“Why Did the West Extend the Franchise? Democracy Inequality, and Growth in Historical Perspective”

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I. INTRODUCTION

- Phenomenon: The 19th century, fundamental political reform, unprecedented changes in taxation and redistribution; inequality started to decline; franchise extended; further redistribution; inequality declines further.
- Reason: Rising inequality → social unrest → democratization → redistribution and mass education → inequality reduced. The elite were forced to extend the franchise because of the threat of revolution, even if democratization is likely to lead to increased taxation and redistribution.
- Alternative theories: Enlightenment view, political competition within the elite, middle class as the driving force.

II. THE MODEL

Parameters

- A continuum 1 of agents, a proportion \( \lambda \) of which are poor (superscript \( p \)) and \((1-\lambda)\) of which are rich “elite” (superscript \( r \)). Assume \( \lambda > 1/2 \): therefore the median voter is poor
- Consumption good \( y \), with price normalized to unity.
- \( h \) is a combination of human and physical capital. At time \( t = 0 \), \( h^p_0 > h^p_0 \geq 1 \). Assume no accumulation here, which will be relaxed in Section III.
- A market technology, \( Y^m_t = AH^m_t \), and a home production technology \( Y^h_t = BH^h_t \). Assume \( A > B \): the marginal product (also average product and marginal revenue product here) is greater in market production than in home production. Taxes can be imposed on market production, but not on home production.
- \( H^m_t \) and \( H^h_t \) are the amount of capital used in market production and home production, respectively. \( H^m_t + H^h_t = H \equiv \int h'di = \lambda h^p + (1 - \lambda)h^' \). Notice that to make the integral meaningful here, \( i \) should range from 0 to 1.
- All agents have identical preferences represented by a linear indirect utility function over net income. Post-tax income is \( \hat{y}_i = (1 - \tau_i)Ah^i + T_i \), for \( i = p, r \). \( \tau_i \) is the tax on income and \( T_i \geq 0 \) is the transfer the agent receives from the state. Assume everyone faces a same tax rate and a same redistribution package from the state. However, the poor are better off with taxes.
because they have a lower amount of capital and are less levied, and equivalently, the rich are better off without taxes. The government budget constraint implies that $T_i = \tau_i A H^m$, which means that total expenditure equals to total income, because total population is normalized to one.

- The $\lambda$ agents can overthrow the incumbent government. Assume that if a revolution is attempted, it always succeeds. The poor take over all the capital, of which a fraction $1 - \mu_i$ gets destroyed and $\mu_i$ remains. $\mu_i$ represents the costliness of revolution, is stochastic and can take two values: $\mu^h > 0$ and $\mu^l = 0$, with $\Pr(\mu_i = \mu^h) = q$, irrespective of $\mu_{i-1}$. Notice that for simplicity, $\mu^l$ is assumed to be zero all through the paper (except at footnote 8). A low $q$ means the threat of revolution is rare, which means the chances that revolution is profitable (high $\mu_i$) are slim, perhaps because the poor are unorganized.

**Timing of the game:**

1. The state $\mu$ is revealed.
2. The elite decide whether or not to extend the franchise. If they decide not to extend, they set the tax rate.
3. The poor decide whether or not to revolt. If they revolt, they share the remaining output, $\mu_A H / \lambda$. If they do not revolt and the franchise has been extended, the median voter (poor) sets the tax rate.
4. The capital stock is allocated between market and home production, and incomes are realized.

**Simplifying assumptions:**

- If $\tau_i > \hat{\tau} \equiv (A - B) / A$, then all agents allocate their capital to home production and hence $H^m_i = 0$, because $\tau_i > (A - B) / A$ is equivalent to $(1-\tau_i) A < B$, which says the marginal return to market production is lower than that to home production. Or since marginal return equals to average returns here by assumption, $(1-\tau_i) Ah^l < Bh^l$, which means that an agent’s income is higher if he works in home production.
- Conversely, if $\tau_i \leq \hat{\tau}$, then $H^m_i = H_i$. No voter will choose $\tau_i > \hat{\tau}$, because agents want to be in market production, where the efficiency is higher. Therefore, for simplicity, we restrict out attention to $\tau_i \leq \hat{\tau}$, and $H^m_i = H_i$.
- Free rider problem is assumed away: if an agent does not take part in the revolution, he can be excluded from the resulting redistribution. The economy can therefore be represented by a dynamic game between two players, the elite and the poor.

**Equilibrium:**
• “Markov Perfect Equilibrium” means strategies only depend on the current state of the world and not on the entire history of the game. This is a simplifying assumption and does not change the general results (as shown in the Appendix of the paper).

• $\sigma^r(\mu, P)$ are the actions taken by the elite, when $\mu = \mu^b$ or $\mu^l$, $P = E$ (elite in power) or $D$ (democracy). When $P = E$, the elite decide whether to extend the franchise $\phi$; and when $\phi = 0$ (the franchise is not extended), the elite decide the tax rate $\tau'$. If $P$ remains at $E$, $\phi = 0$; if $\phi = 1$, $P$ switches to $D$ forever.

• $\sigma^p(\mu, P|\phi, \tau')$ are the actions of the poor conditioned on the current actions of the elite. The poor’s actions include $\rho$ ($\rho = 1$ representing a revolution), and possibly a tax rate $\tau$ when $P = D$.

• A pure strategy Markov Perfect equilibrium is a strategy combination, 
  \{$\sigma^r(\mu, P), \sigma^p(\mu, P|\phi, \tau')$\} such that $\sigma^r$ and $\sigma^p$ are best responses to each other for all $\mu$ and $P$.

• Equilibria of this game are characterized by Bellman equations. To recap, the Principle of Optimality says: An optimal policy has the property that whatever the initial state and initial decision are, the remaining decisions must constitute an optimal policy with regard to the state resulting from the first decision. (See Bellman, 1957, Chap. III.3.). Therefore we can rewrite the time 0 maximization problem can be written as state 0 plus the time 1 maximization problem (discounted by the discount factor $\beta$), which is the Bellman equation.

**Returns to different actions in different states:**

• $V^p(R)$ is the return to poor agents if there is a revolution in state $\mu = \mu^b$. Since revolution always succeeds and then democracy will last forever, $V^p(R) = \mu^bAH/\lambda(1-\beta)$, which is the sum of the per period returns from revolution for the infinite future discounted to the present ($\beta \in (0,1)$ is the discount factor). $V^r(R) = 0$ because the rich lose everything in the event of revolution.

• State $(\mu^l, E)$. Since $\mu^l = 0$ (assumed), the poor would never attempt a revolution when $\mu = \mu^l$. There is no threat of revolution, therefore $\phi = 0$, $\tau' = 0$ (no franchise extension or redistribution, the situation where the rich are better off). By the Bellman equation (time 0 problem = state 0 + time 1 problem):

  \[ V^l(\mu^l, E) = Ah^j + \beta [(1 - q)V^l(\mu^l, E) + qV^j(\mu^h, E)]. \]

• State $(\mu^b, E)$. Suppose the elite play $\phi = 0$, $\tau' = 0$. If the poor do not revolt in face of $\mu^b$, they get $\tilde{V}^p(\mu^b, E) = Ah^p / (1 - \beta)$. If $V^p(R) > \tilde{V}^p(\mu^b, E)$, they will revolt in state $(\mu^b, E)$, which leads us to Assumption 1 (the strengthened revolution constraint in the state of $(\mu^b, E)$)
Assumption 1.

\[
\frac{h^r}{h^p} > \frac{\lambda(1 - \mu^h)}{(1 - \lambda)(\mu^h - (1 - \beta)(A - B)/A)}.
\]

- Assumption 1 is stronger than the revolution constraint because it is derived from \( V^p(R) > \hat{V}^p(\mu^h, E) + (A - B) / A(\mu^h - (1 - \beta)((A - B)/A)) \) (every term in footnote 7 times \( A \)), where the second term is the rich’s maximum one-period transfer to the poor. This transfer is not \( \mu^h - (1 - \beta)((A - B)/A) \) (the maximum the government can collect minus what the government collect from an poor agent, or equivalently, the total available amount a poor agent can get if the rich get nothing in this period), because the rich do not act collectively (see footnote 14), and therefore the government cannot collect more than \((A-B)H\). Assumption 1 simplifies the discussion.

- To prevent the revolution, the elite can choose democracy or redistribution. In either case, the poor can still choose to revolt, and they get \( V^p(\mu^h, E) = \max\{V^p(R); \phi V^p(D) + (1 - \phi) V^p(\mu^h, E, \tau') \} \), where \( V^p(D) \) is the return to the poor in democracy.

- If the elite choose to maintain political power \( (\phi = 0) \) and redistribute, the poor get

\[
(2) \quad V^p(\mu^h, E, \tau') = (1 - \tau')\mu^h + \tau'\mu^h + \beta[qV^p(\mu^h, E, \tau') + (1 - q)V^p(\mu^l, E)].
\]

(Another Bellman equation). Suppose there is no revolution, then in the next period, if \( \mu = \mu^h \), redistribution continues. But if \( \mu = \mu^l \), redistribution stops. This captures the idea that the elite cannot commit to redistribution (or the promise may be not credible), unless the future also poses an effective revolution threat \( (\mu = \mu^h) \).

- If the elite choose to extend the franchise, \( \phi = 1 \), since \( \lambda > 1/2 \), in a democracy the median voter is a poor agent and wants as much redistribution as possible. Redistribution has no allocation cost if \( \tau' \leq \hat{\tau} \) (otherwise people switch to the less efficient home production, causing allocation cost), so the equilibrium tax rate is \( \tau' = \hat{\tau} \equiv (A - B) / A \), and \( T_r = (A - B)H \).

The returns to the poor and the rich are

\[
V^p(D) = \frac{Bh^p + (A - B)H}{1 - \beta} \quad \text{and} \quad V^r(D) = \frac{Bh^r + (A - B)H}{1 - \beta}.
\]

- For simplicity, we assume \( V^p(D) > V^p(R) \), which is equivalent to Assumption 2:

Assumption 2.

\[
Bh^p + (A - B)H > \mu^hAH/\lambda.
\]

- Let \( \hat{V}^p(\mu^h, E | q) \) be the maximum utility (as a function of \( q \)) that can be given to the poor without extending the franchise, which can be achieved by \( \tau' = \hat{\tau} \) in (2), because (2) is
increasing in $\tau'$. Combining (1) and (2) (plug $\hat{\tau}$ into (1) and (2), then $V^p(\mu^h, E) = V^p(\mu^h, E, \hat{\tau}) = \hat{V}^p(\mu^h, E \mid q)$ in (1) and $V^p(\mu^h, E, \tau') = \hat{V}^p(\mu^h, E \mid q)$ in (2); solve (1) for $V^p(\mu^l, E)$, plug in (2) and solve for $\hat{V}^p(\mu^h, E \mid q)$):

$$\hat{V}^p(\mu^h, E \mid q) = V^p(\mu^h, E, \hat{\tau}) = \frac{B h^p + (A - B)H - \beta(1 - q)(A - B)(H - h^p)}{1 - \beta}.$$ 

- If $\hat{V}^p(\mu^h, E \mid q) < V^p(R)$, a revolution cannot be prevented simply by redistribution when $\mu = \mu^h$.
- Notice that $\hat{V}^p(\mu^h, E \mid q = 1) = V^p(D) > V^p(R)$ by Assumption 2 (democracy can prevent a revolution), and

$$\hat{V}^p(\mu^h, E \mid q = 0) = Ah^p/(1 - \beta) + (A - B)(H - h^p) < V^p(R)$$

by Assumption 1 (the revolution constraint, the poor want to revolt in face of $(\mu^h, E)$ and $q = 0$). The form of $\hat{V}^p(\mu^h, E \mid q = 0)$ shows that it is monotonically and continuously increasing in $q$. Therefore, $\exists q^* \in (0,1)$, such that $\hat{V}^p(\mu^h, E \mid q^*) = V^p(R)$.
- $V^r(\mu^h, E, \tau')$ is decreasing in $\tau'$, because there is more wealth redistribution from the rich to the poor with a higher $\tau'$. For all $\tau'$, $V^r(\mu^h, E, \tau') \geq V^r(D)$, because $\tau = \hat{\tau}$ when there is a democracy for all $t$, whereas when $P = E$, $\tau \in (0,\hat{\tau}]$ whenever $\mu = \mu^h$ and $\tau = 0$ when $\mu = \mu^l$ (remember lower $\tau$ means less redistribution and the rich are better off).

**Proposition 1:**

**Proposition 1.** Suppose that Assumptions 1 and 2 hold. Then, for all $q \neq q^*$, there exists a unique pure strategy Markov Perfect Equilibrium such that

1. If $q < q^*$, then the revolution threat will be met by franchise extension. More formally, the equilibrium is $\sigma^r(\mu^l, E) = (\phi = 0, \tau = 0)$, $\sigma^r(\mu^h, E) = (\phi = 1, \tau = \hat{\tau})$, $\sigma^p(\mu^h, E \mid \phi = 0, \tau) = (\rho = 0, \tau = \hat{\tau})$, and $\sigma^p(\mu^h, D) = (\tau = \hat{\tau})$.
2. If $q > q^*$, then the revolution threat will be met by temporary redistribution. More formally, $\sigma^r(\mu^l, E) = (\phi = 0, \tau = 0)$, $\sigma^r(\mu^h, E) = (\phi = 0, \tau')$, where $\tau' \in (0,\hat{\tau})$ is defined by $V^r(R) = V^p(\mu^h, E, \tau')$, and $\sigma^p(\mu^h, E \mid \phi = 0, \tau) = (\rho = 0)$ for all $\tau \geq \tau'$. Also, off the equilibrium path, $\sigma^p(\mu^h, E \mid \phi = 0, \tau) = (\rho = 1)$ for all $\tau < \tau'$, $\sigma^p(\mu^h, E \mid \phi = 1, \tau) = (\rho = 0, \tau = \hat{\tau})$, and $\sigma^p(\mu^h, D) = (\tau = \hat{\tau})$. 

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• Proposition 1 is at the heart of the paper’s argument. Since \( \hat{V}^p(\mu^h, E|q^*) = V^p(R) \), \( q^* \) represents the probability of \( \mu = \mu^h \) such that the poor derive the same (expected) utility from revolution and the maximum transfer that the elite could promise when \( \mu = \mu^h \) today. The left-hand function is increasing in \( q \) because a greater revolution threat increases the likelihood of transfers in future periods; this is because the elite, when faced with such a threat are always better off redistributing income (their utility is zero in the case of a revolution).

• It follows that for \( q < q^* \), the poor stand to gain more from revolution than from receiving temporary redistribution. This is because the poor realize that they won’t likely pose a threat in future periods (because \( q \) is low, perhaps indicating a lack of organization), so this is their only chance to get a big slice of the pie. When \( \mu = \mu^l \), the elite don’t face a revolution threat today, and they choose to neither extend the franchise nor redistribute income. When \( \mu = \mu^h \), the elite recognize that the poor will start a revolution if they are not granted the right to vote; thus, they give the poor the right to vote to avoid a revolution.

• For \( q > q^* \), the poor stand to gain more from receiving (promised) transfers than from revolution. In other words, the threat of revolution in each period is high enough to make the elite’s promise of income distribution sufficiently credible so that the poor choose not to start a revolution. Note that the promise is only 100% credible when \( q = 1 \). Thus, when \( \mu = \mu^h \) the elite will successfully deter revolution by redistributing income. This seemingly paradoxical result—that a high level of social organization among the poor classes makes franchise extension less likely—helps explain the case of Germany (see Section IV) and hinges on this issue of credibility.

Comparative statics with respect to wealth inequality, \( \mu^h \), and \( B \)

- Inequality
  - Assumption 1 showed that a certain threshold level of inequality is necessary for the revolution constraint to bind.
  - In the model, the more unequal the society, the harder it is for the elite to prevent revolution without democratization. This is because \( q^* \) increases as inequality increases, making the case \( q < q^* \) more likely.
  - See the derivation of this result in the appendix of the notes.

- \( \mu^h \)
  - When \( q < q^* \), the threat of revolution already ensured democratization, but if \( \mu^h \) increases enough, Assumption 2 would be violated, and not even the extension of franchise could prevent a revolution.
  - When \( q > q^* \), an increase in \( \mu^h \) makes revolution more desirable to the poor, forcing the elite to increase the size of the transfer by increasing \( \tau \).
  - See the derivation of this result in the appendix of the notes.

- \( B \)
  - An increase in \( B \), the household marginal productivity, decreases the maximum transfer the elite can give, since for \( \tau > \hat{\tau} \equiv (A-B)/A \) all
agents switch to home production, and tax revenue is zero. So an increase in B makes it harder to prevent revolution with temporary redistribution.

- A sufficiently high B would also cause a violation of Assumption 2, so the poor would prefer revolution to democracy.
- See the derivation of this result in the appendix of the notes.

III. A MODEL OF GROWTH AND INEQUALITY DYNAMICS

Growth Model:

\[ h_t^i: \text{capital stock of agent } i \text{ at time } t \]
\[ \delta: \text{capital-augmenting factor, } \delta > 1 \]
\[ e_t^i: \text{indicator function (equals one if agent invests at time } t) \]
\[ c_t^i + e_t^iZ \leq y_t^i, \text{ agent’s } i \text{ budget constraint } (i = p, r) \]
\[ Z: \text{indivisible investment cost} \]
\[ c_t^i: \text{non-capital costs} \]
\[ \tilde{y}_t^i: \text{post-tax income of agent } i \]

\[
(4) \quad h_{t+1}^i = \delta e_t^i h_t^i,
\]

New Assumptions:

- \( \beta \delta < 1 \): investment in capital is always profitable, but capital today is still worth more than capital tomorrow, even after accounting for capital growth
- \( Bh_0^p + (A - B)\left[\lambda h_0^p + (1 - \lambda)h_0^r\right] > Z \): rich possess sufficiently enough income to invest even if taxes reach their maximal level, \( \hat{t} \equiv \frac{A-B}{A} \)

- Consider the case where \( Ah_0^p < Z \): the poor need transfers in order to accumulate capital
  - When there is no threat of revolution, no taxation will take place
  - The elite accumulate capital and \( h_t^e \) increases at rate \( \delta - 1 \)
  - Poor does not accumulate capital
  - Income inequality intensifies until social unrest forces the elite to act:
- Defuse threat of revolution by extending the franchise:

\[ E \rightarrow D: \tau = \tau_{\text{max}} = \hat{t} \equiv \frac{A-B}{A} : \text{as taxes increase, the monetary transfer to the poor also increases.} \]

Specifically, \( \hat{y}_t^i = (1 - \tau_t)Ah_t^i + T^t = (1 - \tau_t)Ah_t^i + \tau_tAH_t \) where \( \tau_t = \tau_{\text{max}} = \hat{t} \equiv \frac{A-B}{A}, H_t^m = H_t = \lambda h_0^p + (1 - \lambda)h_0^r. Hence, \hat{y}_t^i = \left(1 - \frac{A-B}{A}\right)Ah_t^p + \frac{A-B}{A}AH_t \)

\[
\Rightarrow \hat{y}_t^i = Bh_0^p + (A - B)H_t
\]
Criterion for successful prevention of revolution

\[ B h_0^p + (A - B) H_t \geq Z, \]

If (5) holds then the transfer to the poor will push their income level over the accumulation threshold and the poor will also start accumulating. Moreover, when it holds at \( t = 0 \), it will hold forever as \( H_t \) is increasing in \( t \). Note that, due to the linear formulation of the market production function, the poor’s capital accumulation will cause inequality to drop once discretely and remain constant thereafter, as the rich and the poor will be increasing their capital at the same rate \( \delta - 1 \). Alternatively, a convex production function would enable continuous decrease of inequality. The authors will try to relate the behavior \((,\rightarrow,\nearrow)\) of inequality levels to the Kuznets curve.

Return to revolution:

\[ V^p(R|h^p_t, h^t_{t+1}) = \frac{\mu^h A H_t}{\lambda(1 - \beta \delta)} - \frac{Z}{1 - \beta}, \]

- \( \frac{\mu^h A H_t}{\lambda(1 - \beta \delta)} \): present discounted value of the sum of per-period returns to a revolutionary for \( t \to \infty \), incorporating capital growth
- \( \frac{Z}{1 - \beta} \): present discounted value of investment over infinite horizon

Assumptions:
- \( V^P(R|h^p_t, h^t_{t+1}) > Z \): in the aftermath of the revolution, remaining resources suffice for the poor to accumulate capital. This holds when \( \mu^h [\lambda h_0^p + (1 - \lambda) h_0^p] / \lambda > Z \) (there is a typo in footnote 12).
- \( V^P(D) > V^P(R) \forall t \): otherwise, when inequality increases \( (\frac{h^t}{h^P})^f \), revolution is more likely; however, democratization would not be enough to prevent revolution. A different outcome would have been generated, namely, the elite would have redistributed wealth earlier.

When there is no threat of revolution, the value function for the poor under elite control is:

\[ V^P(\mu^1, E[h^p_t, h^t_{t+1}]) = A h^P_t - e_t^P Z + \beta [q V^P(\mu^h, E[h^p_t, h^t_{t+1}]) + (1 - q) V^P(\mu^1, E[h^p_t, h^t_{t+1}])] \]

Where \( h^t_{t+1} = \delta h^t_t \) and \( h^P_{t+1} = \delta e_t^P h^P_t \).

Assumption:
- If \( Z > A h^P_t, e_t^P = 0 \); if \( Z < A h^P_t, e_t^P = 1 \).

The value function for the poor when \( \mu = \mu^h \): \( V^P(\mu^h, E[h^p_t, h^t_{t+1}]) > V^P(\mu^1, E[h^p_t, h^t_{t+1}]) \) depends on the elite’s strategy.

We only consider \( V^P(\mu^h, E[h^p_t, h^t_{t+1}]) \), which is the maximum utility that the poor can get from the elite under the maximum tax rate \( \tilde{\tau} \).
\[ \mathbb{V}^P(\mu^h, E|h^p_t, h^f_t) = Ah^P_t - Z + T^P + \beta[q\mathbb{V}^P(\mu^i, E|h^p_{t+1}, h^f_{t+1}) + (1 - q)\mathbb{V}^P(\mu^j, E|h^p_{t+1}, h^f_{t+1})] \]

where \( \mathbb{V}^P \equiv \bar{\tau}A(H_t - h^P_t) \equiv (A - B)(H_t - h^P_t) \) is the net transfer the poor receive, and \( h^f_{t+1} = \delta h^f_t \) and \( h^P_{t+1} = \delta h^P_t \).

- There exists \( q^*_t \), which has been discussed previously, such that if \( q < q^*_t \), then the elite cannot prevent a revolution by redistributing temporarily. Moreover, \( \mathbb{V}^P(R|h^P_t, h^f_t) \) increases in \( h^P_t \) faster than \( \mathbb{V}^P(\mu^i, E|h^P_t, h^f_t) \) does (the authors mistakenly write the opposite on page 1179). Intuitively, as \( h^P_t \) increases, revolution becomes more attractive for the poor. Therefore, \( q^*_t \) is increasing in \( t \) (the authors accidently write “decreasing”): as inequality increases, the threat of revolution becomes harder to prevent by redistribution alone.

Let \( \bar{\tau} \) be the first time when \( q < q^*_t \). (Typo on page 1180.)

- If the revolution threat occurs at \( t > \bar{\tau} \), the outcome is democratization and the Kuznets curve. Inequality has increased considerably by this time, so the elite cannot prevent social unrest by temporary measures alone and are forced to extend the franchise.

  - Process: The median voter, who is poor, votes for redistributive taxation at the rate \( \bar{\tau} \). \( \Rightarrow \) The poor receive the transfer from the rich and get \( \mathbb{V}^P \) and start to accumulate. \( \Rightarrow \) Inequality drops.

  - Examples: Britain, France, and Sweden. In these instances, the threat of revolution forced democratization; and inequality, which was previously increasing, started to decline, in large part due to major redistributive efforts, including increased taxation, investment in the education of the poor, and labor market reform.

- If the revolution threat occurs at \( t' < \bar{\tau} \), and \( Z > \delta Ah^P_t \), the elite can prevent it with temporary measures because inequality is limited.

  - Process: With \( Z > \delta Ah^P_t \), the one-period temporary redistribution is not sufficient to enrich the poor sufficiently that they can accumulate without transfers. \( \Rightarrow \) when the revolution threat goes away, transfers stop, and inequality grows again. A further period of turbulence may then lead to democratization, and to a Kuznets curve type behavior.

  - Example: In Germany, social unrest was initially met with redistribution, but eventually the shock of the First World War created further unrest and induced democratization. Redistribution increased, and inequality fell after this date.

- If the revolution threat occurs at \( t' < \bar{\tau} \), and \( Ah^P_{t_0} < Z < \delta Ah^P_t \), the outcome is a nondemocratic development path. In this case, the temporary redistribution at time \( t' \) is sufficient to enable the poor to accumulate steadily, and inequality remains constant thereafter.

  - Process: The return to revolution at \( t \) in \( \mu^h \) is

    \[ \mathbb{V}^P(R|h^P_t, h^f_t) = \frac{\mu^h Ah^P_t}{\lambda(1 - \beta \delta)} - \frac{Z}{1 - \beta} \]

    Where \( H_{t+1} = \delta H_t \) because both the rich and poor accumulate.

  - The return to remaining in a nondemocratic regime at \( t \) in \( \mu^h \) is

    \[ \bar{\mathbb{V}}^P(\mu^h, E|h^P_t, h^f_t) = \frac{Ah^P_t}{1 - \beta \delta} - \frac{Z}{1 - \beta} + \bar{T}^P + q\bar{T}^P \]

    Where \( \bar{T}^P \equiv \bar{\tau}A(H_t - h^P_t) \equiv (A - B)(H_t - h^P_t) \) is the net transfer the poor receive, and \( h^f_{t+1} = \delta h^f_t \) and \( h^P_{t+1} = \delta h^P_t \).
Where $T^p \equiv \bar{t}A(H_t - h^p_t)$ is the maximum net transfer to the poor.

- Intuitively, the poor accumulate irrespective of whether they receive transfers or not. Overall, they receive a net transfer $T^p$ today, and expect to receive it in the future with probability $q$, but take into account that it will be larger in the future because of income growth. Therefore, both $V^p(\mu, E[h^p_t, h^1_t])$ and $V^p(R[h^p_t, h^1_t])$ grow at the rate $\delta - 1$, and the revolution constraint does not change over time. Since the threat of revolution at time $t'$ could be prevented without democratization, future revolution threats can also be prevented by redistribution. Therefore, in this case, because inequality stops growing and the gains from it are shared between the rich and the poor, social unrest is weak, and democratization is avoided forever, or at least delayed considerably.

- Examples: South Korea and Taiwan. Both countries used land redistribution early on in response to the threat of revolution fueled by the communist regime in China. They were subsequently relatively equal and did not democratize until much later.

IV. HISTORICAL PERSPECTIVE

The authors consider the historical evidence related to franchise extension in Europe, and they evaluate three alternative theories can purport to explain the extension of the franchise in the West.

A. The Threat of Revolution and Franchise Extension

- Britain
  - Extended franchise in 1832, 1867, 1884, 1919, and 1928
  - Prime Minister Earl Grey, 1831: “There is no-one more decided against annual parliaments, universal suffrage and the ballot, than am I … The Principal of my reform is to prevent the necessity of revolution…. I am reforming to preserve, not to overthrow.”
  - Electoral reform didn’t become a pressing issue until a sharp business cycle downturn in 1867 caused economic hardship and increased the threat of violence.
  - Social disorder was also cited as a factor behind the Reform Act of 1884 and the following Redistribution Act of 1885, which further expanded the electorate and removed many remaining inequalities in the distribution of seats, respectively.

- France
  - 1848 Revolution led to the Second Republic, and universal male suffrage was introduced in 1849
  - Post-war unrest in 1870 led to the creation of the Third Republic

- Germany
  - 1848 Revolution led to increased (albeit restricted) political participation
  - The emergence of the democratic Weimar Republic in 1919 was in response to the severe threat of social disorder and revolution triggered by the collapse of the German armies on the Western Front in 1918.
  - Although democratization in Germany did not occur during the nineteenth century, social unrest was as strong there as it was in Britain and France. While Britain and France lacked strong social parties and trade unions, the Social Democratic Party in Germany was by far the largest left-wing party in Europe at that time, and the labor movement was strong.
  - Delayed democratization in Germany is in line with the model presented

- Sweden
  - Democratic reforms in 1866, 1909, and 1918
  - 1909 franchise extension was preceded by strikes and demonstrations, and the 1918 reform was in reaction to the economic turbulence created by the end of World War I.
B. Alternative Theories of Democratization

A1. Enlightenment

Suggests that the elite extended the franchise because their social values had changed; the elite viewed non-representation as unjust.

- Supporting examples: Enfranchisement of women in Britain in 1919 and 1928
- Opposing examples:
  - Time inconsistency of democratization and the diffusion of the ideas of the Enlightenment; there is a century-long time lag as well as different countries responded later than others.
  - Democratization is more closely related to industrialization, inequality, and political unrest rather a change in social values. The elite were forced to extend franchise; they did not offer it willingly or happily.

A2. Political Party Competition

Suggest that politicians may extend the franchise with the expectation of receiving more votes in order to stay in power.

- Supporting example:
  - In 1866, Russell's Liberal government proposed a relaxation of the property restrictions on voting, which was defeated by a coalition of Conservatives led by Disraeli and right-wing Liberals. Then Disraeli took a new measure which is even more radical than the initial Liberal measure. However, the evidence did not support this interpretation. The Conservatives lost the 1868 election immediately after having passed the franchise extension (and the Liberal party lost the election of 1885). So if the strategy was aimed at winning elections, it was clearly a failure.

- Opposing examples:
  - In 1918-1919 in Germany, the political elite generated a transition under the pressure of army revolt and economic recession in order to minimize damage.
  - In 1848 in France, the Monarchy collapsed and groups of elite have to agree to the demands of the revolutionaries.
  - In 1906 in Sweden, the Liberal party’s first ever government fell after failing to pass a law introducing universal male suffrage. Then, the Conservative government under Lindman took the office and passed the law in order to limit the damage of their own in the face of mounting social pressure for a full democracy.

A3. Middle Class Drive

Suggests that the middle class drove the franchise extension.

- Model:
  - Assumptions:
    - There exist three groups: lower, middle, and upper classes with respective fractions of \( \lambda_L, \lambda_M, \) and \( \lambda_U \) and human capital \( h_L, h_M, \) and \( h_U. \)
    - \( 2. \) Let the average human capital be \( \bar{h} = \lambda_L h_L + \lambda_M h_M + \lambda_U h_U. \)
3. Suppose that when the lower classes are excluded from the political process, the middle class are in power with probability \( u \), and when the political process includes the lower classes, the lower classes are in power with probability \( v_L \) and the middle classes are in power with probability \( v_M \).

4. As before, only linear taxes and universal subsidies are allowed, and the group in power can also decide whether to extend the franchise (if it was not extended before).

Conclusion: If \( h > h_M \), the middle class prefers taxation. And if \( v_L + v_M > u \), the middle class prefers to extend franchise.

- **Opposing examples:**
  - Middle class in Britain didn’t want to give the right to vote to working classes because the redistribution would be at their expense.
  - In Germany in 1918-1919 the middle classes saw suffrage extension as likely to help the left-wing parties, like the Spartacists.
  - In France the middle class could best be associated with the Republican party, which opposed universal male suffrage.
  - In Sweden the Liberal party partially represented the middle classes, and entered into a tactical coalition with the Social Democrats to force full democracy on the intransigent Conservatives and the Monarchy.

C. Democratization and Redistribution

- Model predicts an increase in redistribution after democratization occurs because the median voter will choose a tax rate \( \tau \) greater earlier.
- Was wealth redistributed after the establishment of democracies in the Great Britain, France, Germany, and Sweden?

<table>
<thead>
<tr>
<th>Reforms Implemented</th>
<th>Redistribution Effect/Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Great Britain</strong></td>
<td></td>
</tr>
<tr>
<td>Liberal/Labor Party</td>
<td>Reform Acts 1867-1884</td>
</tr>
<tr>
<td>Conservatives/Tories</td>
<td>Open public examination for civil servants(L)</td>
</tr>
<tr>
<td></td>
<td>Labor market legislation in favor of laborers (L,T)</td>
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<tr>
<td></td>
<td>Asquith and Lloyd George administrations 1906-1914</td>
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<tr>
<td></td>
<td>Health Insurance</td>
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<td></td>
<td>Unemployment benefit</td>
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<td>State-backed pensions</td>
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<tr>
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<td>Educational Act of 1870</td>
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<tr>
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<td>Provision of universal education</td>
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<tr>
<td></td>
<td>Free provision</td>
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<td></td>
<td>School-leaving age caps</td>
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<tr>
<td></td>
<td>Reform Act of 1902</td>
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<tr>
<td></td>
<td>Institution of grammar schools</td>
</tr>
<tr>
<td><strong>France</strong></td>
<td>2\textsuperscript{nd} Empire: 1852 – 1870</td>
</tr>
<tr>
<td>Louis Napoleon</td>
<td>More resources for education</td>
</tr>
<tr>
<td></td>
<td><strong>Opposing examples:</strong></td>
</tr>
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</tr>
</tbody>
</table>
Bonaparte, 1st titular President and last monarch (!)

- Free public primary schools (1881)
- 7-year compulsory education (1882)
- Legalization of strikes and the workers’ right to unionize
- Primary school enrollment up from 51% to 68% to 82% in 1886
- Central government expenditures up by 1/3 from 1872 to 1880

<table>
<thead>
<tr>
<th>Germany</th>
<th>Weimar Republic, 1918 – 1933</th>
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</thead>
<tbody>
<tr>
<td>Social Democrats (SPD)</td>
<td>Social Democrats instituted major reforms</td>
</tr>
<tr>
<td>German People's Party</td>
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<tr>
<td>German Democratic Party</td>
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<td>German Centre Party</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sweden</th>
<th>1920 general election ceded control of the lower house of the Riksdag to SDs</th>
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<tbody>
<tr>
<td>Social Democrats</td>
<td>Universal adult suffrage in 1921</td>
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<td>General Electoral Union</td>
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<td>Liberal Coalition</td>
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<tr>
<td>Farmers’ League</td>
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</tbody>
</table>

- Bulk of redistribution occurred in the 1920s

- Virtually no redistribution prior to 1920
- Redistribution surged after 1920

D. The Kuznets Curve

Simon Kuznets’ hypothesis suggests that economic inequality increases over time while a country is developing, and then after a certain average income is attained, inequality begins to decrease.

The authors use data on income inequality from the 19th century and plot the per country evidence:
As depicted above, the peak of the Kuznets curve occurs right after franchise was extended, which is in line with the model.

V. CONCLUDING REMARKS

Paper contributions:

- Explains why the elite would be willing to cede its powers (extend the franchise) even if that means higher taxes levied on them
- Provides a new explanation for the Kuznets curve in Western countries

Considerations:

- Alternative to political reform determinants of political equilibria may be constitutional restrictions such as the security of property rights or international affiliations
- Note that redistribution may be exercised differently from country to country. These differences may correspond to different commitment motives and are important determinants of today’s redistribution policies.
Appendix

Derivations of the comparative statics relating to Proposition 1:

\[
\frac{\hat{V}^p(H, E | q^*)}{H} = \frac{V^p(R)}{H}
\]

\[
\psi
\]

\[
B \frac{h^p}{H} + (A-B) - \beta (1-q^*)(A-B)(1 - \frac{h^p}{H}) = \frac{\mu^h A}{\lambda}
\]

Let \( \Gamma = B \frac{h^p}{H} + (A-B) - \beta (1-q^*)(A-B)(1 - \frac{h^p}{H}) - \frac{\mu^h A}{\lambda} = 0 \)

By the Implicit Function Theorem,

\[
\frac{dq^*}{d(H^p/H)} = -\frac{\Gamma_H}{\Gamma_{q^*}}
\]

\( \Gamma_H = B + \beta (1-q^*)(A-B) > 0 \)

\( \Gamma_{q^*} = \beta (A-B)(1 - \frac{h^p}{H}) > 0 \)

\[ \Rightarrow \text{So } \frac{dq^*}{d(H^p/H)} < 0 \], which means more equality

\( (\frac{h^p}{H} \uparrow) \) gives a lower \( q^* \) or, equivalently, more

inequality produces a higher \( q^* \)
Similarly, to find $\frac{dq^*}{d\mu^h}$ and $\frac{dq^*}{dB}$, set $\gamma'(\mu^h, 1_{q^*}) = \gamma'(R)$.

Then we can define:

$$F = Bh^o + (A-B)H - \beta(1-q^*)(A-B)(H-h^o) - \frac{\mu^h AH}{\Lambda} = 0$$

So

$$\frac{dq^*}{d\mu^h} = -\frac{F_{\mu^h}}{F_{q^*}} , \quad \frac{dq^*}{dB} = -\frac{F_{q^*}}{F_{q^*}}$$

$$F_{q^*} = \beta(A-B)(H-h^o) > 0$$

$$F_{\mu^h} = -\frac{AH}{\Lambda} < 0$$

$$F_B = h^o - H + \beta(1-q^*)(H-h^o) = (H-h^o)(\beta(1-q^*) - 1) < 0$$

$$> 0 \quad < 0$$

$$\Rightarrow \frac{dq^*}{d\mu^h} > 0 \quad \text{and} \quad \frac{dq^*}{dB} > 0$$

So an increase in the share of wealth from revolution or the marginal productivity of the household production causes $q^*$ to increase, making it harder for the elite to prevent revolution with temporary redistribution.