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Social instability and redistribution of income

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Abstract

Rational agents can express discontent with a given distribution of income by threatening to disrupt an economy, if such a threat is profitable. This paper describes such circumstances in a two-class model. Social stability constraints define the acceptable set of income distributions, the range of which is determined by the extent to which income-generating abilities are vulnerable to disruption. Opportunities for disruption vary across stages of economic development. There is possibly no stable distribution in a low developed economy, whereas in an advanced economy, characterized by complex and interdependent production, stable distributions exist. This distinction provides a basis for the observed increasing significance of social stabilization by redistributive policy in the course of economic development. © 1999 Elsevier Science B.V. All rights reserved.

Keywords: Equity and efficiency; Social stability; Income taxation; Redistribution of income

1. Introduction

It is the purpose of this paper to analyse the redistributive role of the state as a means of ensuring social stability. Social stability is of course a complex phenomenon which is influenced by many factors, including exogenous shocks (see Bellettini, 1998). My focus in this paper is on the relationship between income distribution and stability of a society.

The relationship between inequality and socio-political instability has long been discussed in the political sciences. Huntington (1968, p. 569) points out that Aristotle in his Politics observed that "the cause of sedition is always to be found..."
in inequality”. Russett (1970) traces the discussion back to Tocqueville and Euripides. Using various indicators of socio-political instability (Taylor and Hudson, 1972; Hibbs, 1973), several authors have investigated the role of inequality and political instability in economic models (for instance, Gupta, 1977; Gupta and Venieris, 1981; Venieris and Gupta, 1989). The relationship between inequality and socio-political instability has also become a prominent topic in recent research on economic growth. Alesina and Perotti (1996) and Perotti (1996) provide empirical evidence which ties instability to income inequality. For a cross-section of 71 countries for the period 1960–1985, they show that income inequality increases social discontent and the probability of coups, revolutions, mass violence, etc. Socio-political instability thus has a negative impact on investment and growth (see Bénabou, 1996, for a survey).

I do not intend to pursue the question of how social instability affects accumulation and growth. My purpose is to explain why we observe more or less severe forms of social instability in different countries, and why the redistributive role of the state as a means of ensuring social stability is more or less significant at different stages of economic development.

The question is how people can express their dissatisfaction about a given distribution of a society’s economic opportunities. In an economy focusing on inherited stocks of wealth, people who disagree with the given distribution may try to take the property of other people away. Strong coercive power is a means of stabilizing the existing order. In an economy focusing on production, people have other possibilities to protest against a certain distribution. In particular, they can disrupt the production possibilities of the economy. As long as the production possibilities of different groups are more or less independent, one group can disrupt the possibilities of other groups without disturbing at the same time its own production possibilities. In an advanced economy with fully developed labour division we have complex and interdependent production methods. Therefore, a group disrupting the production possibilities of others affects usually also its own possibilities.

This paper develops a model in which the possibilities to protest against a given distribution are determined by the people’s abilities to survive disturbances. Social stability means that no group has an incentive to protest against the given distribution. The model suggests that at low stages of economic development the range of stable distributions is empty or biased in favour of elites. This may explain why in less developed countries alternating revolts and elites based on military power can be observed (Kimenyi and Mbaku, 1995). In an advanced economy stable distributions exist, but they are only achieved after some redistribution. This may explain why institutions for ensuring social stability by income policy or redistributive measures are common in advanced economies with complex and interdependent production methods.

Having described the basic idea and its political implication, I turn to specific features of my analysis and its relationship to the relevant literature.
In my analysis social instability restricts the part of the Pareto-frontier which is feasible. In particular, the market solution may be excluded. To avoid Pareto-inefficient disruption, the income distribution in an economy must fall in the stable range. The stability problem which confronts a government in this case is in a certain sense the mirror image of the optimal redistributive taxation problem. Whereas the latter deals with the efficiency loss of too much redistribution, the former is concerned with possible efficiency losses arising from too little redistribution. Optimal income taxation theory (see Mirrlees, 1971) asks how redistribution possibilities are restricted by the fact that people, especially the more able, can withdraw their abilities and efforts from productive (and hence taxable) activity (see also Buchanan and Faith, 1987, on political secession). The social stability-constraint which I derive describes how income inequality is restricted by the threat of social disturbances. It depends on the distribution of abilities in production, and the abilities to survive disturbances. The latter differ according to stages of development.

I look at the distribution of incomes. Inequality or redistribution of wealth is not considered. Here I differ from models of social conflict, where one group can appropriate the property of another (see Skaperdas, 1992; Grossman, 1995 or Hirshleifer, 1995. See also Brennan, 1973). My model also differs from Hirshleifer (1991) who describes agents dividing their resources between income-producing efforts and efforts determining how the income is distributed. In my model, people are endowed with personal abilities which cannot be appropriated by other people. The productivity with which an agent’s ability is employed to earn income can, however, be negatively affected by disruptive activities of other agents. For example, a strike by one group has a negative effect on the productivity of others. I analyze, in a non-cooperative game, the conditions under which a group can credibly threaten to disturb the economy. Social stability is achieved if for no group such a threat is an equilibrium strategy.

Stability of the social order plays also a central role in the Hobbesian or constitutional perspective on the state (see Buchanan, 1975a). The primary function of the state is the establishment of order to avoid anarchic chaos. This approach emphasizes that social stability requires enforcement of basic rights by coercive power. My analysis focuses on the role of distributive equity as a prerequisite for a stable social order. In this sense, my analysis is closer to the idea of John Rawls (Rawls, 1971) that a society must be just and fair to be accepted by its members. However, my study is not concerned with ethical principles, but is focused on the economic calculus of rational agents who decide in a non-cooperative way whether to threaten to disrupt the economy. The benchmark from which distribution policy is discussed is not an original position behind the veil of

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1 This is also the focus of the rent-seeking literature (see the survey by Nitzan, 1994).
ignorance, nor Hobbesian anarchy, but such threat possibilities, which will differ among groups and which may change over time.

My model does not seek to derive the right constitution or a general principle of justice, but leads to a characterization, based on objective economic indicators, of the stability constraints faced by any distributive policy (whether determined by constitutions or voting procedures or social-welfare maximization). The condition for social stability depends on agents’ power to threaten. This is related to the approach of Aumann and Kurz (1977) who argue that the analysis of redistribution has to be based on considerations associated with the power structure in an economy. Unlike Aumann and Kurz, however, I do not consider majority voting or any other procedure of collective decision making. This paper does not deal with optimal or equilibrium rules for sharing total income. My more basic question is how, in an economy with self-interested agents, the requisites of social stability limit the range of possible outcomes for any procedure of choosing the distribution of incomes. The limit is defined by the requirement that no agent should have an incentive to threaten to disrupt the economy. In other words, the decision not to threaten must be a subgame perfect equilibrium. Since my analysis is based on a two-class model, problems of coalition formation do not enter.

The idea that government redistribution may be beneficial to both taxpayers and recipients of transfers is also found the literature on Pareto-optimal redistribution (Hochman and Rodgers, 1969, 1974; see also Mishan, 1972 for a critical evaluation). The assumption in this literature is that the utility of the rich depends also on the income of the poor. In the present analysis, there are no utility interdependencies. Individuals do not have altruistic preferences. Therefore, there is also no ‘Samaritan’s Dilemma’ (Buchanan, 1975b). The effect of redistribution on efficiency is through a more indirect channel: Via social stability, the distribution of income affects the production possibilities of the poor as well as rich.

The plan of the paper is as follows. Section 2 discusses the limits of redistribution arising from the equity-efficiency trade-off as considered in optimal income taxation theory. Section 3 develops the relationship between instability and efficiency, and explains the mechanism relating inequity to instability. The mechanism gives rise to a stability constraint derived in Section 4 limiting the feasibility of non-redistribution. Section 5 contains reflections on the possibility that the threat of destabilization might not come from the poor, but from the rich. Conclusions are set out in Section 6.

2. Equity and efficiency in optimum income taxation theory

Consider a two-class economy with two representative types of individuals $i = 1, 2$. The two types of individuals differ in the abilities $a_i$, $i = 1, 2$, for generating income. Individual 1 is less able than individual 2. Denote by $x$ and $y$ gross and net income, respectively. For any point $V$ in the $(x, y)$-space, let $u(V)$
be the utility level achieved by individual \( i \) if gross income \( x \) has to be earned to secure net income \( y \). Fig. 1 describes the possible utility levels of individual 1 and individual 2. If no social stability problem exists, and if redistributive lump-sum taxation is feasible, then the utility-possibilities frontier is given by FG.

Without redistribution, individuals’ incomes are equal to market incomes and the relatively more able individual 2 is better off than individual 1. This market outcome is represented by point \( M \) in Fig. 1. If lump-sum taxes were available, then any point along the frontier FG could be achieved by redistribution. However, if abilities are not observable, distortionary taxes are required for redistributing income. An equity efficiency trade-off then exists. The set of utility possibilities shrinks, if the government tries to redistribute from the market solution towards a more egalitarian distribution. The second-best utility frontier MR describes the possible utility levels. Point \( R \) is the Rawlsian solution where the less able individual 1 is best off. If the income distribution imposed by fiscal policy tends to be too egalitarian, able people can withdraw their participation in

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2 Under the assumption that leisure is a normal good, utilitarian lump-sum taxation would lead to a point \( P \) to the right of the 45°-ray (see for instance, Stiglitz, 1987). Thus, at any point to the left of \( P \) the absolute value of the slope of the frontier must be less than one.

3 See, for instance, Atkinson and Stiglitz (1980) for a derivation of this second-best utility possibilities frontier.
the production of the redistributed cake. That this ‘power’ has to be taken into account by any redistribution policy is well understood from optimum income taxation analysis.

We can now ask: Do the poor also have power to refuse an income distribution which is too unfavorable for them? The analysis in Section 3 addresses this question.

3. Inequity, instability and inefficiency

Let $u^m_i$, $i = 1, 2$, be the utility levels corresponding to the market solution, represented by point $M$ in Fig. 2. Suppose that government redistributes some income from the more able individual 2 to the less able individual 1 so that the resulting utility levels are $u_1 > u^m_1$ and $u_2 < u^m_2$. Can individual 1 protest and demand more redistribution?

If a revolution leads only to the removal of the redistributive state, so that after the revolution the market solution is realized, the poor could only loose by revolting. However, this is a highly unrealistic scenario. More realistically, any form of a severe protest, from strikes to revolts, will go hand in hand with disturbances of the production process, so that not the market solution but less efficient outcomes will be realized. In the extreme case, Hobbesian anarchy may result. Between this anarchy and the market solution there is a spectrum of disturbances.

More precisely, let $a_i$ and $\tilde{a}_i$ be the abilities in the non-disrupted and the disrupted situation, respectively, with $\tilde{a}_i < a_i$, $i = 1, 2$. Assume further that in the disrupted state no redistributive taxation takes place. Denote by $\tilde{u}_i$ the maximal utility level that individual $i$ can achieve in the disrupted economy. Since $\tilde{a}_i < a_i$, it follows that $\tilde{u}_i < u^m_i$. Point $A$ in Fig. 2 represents the utility levels achieved in the disrupted economy. Of course, this is an inefficient point. In the non-disrupted economy, the utility $\tilde{a}_2$ would give individual 1 the utility level $u^D_1 > \tilde{u}_1$.

Let us now return to the possibilities open for the less able individual 1 to refuse an unequal income distribution. Since the focus of the analysis is on the

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4 This rules out what Hirshleifer (1991) calls the strong form of the paradox of power.
5 The second-best utility possibilities frontier is used in Fig. 2, since the point of this paper is not that more redistribution is possible than described by the second-best utility possibility frontier, but to show that the range of stable distributions is also constrained on the other side.
6 The disturbance may consist in a permanent change of regime like a revolution or in transient interruptions as strikes. The essential point is that life-time income and utility positions are different in the two states (disrupted and non-disrupted, respectively), because the ability to earn income is disturbed at least in some periods.
7 The assumption is only made to keep things simple. The important thing is that there is some benchmark situation which is worse than the market solution.
distribution of labour income, not of property income or wealth, I do not consider theft as a feasible mean of redistribution. Income is generated by an individual’s efforts and abilities and the ability to earn income cannot be transferred. Thus, the only means of rebellion against the prevailing distribution is to threaten disruption.

Suppose that the poor have the power to shift the economy from an orderly situation to the disrupted state $A = (\tilde{u}_1, \tilde{u}_2)$. Can the poor use this power to achieve a more egalitarian distribution? Obviously, the answer depends on whether the poor can credibly threaten to implement the disturbance. With a credible threat, the rich will accept any distribution $u_z \geq \tilde{u}_2$ leaving the poor with a utility level up to $u_l^D$ in return for not revolting. This describes the potential gain of the poor by threatening to exit the established economic order.

Of course, to be credible the threat must also involve some cost. The economic order will be stable, if incomes are so distributed that a credible threat does not pay. The next questions to be dealt with are thus: What makes a threat credible,

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8 This is evident as far as human capital is concerned. But also technical equipment is often only usable in combination with special skills.

9 Of course, one can argue that also the rich could have the power to generate disturbances. The consequences can be analysed in a completely analogous way. See Section 5 for further discussion of this point.
and under which circumstances are the gains from a credible threat higher than the cost?

These questions are answered in Section 4 by describing the possible strategies of the poor and the rich in an extensive-form game and characterizing the subgame-perfect equilibrium. The basic idea is that one can only threaten to revolt, if some preparatory activities are made.10 Such preparatory activities involve costs and the risk of loss of reputation if these costs were incurred in vain. I will assume that the costs of loss of reputation are an increasing function of the preparation costs incurred.11 Under this assumption, a definite border line exists between those distributions which can be credibly threatened by disturbances and those which cannot. I call this line the social stability constraint.

4. The stability constraint

Consider the following extensive-form game (represented in Fig. 3). Before the game starts, the government chooses a tax policy leading to utility level $u_i$ for individual $i$, $i = 1, 2$.

In stage 1, individual 1 decides whether to threaten to revolt ($T$) or not ($NT$). If individual 1 decides not to threaten, the game ends, and the respective pay-offs are $(u_1, u_2)$. Threatening means: Individual 1 demands redistribution from $(u_1, u_2)$ to $(u^{D}_1, \tilde{u}_2)$, and threatens to revolt if this demand will not be accepted. $u^{D}_1$ is the utility feasible for individual 1 if individual 2 receives in the non-disrupted economy the same utility level, $\tilde{u}_2$, which he would achieve in the disrupted economy (recall Fig. 2). The threat must be accompanied by activities of individual 1 to prepare for the revolt. Individual 1 can decide how intensive this preparation is, that is, he chooses a level of preparation cost $c \in [0, \tilde{u}_1]$ (measured in terms of utility). This cost is sunk. If $T$ and $NT$ lead to the same pay-off, individual 1 avoids confrontation and chooses $NT$. $\tilde{u}_1$ is the utility level achieved by individual 1 in the disrupted economy.

In stage 2, individual 2 chooses to accept ($A$) or to refuse ($NA$) the request. If he accepts, the game ends with the pay-offs $(u^{D}_1 - c, \tilde{u}_2)$. If $A$ and $NA$ lead to the same pay-off, individual 2 avoids confrontation and chooses $A$.

In stage 3, individual 1 chooses whether to revolt ($R$) or not ($NR$). If he revolts, $(\tilde{u}_1 - c, \tilde{u}_2)$ is realized. If he does not implement the announced revolt, he incurs a reputation loss $r(c)$ which depends on the intensity with which the revolt was

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10 These can be the set up of networks capable to organize strikes and obstructions or, if more radical forms of revolt are considered, rearment.

11 For a single individual acting on his own behalf, the costs of losing his reputation may have only unpleasant psychological consequences. But if we think of $i$ as the representative of a class of individuals, lost reputation implies more serious damages. Class-unity can be destroyed, and a coward representative $i$ may lose not only the face but also the head.
prepared \( (r(0) = 0 \text{ and } r' > 0) \). Thus, the pay-offs are \( (u_1 - c - r(c), u_2) \), if the revolt is not implemented. If \( R \) and \( NR \) lead to the same pay-off, individual 1 chooses \( R \). We consequently have the following.

**Proposition 1:** For \( \bar{u}_1 \leq u_1 \), \( u_1^D \) and \( r(c) \), let \( c(\bar{u}_1, u_1) \) and \( \tilde{u}_1(\bar{u}_1, u_1^D) \) be implicitly defined by the conditions

\begin{align}
  r(c) &= u_1 - \bar{u}_1, \\
  \pi_i &= u_i^D - c(\bar{u}_1, \pi_1). 
\end{align}

Then, ((\( X, R \), A) with

\[
X = \begin{cases} 
  \text{NT}, & \text{if } u_1 \geq \bar{u}_1(\bar{u}_1, u_1^D) \\
  T(c(\bar{u}_1, u_1)), & \text{otherwise}
\end{cases}
\]

is a subgame-perfect equilibrium (\( T(c) \) means ‘Threaten with preparation cost \( c \)’).
Proof (by backward induction). In stage 3, type 1 will choose $R$ if
\[ \bar{u}_1 \geq u_1 - r(c). \] (3)

Then, individual 2 obtains the same payoff with $A$ as with NA. By assumption, 2 chooses $A$ in such a situation. Thus, individual 1 can obtain the payoff $u_1^T - c$ if he chooses $T$ with preparation cost $c$ in stage 1. The lower is the preparation level $c$, the higher is this payoff. However, if $c$ is too low, then condition (3) will not hold, that is, the threat will no longer be credible. Maximization of the payoff $u_1^T - c$ subject to restriction (3) gives us for the optimal choice of $c$ the condition:
\[ r(c) = u_1 - \tilde{u}_1, \] which defines a unique $c(\bar{u}_1, u_1)$ with $\partial c / \partial u_1 > 0$. With this preparation-cost level the payoff, which individual 1 obtains, if he chooses $T$ in stage 1, is $u_1^T - c(\bar{u}_1, u_1)$. Hence, he will choose NT, if
\[ u_1 \geq u_1^T - c(\bar{u}_1, u_1). \] (4)

and $T$ (with cost $c(\bar{u}_1, u_1)$) otherwise. Since for $u_1 = \bar{u}_1(\bar{u}_1, u_1)$ equality holds in Eq. (4), and since the right-hand-side of inequality (4) is a decreasing function of $u_1$, condition (4) is equivalent to: $u_1 \geq \bar{u}_1(\bar{u}_1, u_1)$. Q.E.D.

Proposition 1 establishes a borderline $\bar{u}_1(\bar{u}_1, u_1)$ separating the two types of distributions, (i) where the poor will react by threatening to revolt, and (ii) stable distributions for which such a threat is not an equilibrium strategy. Fig. 4 shows the borderline. For utility distributions to the right of this line, the costs of a
credible threat exceed the gains. If the utility distribution lies to the left of the line, then individual 1 will threaten to revolt and individual 2 accepts $\tilde{u}_2$. However, since the threat involves preparation costs, individual 1 achieves only $u_1^D - c$. Thus, an inefficient point I results if the initial distribution does not lie in the stable segment HR of the utility-possibilities frontier. The second-best utility frontier is thus not FR but HR. Points on the segment FH (broken line) are not feasible. An initial distribution on this segment would lead to some inefficient point I. To avoid inefficient redistribution by threat, the role is specified for the state to ensure a distribution in the stable region to the right of stability constraint $\tilde{u}_1$.

What determines the position of the social stability constraint? For an explicit solution, we must specify the form of the reputation-loss function $r$. For instance, with $r(c) = \alpha c$ we obtain:

$$\tilde{u}_1 = \frac{\alpha u_1^D + \tilde{u}_1}{1 + \alpha}. \quad (5)$$

This illustrates the essential properties of the stability constraint, which are more generally, from Eqs. (1) and (2),

$$\tilde{u}_1 = \bar{u}_1(u_1, u_1^D) \leq u_1^D. \quad (6)$$

Moreover, from Eq. (2): 12

$$\frac{\partial \tilde{u}_1}{\partial \tilde{u}_1} > 0 \text{ and } \frac{\partial \tilde{u}_1}{\partial u_1^D} > 0 \quad (7)$$

Since the slope of the utility-possibilities frontier is negative, $u_1^D$ increases if $\tilde{u}_2$ decreases. In sum, the stability constraint is shifted towards more egalitarian distributions, if point A in Fig. 4 is moved to the right or downward (i.e., to the south-east). A move of A to the right means that individual 1 is relatively robust in the sense that his ability and thus the utility level realized in the disrupted economy is comparatively high. A point A lying further downward means that individual 2 is relatively fragile so that his loss in ability and utility is relatively high when the economy is disrupted. Robustness or fragility of the two types of population accordingly determines the position of the stability constraint.

Abilities based on complex organizational networks and technical equipment are probably more vulnerable to destabilization. If particularly the more able depend on the complex technology, 13 the market distribution, based on abilities in a stable economy, is more distant from the set of feasible distributions. This suggests that the stability problem and thus the stabilization function of the state become more important in an advanced economy.

12 Use $\partial c / \partial u_1 > 0$ and $\partial c / \partial \tilde{u}_1 < 0$.
13 Remember that by assumption ability-producing techniques cannot be transferred but can be destroyed.
5. Revolt of the poor or revolt of the rich?

I have considered only the possibility of a revolt by the poor. We may find plausible reasons why rich people are less inclined than poor to strike or revolt. After all, able individuals are protected against too egalitarian redistribution by the possibility of withdrawing their participation in the production of the redistributed output. There may also be reasons that rich people are less capable to organize a strike or revolt since they are more individualistic.

Within my model, an analogous calculus of revolt exists for the rich. In principle, they can threaten to destabilize the economic order if they wish to change the income distribution in their favor. This implies a second stability constraint (derived in an analogous way as \( \bar{u}_1 \)):

\[
 u_2 \geq \pi_2(\bar{u}_2, u_2^D),
\]  

(8)

where \( u_2^D \) is the utility level that individual 2 gets if 1 has \( \bar{u}_1 \) in the non-disrupted economy. Fig. 5 illustrates the consequences of this constraint and its interrelationship with constraint \( \bar{u}_1 \).

The feasible region of stable income distributions is restricted to the arc HK. Distributions outside this region are rejected by either individual 1 or 2. Thus, redistribution policy is confined to this region. The following proposition presents a sufficient condition for the non-emptiness of the stable region.

Fig. 5. Region of stable distributions.
Proposition 2: Let $\tilde{u}_i(\tilde{u}_i, u_i^0)$ be the stability constraint corresponding to $\tilde{u}_i$, $u_i^0$, $i = 1, 2$. Let $S$ be the set of stable distributions, $S = \{(u_1, u_2) | (u_1, u_2)$ is feasible and $u_i \geq \tilde{u}_i(\tilde{u}_i, u_i^0), i = 1, 2\}$.

(i) If

$$\frac{u_1^0 - \tilde{u}_1}{u_2^0 - \tilde{u}_2} \leq \frac{u_1^0 - \tilde{u}_1}{u_2^0 - \tilde{u}_2},$$

then $S$ is not empty.

(ii) If reputation cost is linear with $r(e) = \alpha_i c$, $i = 1, 2$, the sufficient condition (9) for the non-emptiness of $S$ reduces to

$$\alpha_1 \alpha_2 \leq 1.$$ (10)

Proof.

(i) Since the utility-possibilities frontier is concave, it is sufficient for the non-emptiness of $S$ that the point of intersection of $\tilde{u}_1$ and $\tilde{u}_2$, that is $B$ in Fig. 5, lies below or on the line defined by $(u_i(\beta), u_2(\beta)) = \beta(\tilde{u}_1, u_2^0) + (1-\beta)u_i^0, \tilde{u}_2), 0 \leq \beta \leq 1$. Set $\beta = (u_1^0 - \tilde{u}_1)/(u_2^0 - \tilde{u}_1)$. Then, $\tilde{u}_1 = u_1(\beta)$ and $\tilde{u}_2 \leq u_2(\beta)$ as long as inequality (9) holds. This proves part (i) of the proposition.

(ii) According to Eq. (5), $\tilde{u}_1 = (\alpha_i u_i^0 + \tilde{u}_i)/(1 + \alpha_i)$ in this case. Using this in Eq. (9), we obtain the condition $(u_1^0 - \tilde{u}_1)/(u_2^0 - \tilde{u}_2) \leq (1 + \alpha_i)(u_2^0 - \tilde{u}_2)/(u_2^0 - \tilde{u}_2)$ which is equivalent to Eq. (10). Q.E.D.

Fig. 5 permits some further qualitative conclusions concerning the range of stable efficient distributions. First, for $A = M$, HK collapses to $M$. That means that the market distribution is the only stable outcome if destabilization has no negative effect on agents’ efficiency. This is, however, an unrealistic case. Secondly, both the market outcome $M$ and also the Rawlsian solution may lie outside the stable range HK. The rich may protest against a relatively egalitarian distribution before $R$ is reached, if their abilities are not too vulnerable. The Rawlsian solution is, however, feasible if $A$ is sufficiently low, that is, if the ability of the more able individual 2 is strongly affected by disturbances of the economy. Generally, the stable region is biased in favor of the more robust type of individual whose abilities under disturbances deviate comparatively less from the abilities under a stable order.

This robustness can be expected to change at the different stages of economic development. In an advanced society people with high abilities, working with

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14 This explains a weak form of the paradox of power of Hirshleifer (1991).

15 Revolting means disturbances for both parties regardless of the question of who is the initiator. Consider, for example, strikes or lock-outs.
complex communication networks and high technology, may be particularly vulnerable to disturbances, which biases the stable region in favor of more egalitarian distributions. In a more primitive economy where abilities are based on physical strength or instinct, the strong will be strong under orderly as well as disordered circumstances. So the stable region will be biased towards inequality.

A stable region of distributions need not exist. Proposition 2 gives a sufficient condition for non-emptiness, if disturbances by the poor or by the rich lead to the same point \( A \). This is realistic at an advanced level of economic development when all abilities require stable conditions and production activities are highly interdependent. In an undeveloped economy with less interdependencies, a group may disrupt the economy in a way which hits the production possibilities of the others without doing much harm to the own group. In other words, the utility levels \( A_i = (\tilde{u}_i^1, \tilde{u}_i^2) \), resulting from disruption by the poor, are different from the utility levels \( A_{ii} = (\tilde{u}_{ii}^1, \tilde{u}_{ii}^2) \) achieved if the economy is disrupted by the rich. Fig. 6 illustrates this possibility for the case that the production activities of the two groups are completely independent. Only distributions in the North-East of point B would be stable in this case. They are, however, unfeasible.

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16 The Kuznets-curve literature (following the work of Kuznets, 1955; see e.g., Kakwani, 1980, Chap. 17), according to which incomes are distributed more equally in advanced economies than in less developed countries, shows that this suggestion is in line with reality.
The higher the efficiency losses caused by a revolt, that is, the more the utility outcome is moved towards the origin when the economy is disrupted, the less likely the stable region will be empty. Hence, at a low level of development, when abilities are less interdependent, no stable distribution may be feasible. But in a developed economy where production activities are interdependent and stable conditions are required for all abilities, a region of stable distribution exists. If a point within the region is not realized, inefficient games of threat are provoked.

6. Conclusion

This paper has analysed the relationship between income distribution and economic efficiency in a two-class model of social stability. To avoid inefficient disruption, income distribution is required to lie in a range compatible with a stable economic order. The model has characterised the properties of this socially stable range.

The model assumes that the population can be grouped into two classes based on abilities. The distinction between skilled and unskilled, or between entrepreneurial and non-entrepreneurial people, constitutes the basis for the model. Coalitions between members of the two different classes are excluded. With more than two classes, non-stable outcomes are to be expected if no further restrictions are imposed. The model also views each class as represented by one agent. Co-ordination problems within each group are therefore not considered. The threat costs considered in the model do, however, take into account that within-class coordination requires costly measures.

At lower levels of development, with less sophisticated abilities and less interdependent production, a stable income distribution may not exist, implying ongoing instability and alternating revolts. In an advanced economy with more vulnerable productive abilities, the set of stable distributions is not empty. This implies that in less developed societies, there may be no feasible role for the state to guarantee stability by redistributing income. Such a role is, however, indicated by the stable region of income distributions for advanced societies. This is consistent with the observation that the share of the redistributive budget in national income is higher in richer countries. With the spread of complex and interdependent production at the international level, a role for distribution policy to guarantee social stability may also develop in the context of international relations.

My model has abstracted from other influences, such as a value system or a dictatorship which enforces stability apart from equity considerations, and from non-economic sources of revolts and instability, such as tribal rivalry and national-

An alternative explanation is provided by Demsetz (1982) who argues that the increase in specialization has created more interest groups demanding interventionistic programs.
ism. Income is also derived solely from ability-based efforts. Insofar as people possess wealth which can be appropriated by others, theft is an alternative to threat of disruption of economic activity. This alternative is excluded in a model which focuses on abilities.

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