated differently from the consumption of those who are models to none or few.¹¹

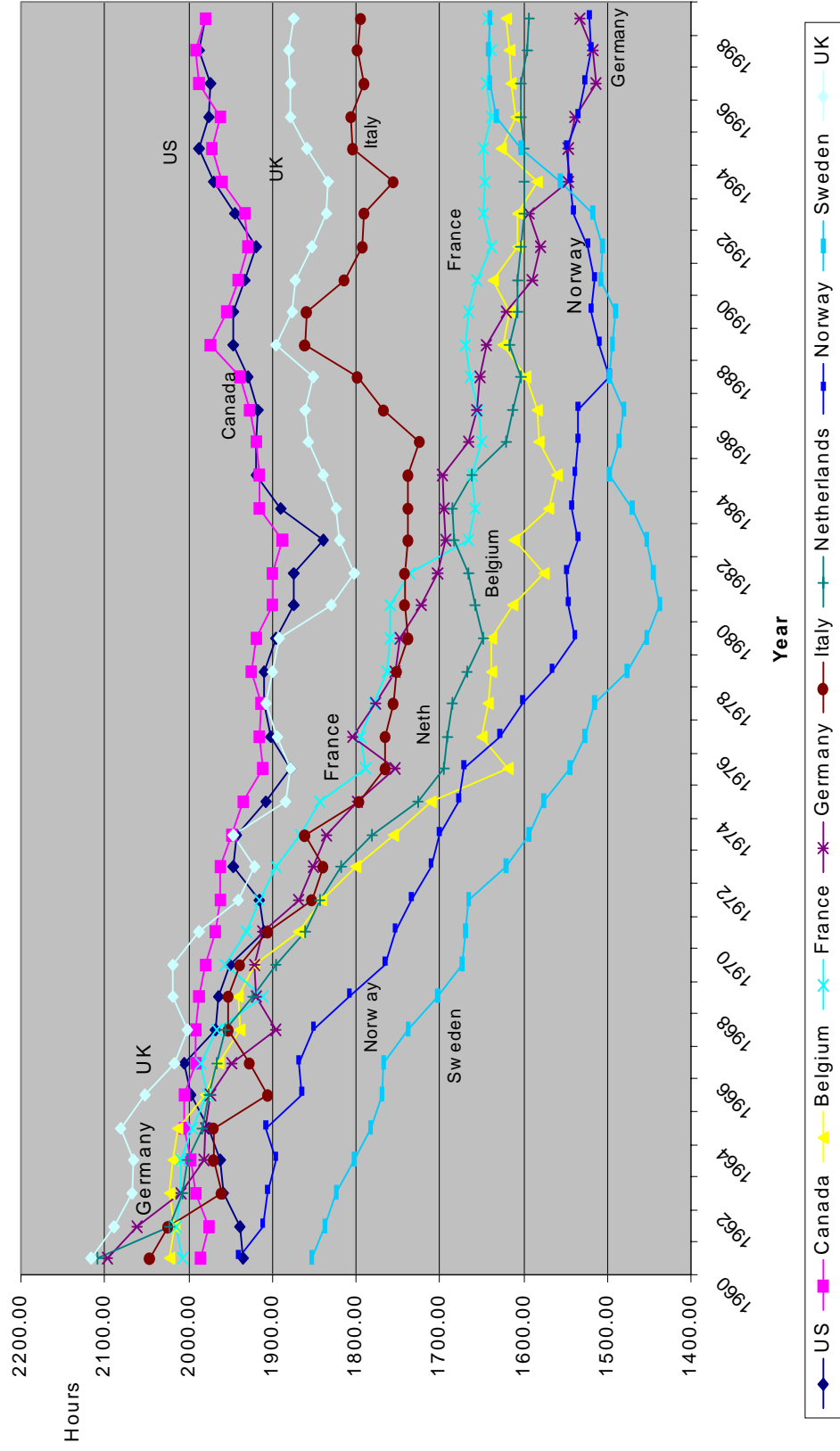
¹⁰ If there exists a third, poorer class, as defined in the previous footnote, and the intermediate class is taxed at the rate $\tau^m < 1$, the optimal tax on the consumption of the rich increases to

$$(12') \quad \tau^* = 1 - [nvw^f(1+mv(1-\tau^m)/nw^o)]^{-1}$$

to take account of the indirect Veblen effects (via increased work and consumption by the middle group) on the well-being of the poorest group (the increase in τ^* varying positively with the relative size of the poorer class and inversely with its wage.)

¹¹ A government that sought to increase output (rather than maximizing the sum of utilities) could mobilize Veblen effects by shifting the tax burden from the rich to the less well off, thereby inducing higher levels of work hours among the latter.

Figure 1: Average Annual Work Hours of Manufacturing Employees



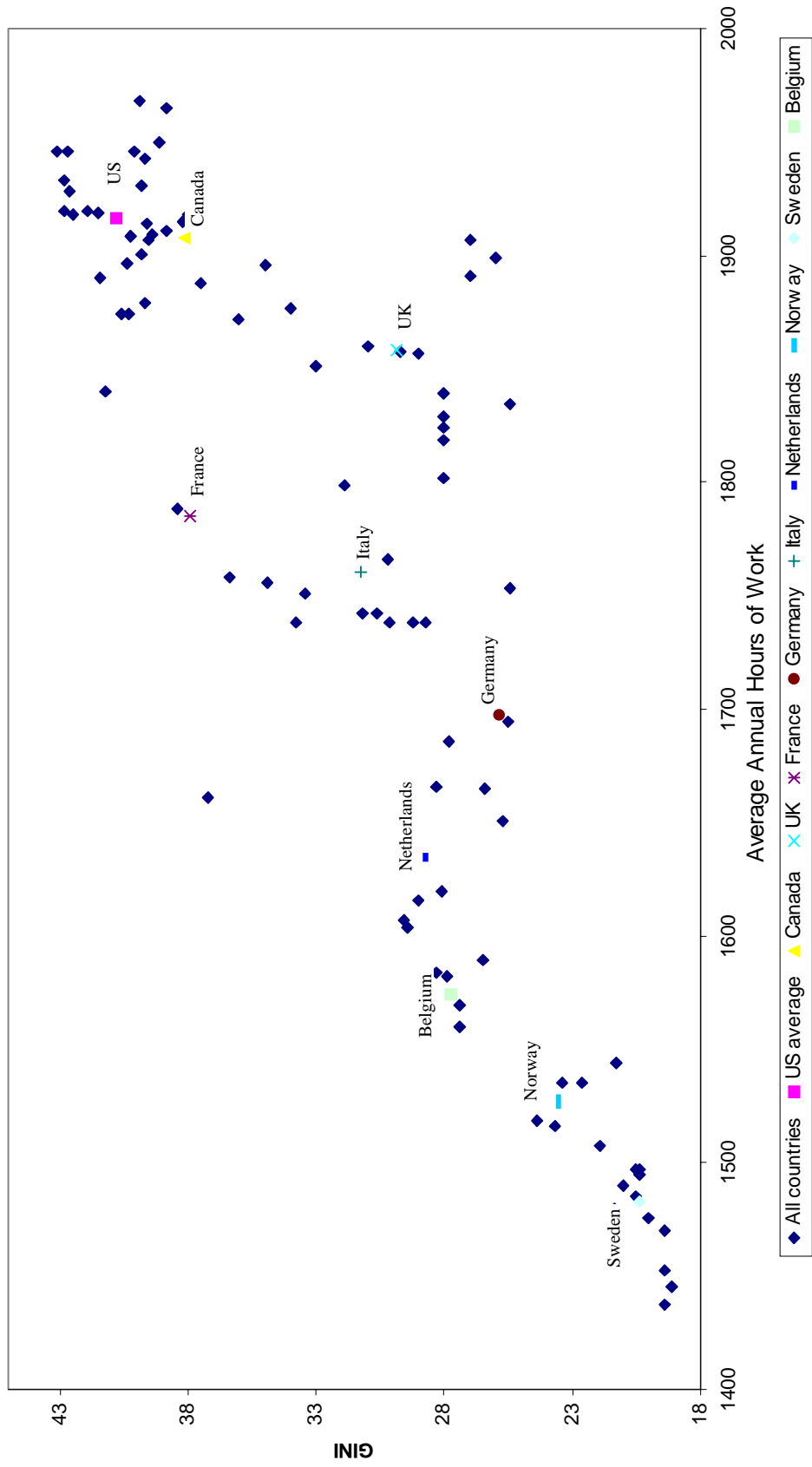


Figure. 2. Work hours and income inequality: annual data and country averages

Table. 1 Work hours of manufacturing employees, ten OECD countries, 1968-1992

	1	2	3	4	5	6
CONSTANT	9.416 395.79	9.627 147.46	9.725 115.43	9.562 320.08	9.746 224.28	9.741 89.63
GINI	1.112 15.198	0.733 5.246	1.013 5.950	0.356 2.222	0.422 2.969	0.425 2.657
NYEAR		-0.251 -2.701	-0.326 -2.476	-0.175 -3.380	-0.197 -3.088	-0.196 -2.863
UNION		-1.295 -2.721	-0.921 -1.819			0.038 0.045
LNRWAG			-0.098 -2.700		-0.108 -4.658	-0.108 -4.477
RES2	0.191 0.697	0.236 0.913	0.217 0.728	0.209 1.718	0.246 2.249	0.245 2.189
Sample Size	91	91	81	91	81	81
R squared	0.724	0.763	0.757	0.956	0.974	0.974
Adjusted	0.718	0.752	0.741	0.949	0.969	0.968

Note: the dependent variable is the natural logarithm of work hours of manufacturing employees, ten OECD countries, 1968-1992. The first row for each variable is the estimated coefficient, the second is the t-statistic. Column 4, 5, 6 are include country fixed effects, while column 1, 2, 3 are OLS.

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