Towards an explanation of inequality in pre-modern societies: the role of colonies, urbanization and high population density

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Limited knowledge of pre-industrial inequality

• We know much less about pre-industrial (or pre-modern) inequality than about pre-industrial GDP

• Even if significant progress has been made in the past 5-10 years

• Using **social tables/fiscal data**: British 1688-1867, more recently Broadberry et al; US, 1774-1860 by Lindert and Williamson; Spain XIV-XVIII century by Prados de la Escosura; Portugal XVI-XVII century by Reis; Rodriguez Weber, Chile from 1820; Bertola, and Prados de la Escosura, Southern Cone; Merette; Lopez Jerez, Vietnam; Ober for ancient Athens; Scheidel-Friesen for Roman Empire; Hillborn & Bolt for Botswana

• Previous work by van Zanden; recent use of **city-level fiscal data** from Northern Italy & Low Countries (Alfani, Ammannati, Ryckbosch)

• **Wage data** (even if their interpretation and “inclusion” in inequality estimates is fraught with difficulties)
Data used in this paper

• Social tables that cover full “governing units”: “countries” or Empires, not cities within the larger “nation-state”

• Although issues of consistency do remain: Athens does not include all territories covered by Athenian rule; India treated as a “governing unit”

• In total, 41 social tables from W. Europe and North America (19), Asia (11), Latin America (5), Eastern Europe (3), Africa (3).

• 28 of these tables previously used in MLW paper

• From Athens (330 BCE) to India (1938)

• Pre-industrial heuristically defined as up to ~1850 for Western Europe and Americas; 1939 for the rest of the world

• End of pre-industrial (or pre-modern) not necessarily measured by the share of agricultural employment, but by sustained decrease in agro employment, conscious policies to industrialize and inclusion in global economy

• By such criteria, all countries were “modern” by the end of World War II
What might drive pre-modern inequality?

- van Zanden: super Kuznets curve and “classical” explanation => the increase in the capital share and thus in inter-personal inequality (also by Ryckbosch, more recently by Paul Segal with respect to Mexico, van Bavel in “The invisible hand?”)
- [This mechanism is similar to the one introduced by Piketty for the modern era.]
- **Epidemics**: Herlihy, Alfani, Scheidel, Mattea Fochesato & Bowles (inequality-reducing)
- **Wars**: Ambiguous effect
- **Kuznets waves** (my “Global inequality”): non-economic factors drive the waves (unlike in the modern era)
The data and correlations
Inequality rises with mean income
Observed Gini coefficients against the Inequality Possibility Frontier in pre-modern societies

Inequality rises with mean income but less than the maximum feasible inequality, so IER declines
Inequality extraction ratio and level of GDP per capita in pre-modern societies

IER very high for most colonies and decreases with mean income
## Correlates of pre-industrial inequality

<table>
<thead>
<tr>
<th></th>
<th>Gini</th>
<th>Inequality extraction ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (1990 PPP)</td>
<td>174.9</td>
<td>-45.2</td>
</tr>
<tr>
<td></td>
<td>(0.08)</td>
<td>(0.77)</td>
</tr>
<tr>
<td>GDP per capita squared</td>
<td>-12.3</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.90)</td>
</tr>
<tr>
<td>Urbanization rate (in %)</td>
<td>0.39*</td>
<td>0.63*</td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Population density (per km²)</td>
<td>-0.07*</td>
<td>-0.12*</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Colony (dummy)</td>
<td>6.1</td>
<td>14.7*</td>
</tr>
<tr>
<td></td>
<td>(0.11)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>R²</td>
<td>0.30</td>
<td>0.57</td>
</tr>
<tr>
<td>N</td>
<td>41</td>
<td>41</td>
</tr>
</tbody>
</table>
What matters for inequality extraction?

• At low levels of income ($\alpha<3$) much greater variability (and relevance) of IER than of Gini

• The positive association of IER with colonialism and urbanization is both reasonable and argued before

• More difficult to explain the negative association with population density

• If only endowments (without regard of institutions) mattered, we would expect a positive association; lower land/labor ratio => lower relative wage => greater inequality

• But, as in Domar, greater abundance of land or expansion of the frontier may lead (the second serfdom; Lithuania; Latin America) to suppression of labor and concentration of land ownership => greater inequality

• Or parcelization of land holdings with majority at low level of income but relatively equal (and relatively low IER)
Two other possible mechanisms

• Less extractive economies (brought into existence for whatever reason) allow for wages above subsistence and an increase in population => thus creating the association between low extraction and high population density

• Or, high population density through its implicit threat to the ruler leads to lower extraction by the elite. Exactly the opposite mechanism.

• Or our sample size is small and/or possibly biased and additional work is needed to tease out the relationship
Conclusions

• Insignificant role of GDP per capita for both pre-modern inequality and inequality extraction (a point already noted before)

• GDP pc (low and stagnant) is not a proxy of structural transformation as in the modern era (and note that this is why, since Kuznets, that we do use GDP pc)

• Colonies are not necessarily more unequal but they are much more extractive (about 1st deviation)

• Urbanization is associated with greater inequality and inequality extraction

• High population density associated with lower inequality extraction

• The last finding points to the crucial role of institutions (esp. before full commodification of factor markets)

• [Speculative: Does power of institutions to affect distribution decrease with commodification?]
What can we conclude (given the meagre evidence we have) and what should we do?

• Highlights the importance of the mediating role of institutions
• Between factor endowments and their rewards are...institutions
• Also, highlights the situation where the “fictitious commodities” of land, credit and labor power are not fully legally free and commodified
• Useful differentiation between a market economy and textbook capitalism (where factor markets operate under the conditions of legal freedom and protection of property rights and free competition or monopoly)
• Need for more comparative historical data on politics (oligarchy, autocracy, despotism), institutions, type of slavery (horizontal, vertical), size of the military => most of these variables are known and can be codified (as contemporary variables are) to be used in empirical analysis