



# Socialism vs Social Democracy as Income-Equalizing Institutions

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Socialism is defined as a normative property of an allocation: that the allocation of labor and output be Pareto efficient, and that output received by individuals be proportional to the value of the labor they expended in production. Social democracy is an institution: the redistribution of income through taxation, with a system of private ownership of capital. We present a stylized parameterization of the US economy and compute its (unique) socialist allocation, and the Gini coefficient of the income distribution in that allocation. We compute the Gini coefficient of after-tax income in the present US “social democracy” and show that it is *lower* than in the socialist allocation. Hence, socialists must choose between two mutually exclusive alternatives: eliminating exploitation in the Marxian sense (achieving socialism, as defined above), or equalizing income. We propose that egalitarians must go beyond socialism, as it has been classically conceived.

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## INTRODUCTION

Disagreements between socialists and social democrats have festered since the beginning of the 20th century. Originally, the central conflict concerned the path to socialism: socialists argued that revolutionary struggle was the only way, while social democrats argued for “boring from within” by participating in elections and traveling the parliamentary road. It is by no means clear with whom Marx and Engels would have sided on this issue: Engels famously remarked that when workers received the franchise, socialism would come quickly through the ballot box. An engaging discussion of the social democratic electoral strategy in the first half of the 20th century is Przeworski and Sprague [1986]. For an exhaustive history of these debates, see Sassoon [1996].

There is, however, a second distinction between socialism and social democracy that seems more pertinent today, when democracy has become the pervasive institutional desideratum, at least in the advanced countries, and that is with respect to the dimension of income distribution. Socialism, as defined by Marx, was an economic system in which capitalist exploitation had been eliminated. This means that the distribution of society’s output to its producers was in proportion to the value of labor they expended in its production (on which more below). *One* institutional proposal whereby such a distribution could be achieved, perhaps, is nationalization of the capital stock, followed by the distribution of the entire product to workers, in the proportions just described, in lieu of using the capitalist system of distribution, in which the product is distributed in part to workers in proportion to the value of their labor and in part to the owners of capital in



proportion to the value of their contributed capital. But this institutional proposal should not be viewed as the *definition* of socialism: it is merely a tactic of implementation, which the centrally planned economies tried — at least, so the justification goes. The *definition* of socialism is an allocation in which capitalist exploitation has been eliminated. (See, e.g., Roemer [1982] for formal definitions of exploitation.) This is summed up in Marx's phrase that socialism's allocative rule is "from each according to his ability, to each according to his *work*," while the more advanced stage of communism was defined as one in which distribution would be not according to work but *need*. Those whose work is more valuable receive more under socialism than others do.

Some may question my claim that the distributional rule of socialism is "distribution according to the value of labor performed" rather than "distribution according to labor time worked," where time might be altered by intensity in the sense of physical exertion. The difference, here, is that the "value of labor" is labor time multiplied by an appropriate efficiency or skill factor and "labor time" is hours of work, multiplied, perhaps, by a measure of intensity but not skill. I believe the only sensible definition is the value-of-labor one. For exploitation is the appropriation of "surplus value," and that must be the value of the product minus the value of the labor embodied in it. Clearly, the value of the product will include the value of *skilled* labor applied in its production, and so the elimination of exploitation must entail that the contribution of skilled labor goes to the skilled laborer. Those who seek clarification in the Marxian texts find ambivalence: in *Critique of the Gotha Program*, Marx (1875) writes that "labor, to serve as a measure, must be defined by its duration or intensity..." and later in the same paragraph writes that the *equal right* of labor is "...an unequal right for unequal labor...[which] tacitly recognizes unequal individual endowment, and thus productive capacity, as a natural privilege. It is therefore a right of inequality." Clearly, the second quotation values labor by its skill.

Social democrats, however, were not primarily concerned with the elimination of capitalist exploitation, but rather with achieving a more equal distribution of income than was associated with *laissez-faire* capitalism. The model that was implemented in the Nordic countries, with great success, used taxation rather than nationalization. Firms remained, in Scandinavia, almost entirely privately owned, and their ownership was quite concentrated, but income and consumption taxation succeeded in redistributing income substantially. (This is not the sole technique they used to achieve relative income equality: there is also the "solidaristic wage" policy, which reduced wage differentials considerably compared to what transpired in other advanced capitalist countries.)

Perhaps because the classical Marxist *model* assumed that workers were homogeneous in skill (as proposed in *Capital*, Volume 1), socialists have tended to associate the elimination of exploitation with the achievement of income equality. But this is a false association, because in reality — certainly today, if not when Marx wrote — the distribution of skills is extremely heterogeneous. If, *per* socialism, the product were to be distributed in proportion to the value of labor expended, there would still be considerable income inequality. It is even conceivable that the socialist allocation (which we will define in a precise way below) would sustain more income inequality than would a social democratic regime that redistributes income through taxation, but makes no attempt to eliminate exploitation in the Marxian sense.

In this article, I will define precisely, for a simple model, what the socialist allocation is. I will then calibrate the model to the American economy, and ask:



What degree of income taxation and redistribution would achieve the same Gini coefficient of income as the socialist allocation would? It turns out that, given the skill distribution in the United States today, the socialist allocation would produce slightly *more* income inequality than exists in the present American after-tax distribution of income.

Socialists must therefore resolve for themselves the following dilemma: if it is primarily *income inequality* with which they are concerned, then there seems little point in advocating *socialism* as a goal. If, however, they continue to advocate the elimination of capitalist exploitation, then reasons beyond the achievement of income equality must be provided. I will offer several proposals in the conclusion for what those reasons could be, although they may not be convincing, to myself or others. The alternative move, which I advocate, is to go beyond socialism, as classically defined, as the desideratum.

There is a similarity in spirit between this paper and recent work by Saez [2005], who shows that those at the top of the current wealth distribution in the United States are now individuals whose income is earned as opposed to unearned (in the sense of being labor income rather than capital income); this contrasts with a century ago, when those at the top received their income primarily from capital. If the wealthiest people in capitalist society are simply those who receive high returns to their labor, then the Marxist critique of capitalism is weakened. Those who are disturbed by income inequality, in this case, should be concerned with reducing inequality in the distribution of skills, through education, the solidaristic wage, and the redistribution of income, rather than with the elimination of exploitation.

## THE ECONOMIC ENVIRONMENT AND THE SOCIALIST ALLOCATION

I work with an economy that produces a single good from capital and labor, measured in efficiency units, according to a Cobb–Douglas production function:

$$(1) \quad y = \delta K^{1-\alpha} \ell^\alpha$$

where  $K$  is the capital and  $\ell$  is the labor measured in efficiency units. All outputs and inputs are measured in per capita terms, as the economy will have a continuum of agents. Agents are endowed with skill levels  $s$ , distributed according to a distribution function  $F$  on  $\mathbb{R}_+$ . If an agent with skill level  $s$  works for  $L$  time units, then she produces  $sL$  units of labor, measured in efficiency units. Agents are also endowed with capital: we will assume that the distribution of capital is according to a power function, so that the amount of capital owned by an agent of type  $s$  is  $\beta s^d$ , where  $\beta$  and  $d$  are parameters to be estimated. This assumption is meant to represent the empirical fact that capital ownership increases sharply with earned income. Thus, society's per capita social endowment of capital is  $\bar{K} = \beta \int s^d dF(s)$  and the per capita social endowment of labor in efficiency units is  $\int s dF(s)$ .

Each individual has a utility function over consumption and labor given by:

$$(2) \quad u(x, L) = x - \gamma L^{1+1/\eta}$$

The labor-supply-elasticity with respect to the wage, or to an income tax rate, is constant at  $\eta$ .  $L$  is measured in labor hours, not in efficiency units. What matters to the worker is leisure time and consumption.

Thus, the economic environment is completely specified by the data  $e = (F, \alpha, \beta, \delta, d, \gamma, \eta)$ . We denote the density function of  $F$  by  $f$ .

A *socialist allocation* for this environment is a feasible allocation with two properties:

- (1) output received by each individual is proportional to the efficiency units of labor that she expends in production, and
- (2) the allocation is Pareto efficient.

Formally:

Definition 1 A *socialist allocation* for  $e$  is a pair of functions  $(x(s), L(s))$  and a number  $c$  such that:

- (1) for all  $s$ ,  $x(s) = cL(s)$
- (2)  $\delta\bar{K}^{1-\alpha}(\int sL(s)dF(s))^\alpha = \int x(s)dF(s)$ , and
- (3)  $(x(\cdot), L(\cdot))$  is Pareto efficient.

Condition (1) states that there is no exploitation: output is distributed in proportion to efficiency units of labor expended. Condition (2) says that the allocation is feasible. Condition (3) need hardly be defended.

This concept was introduced originally in Roemer and Silvestre [1993]; they called such an allocation a *proportional solution*. I reiterate that in the socialist allocation, output is distributed in proportion to efficiency units of labor expended, not labor time. Thus, the implicit property right is that workers are the rightful owners of their skills. Marx, indeed, said that socialism was a system of “bourgeois right,” by which he meant that, during that historical stage, workers did (continue to) own their skills. John Rawls [1971] famously challenged this bourgeois right when he said that, from a moral viewpoint, talents and the outcome of the birth lottery were morally arbitrary, and the returns to them should be redistributed, as much as is consistent with avoiding deleterious incentive effects.

There are two proofs that the proportional solution exists under rather mild assumptions on the production function and the utility function: the first is found in Roemer and Silvestre [1993], and the second, under somewhat different premises, is presented in Roemer [2006]. Like Walrasian equilibrium, the proportional solutions for an economy are locally unique, and we shall see that the special economy defined here will possess precisely one of them.

The easiest way to compute the socialist allocation is to make use of a remarkable property that it possesses. Consider the following experiment. A labor allocation  $L(s)$  is proposed that defines how much labor (in time units) each individual of type  $s$  should expend. Capital is pooled. This produces an amount of output per capita given by  $\delta\bar{K}^{1-\alpha}(\int sL(s)dF(s))^\alpha$ , which is now distributed in proportion to efficiency units expended,  $sL(s)$ . If we start with an arbitrary labor allocation  $L(s)$ , the resulting allocation will not be Pareto efficient. One can prove that the proportional solution is a labor allocation  $\hat{L}(s)$  characterized by this property: *no* agent would prefer that *all* agents expand (contract) their labor supply by *any* positive factor, with the output again to be distributed in proportion to labor expended.

To define this property formally, let us define the factor of proportionality if every agent were to change his labor supply by the positive factor  $\varepsilon$  at some given labor allocation  $\hat{L}(s)$ : it is given by

$$(3) \quad c(\varepsilon) = \frac{\delta\bar{K}^{1-\alpha}(\int \varepsilon s\hat{L}(s)dF(s))^\alpha}{\int \varepsilon s\hat{L}(s)dF(s)}$$



or:

$$(4) \quad c(\varepsilon) = \delta \varepsilon^{\alpha-1} \left( \frac{\bar{K}}{\int s \hat{L}(s) dF(s)} \right)^{1-\alpha}$$

We may now state the above property formally:

Fact A labor allocation  $\hat{L}(\cdot)$  generates a proportional solution just in case:

for all  $s$ , the function  $u(c(\varepsilon)\varepsilon s \hat{L}(s), \varepsilon \hat{L}(s))$  is maximized at  $\varepsilon = 1$

The proof of the Fact is given in Roemer [1996, Theorem 6.6, p. 226], and in a more general setting in Roemer [2006]. In those citations, the property that *no agent* would like *all agents* to change their efforts to the same degree is called the *Kantian property*: that is, no agent would advocate a change in his own labor supply unless he were ready to recommend the same proportionate change in everyone's labor supply. This is a version of Kant's categorical imperative.

I proceed to compute the socialist solution for our environment, using the Fact, by setting the derivative of the functions  $u(c(\varepsilon)\varepsilon s \hat{L}(s), \varepsilon \hat{L}(s))$  with respect to  $\varepsilon$  equal to zero, for all  $s$ , at  $\varepsilon=1$  which gives:

$$(5) \quad u_1 s \{c'(1) + c(1)\} + u_2 = 0$$

where  $u_1$  and  $u_2$  are the two first partial derivatives of  $u$ , and  $c'$  is the derivative of the function  $c(\cdot)$ , and the argument of  $u$  is evaluated at  $\varepsilon = 1$ . Using (4), and evaluating the derivatives of  $u$ , compute that (5) implies:

$$(6) \quad \hat{L}(s) = \left( \frac{s \alpha c}{\gamma(1 + 1/\eta)} \right)^\eta$$

where  $c \equiv c(1)$ . By substituting this expression back into (4), we can solve for  $c$ :

$$(7) \quad c = \left[ \frac{\bar{K} \left( \gamma \left( 1 + \frac{1}{\eta} \right) \right)^\eta}{\alpha^\eta \mu_{1+\eta}} \right]^{(1-\alpha)/(1+\eta(1-\alpha))} \delta^{1/(1+\eta(1-\alpha))}$$

where

$$(8) \quad \mu_{1+\eta} \equiv \int s^{1+\eta} dF(s).$$

This defines precisely the unique proportional solution for our economic environment.

We now define the distribution of income at the proportional solution. The income of an agent of type  $s$  is  $cs\hat{L}(s)$ , which, from (6), is just proportional to  $s^{1+\eta}$ . The Gini coefficient is invariant to a scale-factor change in the distribution: hence, the Gini coefficient of income at the socialist solution is just the Gini of the distribution function  $G$  defined by:

$$(9) \quad G(y) = F(y^{1/(1+\eta)})$$

whose density function we compute to be:

$$(10) \quad g(y) = \frac{f(y^{1/(1+\eta)}) y^{-\eta/(1+\eta)}}{1 + \eta}$$

Of course, the support of the distribution  $G$  is  $\mathbb{R}_+$ .

Now, the Gini coefficient of a distribution is written using its density function  $g$  as:

$$(11) \quad Gini(g) = 1 - \frac{2}{\mu(g)} \int_0^\infty \int_0^y tg(t)g(y) dt dy$$

where  $\mu(g)$  is the mean of the distribution  $g$ . Thus, once we have the density  $f$  and the number  $\eta$ , we can compute the Gini coefficient of income in the socialist allocation.

### CALIBRATING THE MODEL TO THE US ECONOMY

Suppose taxation in the United States is characterized by an affine income tax, which collects taxes at a constant marginal tax rate  $t_0$  and redistributes a lump-sum to every agent.<sup>1</sup> There is a single profit-maximizing firm that purchases capital and labor at prices  $(r, w)$ , where  $w$  is the wage for one efficiency unit of labor. Facing the wage  $w$  the worker of type  $s$  solves the labor-supply optimization problem:

$$(12) \quad \max_L (1 - t_0)wsL - \gamma L^{1+1/\eta}$$

giving

$$(13) \quad L(s) = s^\eta \left( \frac{(1 - t_0)w\eta}{\gamma(1 + \eta)} \right)^\eta$$

whence the supply of labor per capita, by integrating (13), is:

$$(14) \quad \bar{L}(t_0) = \int sL(s)dF(s) = \mu_{1+\eta} \left( \frac{(1 - t_0)w\eta}{\gamma(1 + \eta)} \right)^\eta$$

The profit-maximizing first-order conditions for the firm and the clearing of the labor and capital markets give us:

$$(15) \quad w = \delta\alpha \left( \frac{\bar{K}}{\bar{L}(t_0)} \right)^{1-\alpha}, \quad r = \delta(1 - \alpha) \left( \frac{\bar{L}(t_0)}{\bar{K}} \right)^\alpha$$

Here, I have fixed the price of output at one. By using (14) and the wage equation in (15), we can solve for  $w$  in terms of the economy's parameters, and then solve for  $r$ . Once we have these variables, then we can compute the income distribution at equilibrium. Of course, labor's share of total output will be  $\alpha$  and capital's share will be  $1 - \alpha$ , given the Cobb–Douglas production function.

I calibrated the model as follows, using data from 2002 and neighboring years.<sup>2</sup> The share of labor compensation in GNP (first quarter, 2001) is 0.729 (Economic Report of the President); hence,  $\alpha = 0.729$ . I chose  $\eta = 0.035$ , a rather small positive labor elasticity, consistent with common estimates.<sup>3</sup> The mean household income in 2002 was \$57.85 thousand and the median household income was \$42.4 thousand. (I take the household as the "agent" in the model.) Federal tax receipts were 21 percent of GNP, and state income minus federal grants-in-aid was 10 percent of GNP: hence, I take the observed tax rate to be  $t_0 = 0.31$ . I take one unit of labor (full-time) to consist in 5 days  $\times$  16 h  $\times$  52 weeks = 4,160 h per annum. (It will not matter if some agents end up working more than full time: this is just a unit of

account.) Average hours worked were 2,000 per annum in 2002, and so I take the observed labor supply of the average worker to be  $2,000/4,160=0.48$  units.<sup>4</sup>

The distribution of earnings are 1999 data, from the 2000 US Census. I fit a lognormal distribution function to the observed distribution. The best fit is illustrated in Figure 1.

I take the parameters of this lognormal distribution to be the distribution of skills,  $F$ , after normalizing to set mean skill at unity. Thus, importantly, market labor incomes are assumed to be proportional to efficiency units of labor. This is a debatable move: it assumes that the American labor market is perfectly competitive.<sup>5</sup>

Calibrating the distribution of capital ownership is somewhat trickier. I use Wolff's [2004] estimate of the Lorenz curve for financial wealth in the US, for 2001. I take this to be the distribution of capital ownership and try to fit it with the Lorenz curve from a power distribution, where I assume that a citizen with skill level  $s$  owns an amount  $\beta s^d$  in capital. For the Lorenz curve, the parameter  $\beta$  does not matter; I find that setting  $d = 3.6$  gives quite a close fit, presented in Figure 2.

The small dots represent the points from Wolff's estimates and the large dots are from my power distribution with the value  $d = 3.6$ . As one can see, the bottom 60 percent of households own essentially no net financial assets.

According to the Bureau of Economic Analysis, nonresidential fixed assets, private and government, in 2002, were valued at \$17.332 trillion. I take this to be the value of the US capital stock. As my unit is the household, I take capital ownership per household to be \$158.57 thousand. Next, I solve for  $\beta$  from the equation

$$(16) \quad \beta \int s^d dF(s) = 158.57$$

which gives a value of  $\beta = 22.87$ . Finally, I solved for the two remaining parameters  $\delta$  and  $\gamma$ , by targeting on mean income and observed labor time for the average

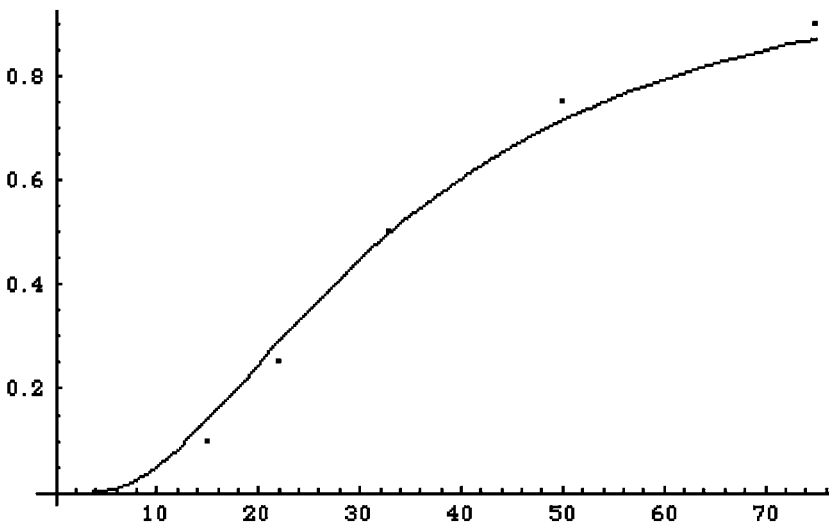


Figure 1. Earnings CDF, observed and lognormal fit.

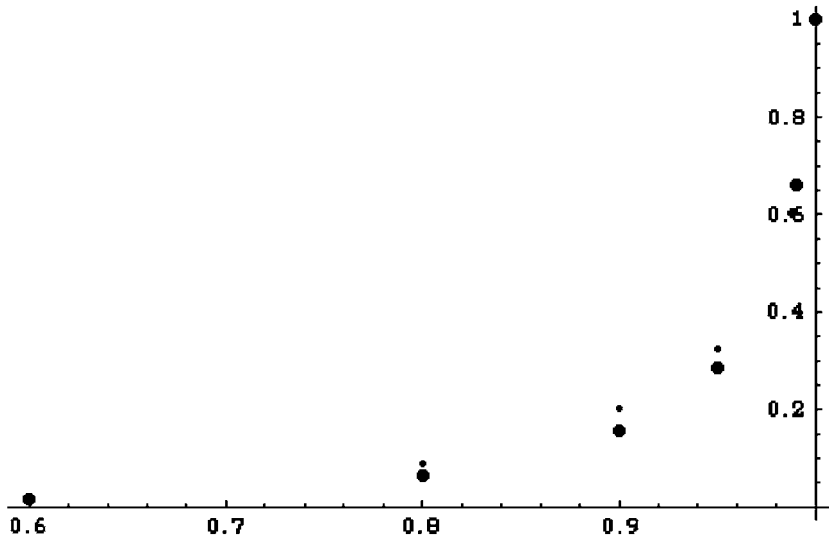


Figure 2. Observed Lorenz curve of financial wealth, fit with power distribution,  $d=3.6$ .

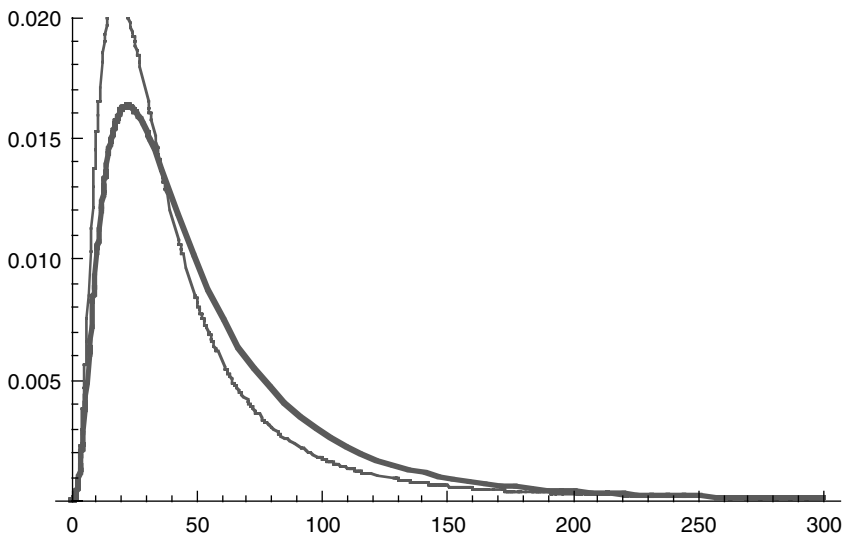


Figure 3. Income densities: “observed” and “model”.

worker, he who has skill level unity, that is:

$$(17) \quad \delta \bar{K}^{1-\alpha} \bar{L}(t_0)^\alpha = 57.85L(1) = 0.48,$$

which gives  $(\delta, \gamma) = (24.997, 1.217 \times 10^9)$ .

How good is the calibration? Of course, by the method described, mean income, work hours of the average worker, and labor’s share will be perfect. In Figure 3, I present two density functions: one is a lognormal density matching the observed median and mean income for 2001, and the other is the density of the predicted

income distribution from the model, where the (pre-tax) income of a household with skill level  $s$  is:

$$y^{pre}(s) = wsL(s) + \beta rs^d$$

The fit is surely imperfect, but given the heroic assumptions of the model, it seems respectable. The Gini coefficient of the estimated distribution of income is 0.544, which is not very different from Wolff's [2004] observed Gini coefficient of 0.562, in 2000.

A word on the computation of the Gini coefficient of the model's income distribution is in order. In (11), we were able to compute analytically the density function of income in the socialist allocation. That is not the case in the market equilibrium. Rather, pre-tax and post-tax income are defined for agent  $s$  by:

$$(18) \quad y^{pre}(s) = wsL(s) + \beta rs^d y^{post}(s) = (1 - t_0)y^{pre}(s) + t_0\delta\bar{K}^{1-\alpha}\bar{L}(t_0)^\alpha$$

The distribution function of pre-tax income is the binary relation  $\{y^{pre}(s), F(s)|s \in [0, \infty)\}$ . To compute the Gini coefficient for the model's income distribution, I graph a discrete approximation to this binary relation, interpolate to form a differentiable function, and then compute its derivative (using *Mathematica*) to find the density function. I then use this density to compute the Gini coefficient according to formula (11).

## INEQUALITY UNDER SOCIALISM AND SOCIAL DEMOCRACY

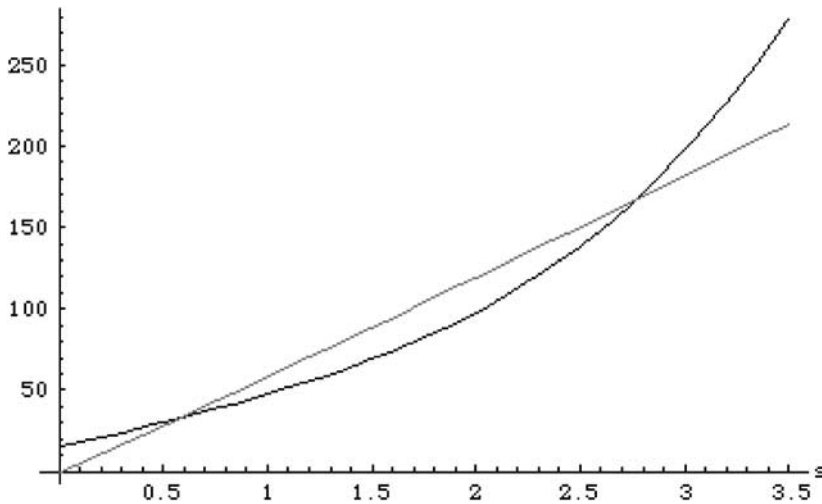
Having calibrated the model, I compute the Gini coefficient of income under the socialist allocation, from (10) and (11); it is 0.406. This relatively high value reflects the great variance in earnings in the United States.

I next compute the Gini coefficient of after-tax income generated in the model (with the private ownership of capital) at the tax rate  $t=0.31$ : it is 0.382. Hence, the model states that the income distribution under US "social democracy" is more equal than the socialist distribution would be in the United States. Given the model's heroic assumptions, I cannot say that this difference in Gini coefficients is significant: let it just be said that the socialist allocation would not be significantly more equal than the American "social-democratic" income distribution.

What would the tax rate have to be to generate the Gini income coefficient of the proportional solution? I find that  $t=0.26$  gives a Gini coefficient of 0.408.

It is also of interest to compare the distribution of welfare in the socialist allocation and the social-democratic allocation with a tax rate of 0.26: these are presented in Figure 4. The straight line gives the utility distribution in the socialist solution.

Hence, normalizing their Gini coefficients of income to be equal, "socialism" gives higher utility to the middle range of skill levels, while "social democracy" gives higher utility to the poor and the very rich. It should be noted that the intersection of these two curves, at about  $s=0.6$ , occurs at the 37th centile of the skill distribution, and the intersection at  $s=2.8$  occurs at the 96th centile. Thus, the bottom 37 percent of the skill distribution are better off under social democracy, but the next 59 percent are better off under socialism. It is to be expected that the lowest-skilled workers will do better under social democracy, for under socialism they are remunerated in



**Figure 4.** Distribution of utility, socialism and social democracy.

proportion to their (very low) skill, but under social democracy they receive a (sizeable) lump sum transfer.

## FURTHER DISCUSSION

If Marxian exploitation — the phenomenon that the distribution of output is not proportional to the value of labor expended by producers — is a form of injustice, then there might well be a reason to favor a socialist allocation over a social-democratic one, even if the two have the same Gini coefficients of income. This is an issue that attracted a great deal of attention in the Marxist literature of the 1970s and 1980s. My own conclusion (see Roemer [1985]) was that exploitation is only a form of injustice if the ownership of capital assets, which led to it, was unjustly established. (For a contrary view, see Cohen [1995, Ch. 8].) Marx [1992, part VIII] was at pains to argue that, in this history of capitalism, this was indeed the case: that the (so-called) primitive accumulation of capital came about through methods of robbery and plunder, a fact he attempted to establish by the study of capital accumulation in England. But if capital accumulation comes about by the application of skill and the voluntary saving of labor earnings, it is not so easy to argue that the ensuing exploitation constitutes an injustice. This is one of Nozick's [1974] important points. Indeed, Nozick argues that if one grants that individuals own their talents (from a moral viewpoint), then a highly unequal capitalism can be justified as an outcome. While there are several ways of challenging his argument, surely the most direct and powerful way is to deny the postulate of self-ownership (of skill) — the move made by Rawls, as I mentioned above.

This is not the place to review these philosophical debates. My calculation in this article is motivated by the belief that most of those who currently call themselves socialists (and there are many of these still — in China, in Vietnam, in Latin America, and in many European countries) advocate socialism because they believe it will radically reduce the degree of *income inequality*. The exercise here indicates

that, with the current distribution of skills, there is little reason to advocate socialism as opposed to social democracy in the United States as a recipe for equality. Of course, here, it is important to emphasize that I am taking socialism to be not a set of institutions but a property of the allocation of labor and output, to wit, that that allocation is *proportional* in the sense defined.

I should add that there is one great advantage of the social-democratic allocation as defined here, compared to the socialist allocation: while the former is achieved through a well-known market mechanism, we do not know how to *implement* the proportional solution with markets. There are ways of implementing the proportional solution (i.e., the socialist allocation) with games (see Suh [1995]; Yoshihara [1999]; and Tian [2000]), but there is (as far as we know) nothing tried and true like a system of markets that will implement it. To see the problem, one can ask: what distribution of the capital stock would generate, as its associated Walrasian equilibrium, the proportional solution for an economic environment? The answer is: let the labor allocation in the proportional solution be  $\bar{L}(s)$ ; then, the capital stock must be distributed in proportion to  $s\bar{L}(s)$  (see Roemer [1996, Ch. 6]). That is to say, we cannot achieve the socialist allocation, via the lump-sum redistribution of capital endowments envisaged by the second theorem of welfare economics, without *already knowing* what the socialist allocation is! With private information on preferences, this is an impossibility.

As I wrote in the introduction, there may be reasons other than the desire to reduce inequality that would cause one to advocate an end to (Marxian) exploitation. Highly concentrated ownership of capital may have deleterious welfare consequences, aside from the inequality it produces. Large owners of capital may have too much political influence; there may be public bads of various kinds associated with the lack of “economic democracy”. (I discussed some of these in Roemer [1994].) Many of the unpleasant features of capitalism, however, may be associated with markets and the psychology and incentives they generate — and we cannot say these things would change with “socialism” if we do not know how to implement the socialist allocation. (If markets are used to implement the socialist allocation, will they not import with them all the old psychological baggage?)

One must also not confuse socialism with democracy. Democracy, as I see it, is a set of political institutions (competitive parties, contested elections, etc.), while socialism, defined here, is a property of an allocation. Thorough-going democracy may well reduce inequality, both through the redistribution of income, and through the educational investments in the population that it engenders. It is much less clear what the relationship between democracy and socialism is. My own view is that democracy tends to eliminate inequality of opportunity — this statement must be qualified — but there is little reason to believe it will eliminate (Marxian) exploitation — and, perhaps, even for those who consider themselves socialists, this should not much matter.

Perhaps the main response a socialist should make to my calculation is the following. Granted that the socialist allocation, given the distribution of skills in the United States today, would bring with it a relatively high degree of income inequality, but under socialism, that distribution of skills would change. If socialism brings the culture and politics that its advocates claim, the skill distribution would become more equal, and so, if one views the problem dynamically, then socialism over time would probably be more income-egalitarian than capitalism with a 31 percent tax rate. Indeed, the high skewness of the distribution of skills in the US is in large part due to inequality of educational opportunity.<sup>6</sup> I sympathize with this

response; however, it is only an acceptable one if we broaden the definition of socialism to include a mechanism for the development of human capital in the population (presumably, some kind of equal-opportunity educational system). That is going beyond the classical Marxist conception of socialism that I have used here, and it may be unwise to do so.

My rhetorical point is that socialism (distribution of output in proportion to the value of labor performed) is not enough. Equalizing opportunities for the realization of skills from natural talents — however that be further articulated — must be of central importance to inequality-averse socialists today. Whether one wants to call someone who focuses upon that kind of opportunity equalization a socialist is a question of semantics. For conceptual clarity and historical accuracy, I prefer to define socialism in the classical way, and therefore to say that, today, egalitarians must go beyond socialism.

To press the point even further: equality of opportunity may not be enough. Imagine that the distribution of innate talents is such that an equal-opportunity educational system would still engender a great deal of income inequality. Many would still advocate redistributive taxation, justifiable under the Rawlsian construal that the distribution of talents is morally arbitrary.

## Notes

1. See Roemer et al. [2003] for evidence that this is not a bad assumption, with regard to effective income taxation. The linear regression of post-fisc income on pre-fisc income has a correlation coefficient of over 0.95, and adding a quadratic term explains little more of the variance.
2. I take average endowments of capital, hours worked, and average income from 2002. But the most accurate estimates of the *distributions* of earnings and capital ownership come from the 2000 census and a 2001 wealth survey, and so these years are used to calibrate those distributions.
3. There is a great deal of controversy about empirical income elasticities, but most agree it is small for men. See Putterman et al. [1998] for discussion and references.
4. This is probably an overestimate, because my unit is the household. If a household has two workers, typically the fraction of total labor time it will provide will be less than this.
5. Aside from the nature of the labor market issue, this procedure involves an approximation. The observed distribution of earnings corresponds in the model to the distribution of  $sL(s)$ , but I am using it to approximate the distribution of  $s$ . The approximation should not be too bad, because the assumed labor supply elasticity is small. I thank Ronald Bénabou for this point.
6. Gil Skillman points out that the proportional solution I calculate ignores the fact that differential wealth of families gave rise to this skewed skill distribution. Hence, the proportional solution, taking into account history, has not eliminated capitalist exploitation, at least from a dynamic viewpoint.

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