What is socialism today? Conceptions of a cooperative society

John E. Roemer
Yale University
john.roemer@yale.edu

- Bernie Sanders and AOC self-proclaimed socialists

- In a poll taken a year ago, 50% of young people (18-34) said they preferred socialism to capitalism

- What is the Sanders/AOC view of socialism? Of these young people?

- It is taxation with investment in education, infrastructure, child-care, college education. Better social insurance, beefed-up anti-trust.

- Implicitly, it is *social democracy*: property relations in firms would remain largely or completely private.

Three Pillars of any economic system

- A *behavioral ethos*
- A *distributive ethic*
- A set of *institutions* (property relations, markets)

Socialism’s three pillars

- A cooperative behavioral ethos — people in solidarity struggling against the constraints of nature

- Distributive ethic: From each according to his ability, to each according to his work

- Property relations: to be discussed here

- Idea: If people behave according to the ethos, then the distributive ethic will be implemented by the institutions

Capitalism's three pillars

- An *individualistic* distributive ethic: each person competes against all other persons, under the constraints of Nature

- Distributive ethic: to each according to what he can get, constrained by laws and contract

- Property relations: Private ownership of all productive factors and firms

My focus here

- To introduce the behavioral ethos of cooperation in economic models with socialist property relations.

- To date, cooperation in *models* of socialism has been limited to alternative property relations — specifically, in which workers receive the entire output of firms

- But alternative property relations are *insufficient* to capture the behavioral ethos of cooperation.

Individualistic ethos in capitalism?

- The individualistic ethos of capitalism is modeled by *Nash optimization* in games. This neatly captures the idea that each economic player is *'going it alone'*

- I'll model socialism's cooperative ethos by *Kantian optimization*. Economic players act *in concert*

Capitalism with taxation

- A single good, produced by $G(K,L)=x$. Households endowed with labor and capital $(\overline{L}^i,\overline{K}^i)$, and with shares fo the firm θ^i. Preferences $u^i(x,L)$.

- An *A-D equilibrium* at tax rate *t* is a price vector (p,w,r), a plan by the firm (K^*,L^*), plans by consumers (K^i,L^i,x^i) such that:

- (K^*,L^*) maximizes profits $pG(K,L)-wL-rK$; denote$\Pi^*=\Pi(K^*,L^*)$

- For every *i,* (K^i,L^i,x^i) maximizes $u^i(x,L)$ subject to

$$px=(1-t)(wL+rK+\theta^i\Pi^*)+\frac{t}{n}(wL^S+rK^S+\Pi^*)$$

- All markets clear: $\sum_i x^i=G(K^*,L^*),\quad K^*=\sum_i K^i,\quad L^*=\sum_i L^i$

- **<u>Proposition 1</u>**. Any capitalist equilibrium at $t = 0$ is Pareto efficient; any equilibrium at $t > 0$ is inefficient.

  - To see the centrality of Nash reasoning, define a game that agents play with these payoff functions:

- $V^i(L^1, K^1, L^2, K^2, ..., L^n, K^n) = u^i\left(\frac{(1-t)(wL^i + rK^i + \theta^i \Pi(K^*, L^*))}{p} + \frac{t}{n}\left(\frac{wL^S + rK^S + \Pi(K^*, L^*)}{p}\right), L^i\right)$

  where $K^S = \sum_1^n K^i, L^S = \sum_1^n L^i$. The f.o.c.s for the Nash equilibrium are:

- $u_1^i \cdot \left((1-t)\frac{w}{p} + \frac{t}{n}\frac{w}{p}\right) + u_2^i = 0$ or $-\frac{u_2^i}{u_1^i} \approx (1-t)\frac{w}{p}$ and

- The deadweight loss of taxation is due to Nash optimization of agents in their factor supply decisions.

- We should not view this as a *market* failure, I claim, but as a failure of the individualistic ethos represented by Nash optimization ….of ‘ going it alone, ’ treating the other players’ actions as parametric rather than part of the action

Arguments for capitalism

- The A-D equilibrium is only Pareto efficient in the absence of taxation

- Prices decentralize the allocation. A central planner would have to solve millions/billions of equations to produce a Pareto efficient allocation, *assuming* it knew all consumers' preferences and all firms' technologies.

- (Dynamics…) Profit-maximization suggests there will be an incentive to *innovate*, improve technology.

- These comprise an argument for capitalism, despite the caveats. The WSJ emphasizes the FTWE on almost every page , every day. They conclude that taxation should be minimal.

Socialist variants

- The challenge is to provide a blueprint that distributes the entire surplus to workers (and investors?) in a way that preserves decentralization but expands the scope for Pareto efficiency .

- I will provide several such. The secret ingredient is modeling the cooperative ethos. Until now, *models* of socialism (that is: precise formulations) have given only lip service — not formal representation — to cooperation.

Kantian optimization: cooperation formalized

- Consider a game with payoff functions $V^i(E^1,....,E^n), E^i \in \Re_+$.

- A vector $(E^{1*},....,E^{n*})$ is a *Nash equilibrium* if no player can increase his payoff by changing his contribution, holding fixed the other players' contributions.

- A constant vector $(E^*,....,E^*)$ is a *simple Kantian equilibrium* if for all *i*, $E^* = \max_E V^i(E,E,...,E)$.

- A vector $(E^{1*},....,E^{n*})$is a *multiplicative Kantian equil'm* if for all *i*, $\arg\max_\rho V^i(\rho E^{1*},....,\rho E^{n*}) = 1$.

- • A vector is an *additive Kantian equil'm* if for all *i,*

$$\arg\max_{\rho} V^i(E^{1*}+\rho,...,E^{n*}+\rho)=0.$$

- These concepts embody symmetry in the contemplated deviations players might make. In $K^{\times}$, a player will only *re-scale* his contribution if he would be happy if everyone re-scaled in the same way. In K^{+}, she would only *translate* her contribute is she would be happy if all translated their contributions in the same way.

- Multiplicative and additive Kantian equilibrium are generalizations of simple Kantian equilibrium

Social Democracy: Socialism 1

- We introduce a game:
- $W^i(L^1, L^2, \ldots, L^n) = u^i\left(\frac{(1-t)(wL^i + rK^i + \theta^i \Pi(K^*, L^*))}{p} + \frac{t}{n}\frac{wL^S + rK^S + \Pi(K^*, L^*)}{p}, L^i\right)$

  Contemplate what it would mean for a labor-supply vector to be an additive K-equil'm of the first game.

Social democracy (cont.)

- A *social-democratic equilibrium at a tax rate* $t \in [0,1]$ (for the economy discussed in the A-D model) is a price vector (p,w,r), a plan by the firm (K^*,L^*), plans by consumers (K^i,L^i,x^i) such that:

- (K^*,L^*) maximizes profits $pG(K,L)-wL-rK$; denote $\Pi^* = \Pi(K^*,L^*)$

- Given $(K^1,...,K^n),(L^1,...,L^n)$ is an additive K-equil'm of the game **W;**

- $px^i = (1-t)(wL^i + rK^i + \theta^i \Pi(K^*,L^*)) + \frac{t}{n}(wL^S + rK^S + \Pi(K^*,L^*))$

- All markets clear: $\sum_i x^i = G(K^*,L^*), \quad K^* = \sum_i K^i, \quad L^* = \sum_i L^i$

- **Proposition 1**. *For any* t, *a social-democratic equilibrium is Pareto efficient.*

- To understand why Kantian optimization eliminates the deadweight loss of income taxation, consider the payoff functions

- $W^i(L^1, L^2, ..., L^n) = u^i\left(\frac{(1-t)(wL^i + rK^i + \theta^i \Pi(K^*, L^*))}{p} + \frac{t}{n}\frac{wL^S + rK^S + \Pi(K^*, L^*)}{p}, L^i\right)$

- The f.o.c. for a Nash optimizer is $u_1^i \cdot \frac{w(1-t)}{p} + u_2^i = 0$ or $MRS^i = \frac{(1-t)w}{p}$.

- But the condition for PE is $MRS^i = \frac{w}{p}$.

- Now consider the additive Kantian optimizer:

- $W^i(L^1+\rho, L^2+\rho, \ldots) = u^i\left(\frac{(1-t)(w(L^i+\rho)+rK^i+\theta^i\Pi(K^*,L^*))}{p} + \frac{t}{n}\frac{w(L^S+n\rho)+rK^S+\Pi(K^*,L^*)}{p}, L^i+\rho\right)$

- The f.o.c. for an additive *Kantian* optimizer is
$$u_1^i \cdot \left((1-t)\frac{w}{p} + \frac{t}{n}\frac{w}{p}n\right) + u_2^i = 0 \text{ or } MRS^i = \frac{w}{p}.$$

- Since $\frac{w}{p} = G_2(K^*, L^*)$, we have $MRS^i = MRT$: Pareto efficiency.

- Even a tax rate of unity supports a PE allocation: *and the Gini of the income distribution is zero!*

- Thus, Kantian optimization completely separates the issues of efficiency and equity (distribution). Citizens can choose any desired degree of equality between the laissez-faire (capitalist) Gini and zero , implement it with taxation, with no effect on economic efficiency.

Socialism 2: a sharing economy

- In this second blueprint, there are no private firm owners. The surplus after workers and investors are paid their contributions is divided among workers and investors, in some fixed proportion.

- We begin by defining the *game form:*

- $V^i(\cdot) = u^i(\frac{1}{p}(wL^i + rK^i + (\lambda\frac{L^i}{L^S} + (1-\lambda)\frac{K^i}{K^S})\Pi^*, L^i).$

- We will view the payoff functions as defined *either* on the labor supply vector, *or* on the investment supply vector. The allocation of GDP will give each consumer a wage for her labor, interest on her investment, and then divide the surplus in proportions $(\lambda, 1-\lambda)$ between workers and investors…

Def'n sharing equal's

- A *sharing equilibrium with a division* λ is a price vector (p,w,r), a plan for the firm (K^*,L^*), an investment vector $(K^1,...,K^n)$, a labor supply vector $(L^1,...,L^n)$ such that:

- The plan (K^*,L^*) maximizes firm profits $pG(K,L)-wL-rK$; denote $\Pi^* = pG(K^*,L^*)-wL^*-rK^*$;

- Given $(K^1,...,K^n),(L^1,...,L^n)$ is a *multiplicative* K-equilibrium of the game **V** (on labor supplies);

- For all *i*, $x^i = wL^i + rK^i + (\lambda \frac{L^i}{L^S} + (1-\lambda)\frac{K^i}{K^S})\Pi^*$

- All markets clear: $x^S = G(K^*, L^*), \quad K^S = K^*, \quad L^S = L^*.$

- There is a one-parameter family of these equilibria, for any choice $\lambda \in [0,1]$. When $\lambda = 1$, this is an economy of labor-owned firms:profits are distributed to workers in proportion to their labor contributions.

- **Proposition 2**. *Any λ–sharing equilibrium is Pareto efficient.*

  - Again, the proof uses the multiplicative Kantian property. Cooperation and profit maximization together imply PE.

1. Why should investors share in the profits?

- Capitalism has changed radically since 1850 when Marx wrote (The *CM* was published in 1848.) Marx wrote that capital comes into being 'dripping from head to foot, from every pore, with blood and dirt.' Indeed, investors in that day were largely the aristocracy, who traced their wealth to enclosures of peasant commons, royal largesse in early times, etc. The middle class, such as it was, had very little wealth.

- Today, the middle class owns 56.5% of the wealth in the US. (The top 1% owns 41%; the bottom 50% own 2.5%.) One cannot argue that middle-class wealth comes into being dripping with blood and dirt. It comes mainly from inheritance and savings from labor income.

- Socialism must view savings as legitimate, and must provide incentives for workers to save. How should λ be chosen? Democratically — and presumably it would be less than one.

- Inheritance is another matter (equality of opportunity must restrict it).

2. Returns to scale?

- Macroeconomists typically estimate the macro production function as having CRS. *But if this is to, the equilibria of Social Democracy (without taxation) and Socialism 2 are exactly the laissez-faire capitalist equilibrium.*

- Why? Because they differ from the A-D capitalist allocation only in how profits are distributed. With CRS, there are zero profits in competitive equilibrium. All capital income is interest payment to investors (bonds). Share-holders get nothing.

- If macroeconomists are right, why do we see profits? The latest estimates are that profits comprise 29% of corporate value added, wages comprise 61%, and capital costs (e.g., interest on bonds) comprise 10%.

Why profits with CRS?

- If returns are really CRS, then profits exist because the market equilibrium is not competitive. Firms have substantial market power. Anti-trust has died in the US in the last 30 years.
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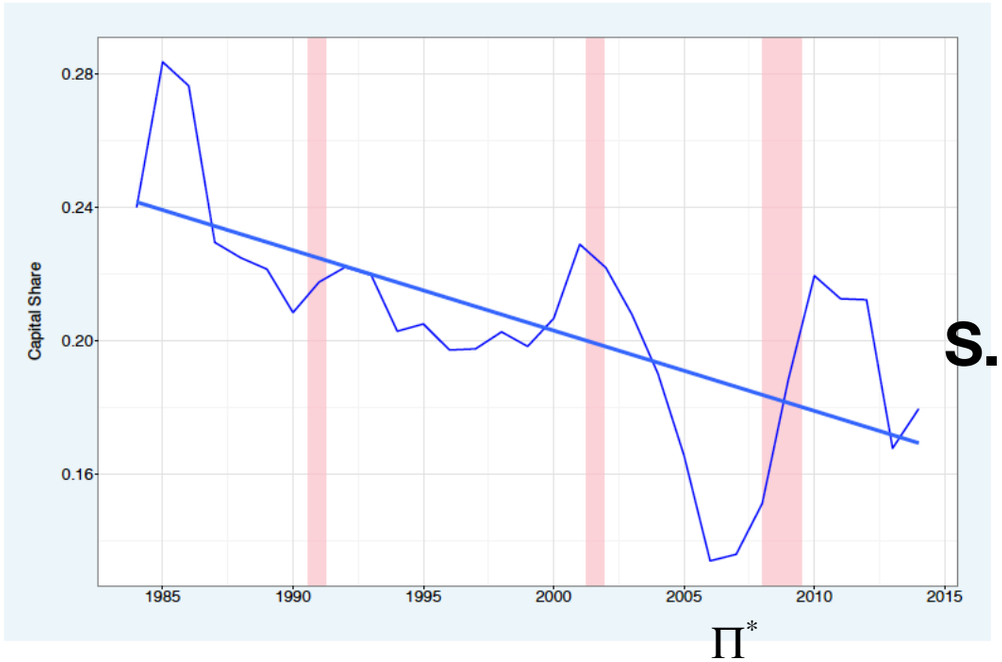
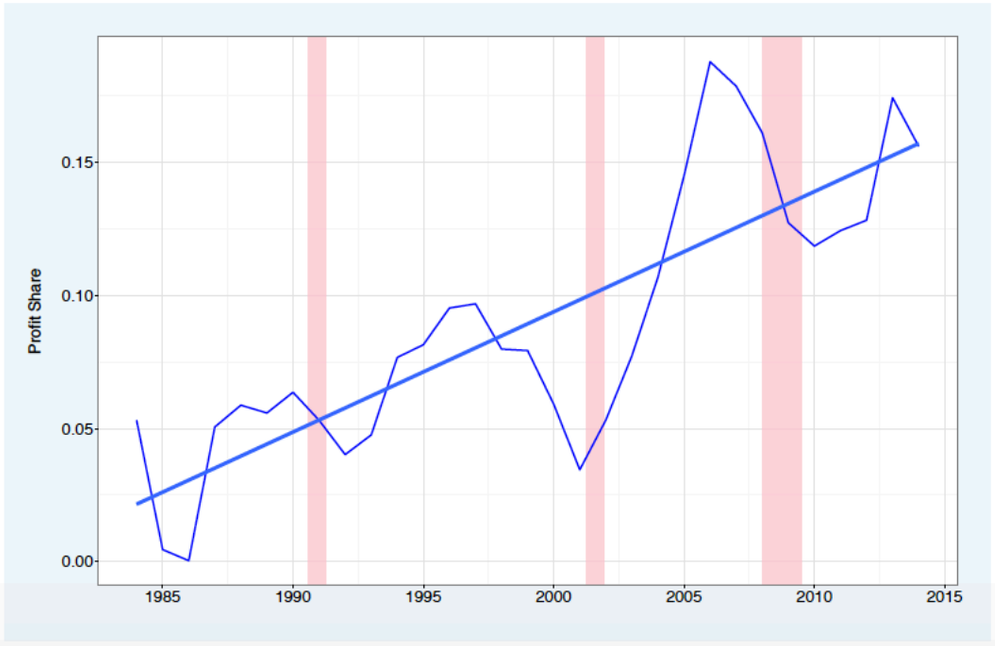
Recall that the capital share is $\dfrac{rK^* + \Pi^*}{Y}$

(a) Capital Share $rK^* / (\Pi^* + rK^*)$



(b) Profit Share $\dfrac{\Pi^*}{\Pi^* + rK^*}$



S. Barkai, "Declining Labor & capital Shares," 2019.

- Some market power is legitimate, to the extent that patents are legitimate. So I don’t contend that profits would be zero in my socialist blueprint: and profits would be shared among investors and workers. With robust anti-trust, however, their share in capital income would fall.

3. Is profit maximization bad?

- We associate myriad evils with profit maximization: child labor, rapid assembly line speeds, firing workers for organizing unions, environmental degradation, etc.

- But my socialist blueprints (and there are others) all rely on profit max. Indeed, the secret to achieving Pareto efficiency is profit- max + Kantian optimization.

- I do not think we should throw out the baby with the bathwater.

4. Putting public bads in the model

- We now suppose that there is a *public bad* that accompanies production. Suppose this public bad is monotone increasing in total output, *y.* Consumers dislike the public bad: thus utility is now a function $u^i(x^i, L^i, K^i, y)$.

- I now study the social-democratic equilibrium with taxation *and a public bad.* The definition of equilibrium is just as Socialism 1 except for the change in the utility functions to include the public bad.

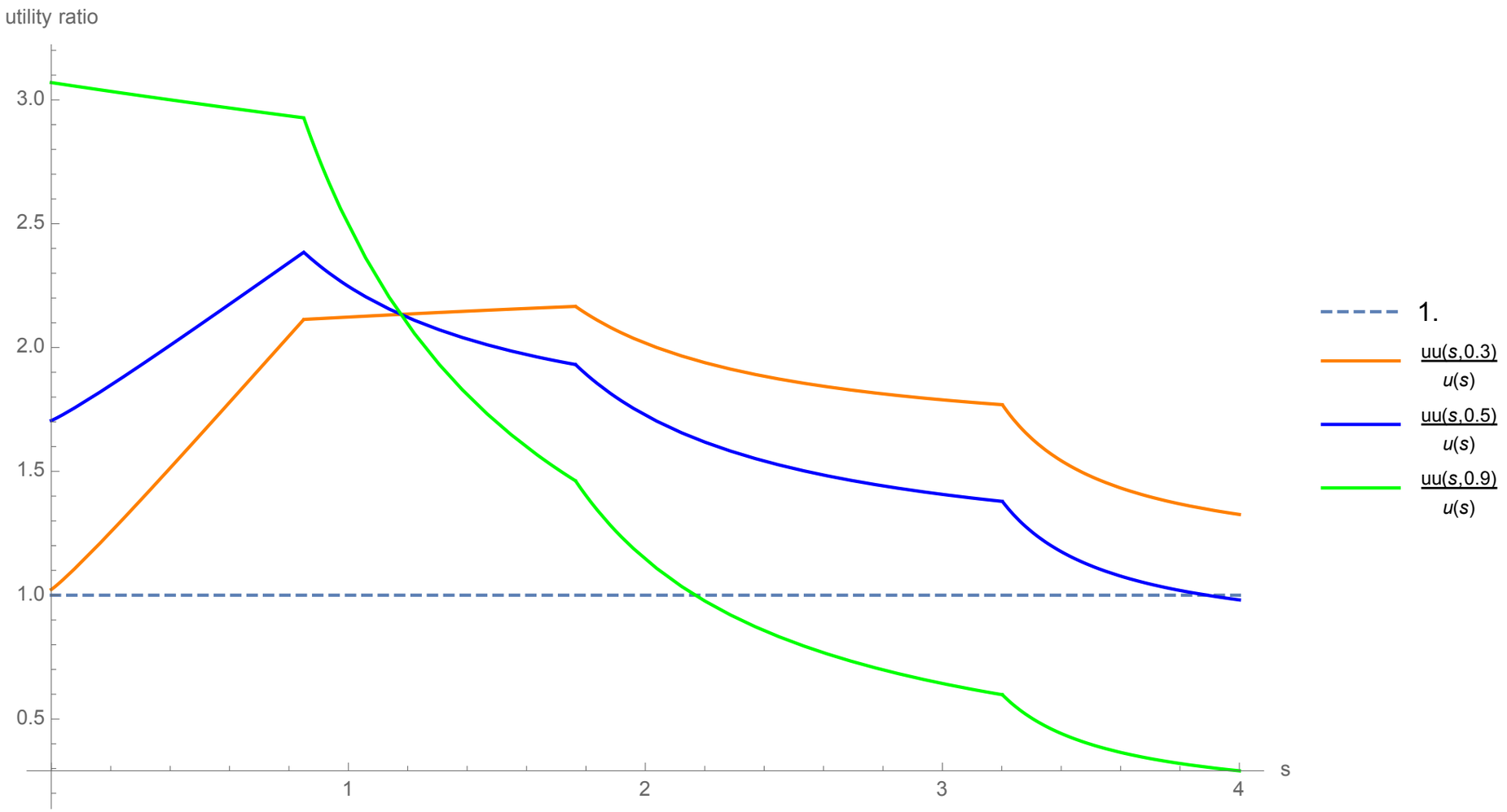
- **Proposition 3**. *The social-democratic equilibrium with a public bad, at any tax rate, is Pareto efficient.*

- That is: Kantian optimization by workers and investors limits production to the extent that consumers wish to do so. The trade-off between output and the public bad is Pareto optimal.

- Additive Kantian optimization kills two birds with one stone (the deadweight loss of taxation, and inefficient levels of the pubic bad).

- Of course, there will be different preferences among the citizens regarding how bad the public bad is, and how much it should be restricted. At low levels of economic development, citizens might well desire levels of the public bad that are too large by the standards of citizens in developed countries.

Comparison of citizen utilities in Pareto efficient social-democratic Equilibria to capitalist equilibrium when t= 30%



Tentative conclusion

- 1. The advent of a patrimonial middle class has changed the formula ‘from each according to his ability to each according to his work’ to ‘from each according to his *endowments and preferences* to each according to his *contributions.*’ Savings must be legitimate and encouraged under socialism. Inheritance must be circumscribed to implement equality of opportunity over time.

- 2. Technology may be close to CRS, in which case competitive profits will be close to zero.

- These two features of ‘today’ imply that the relative equality of income that socialists desire cannot be accomplished by *simply* changing property rights in firms. *It must be achieved with taxation, provision of public goods, and social insurance.* Taxation , however, can be efficient, with Kantian optimization.

- The blueprint of social-democracy with taxation is attractive. However, I believe that the property relations of the sharing economy are more attractive. Eliminating a category of income which is *not* a return to factor suppliers — i.e., shareholders' dividends — is ethically attractive.

- A full analysis should take into account the effect of property relations in firms on the social ethos. Distributing the entire product of the economy to those who supply factors of production, and eliminating the class of owners who receive a share of the surplus but are otherwise passive, will (I think) stimulate the cooperative ethos that is so lacking in contemporary capitalism*.

- On the social ethos: FDR's address to Congress in 1943.

- *E. Saez and G. Zucman, 2019. *The triumph of injustice: How the rich dodge taxes and how to make them pay*

FDR in 1943 in speech to Congress:

"Discrepancies between low personal incomes and very high personal incomes should be lessened; and I therefore believe that in time of this grave national danger, when all excess income should go to win the war, no American citizen ought to have a net income, after he has paid his taxes, of more than $25,000 a year [equivalent to about $1 million in 2019 dollars]." Saez and Zucman (2019, p. 35).

- E. Saez and G. Zucman, 2019. *The triumph of injustice: How the rich dodge taxes and how to make them pay*