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Endogenous democracy?

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Abstract

We show that in a two-party representative democracy with a flexible constitution and limited franchise, peaceful extensions of the franchise cannot evolve solely through constitutional processes. Flexible constitutions make equilibria with peaceful franchise extensions subgame-imperfect. Models of franchise expansion through purely constitutional processes either assume away flexible constitutions (Lizzeri-Persico 2004) even though this limits the model's historical applicability, or ignore the issue of subgame perfection (Llavador-Oxoby 2005). Peaceful transitions like Britain's require extra-constitutional explanations – bargaining games between interest groups (some disenfranchised). In these, the threat of revolt (*a la* Acemoglu-Robinson 2000) plays a part when credible – but not otherwise. We link the history of franchise extensions in Britain to the predictions of our bargaining model.

1. Introduction

Acemoglu and Robinson [2000] argued that the key factors in the origin of democracy are extra-constitutional – that democracy is a product of violent revolution or of the emergence of a threat of revolution as an overbearing constraint on constitutional decision-makers⁴. In contrast, most subsequent writers on this theme have sought to model the evolution of the franchise through peaceful constitutional processes.

Application of these models of a peaceful transition to democracy to real historical examples can be problematic, however. Lizzeri and Persico [2004], for example, seek to explain the growth of democracy in nineteenth century Britain; but an indispensable element of their explanation is the assumption that any franchise change requires the approval of a majority of the existing electorate – that, in effect, such issues are determined by referenda. In their model, a

¹ We use the term “endogenous democracy” to denote franchise extensions that occurred purely through constitutional processes, rather than through extraconstitutional factors like threats of revolt or bargains made with the disenfranchised.

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⁴ Other papers which model franchise extensions as being the product of a threat of revolt by the disenfranchised include Justman and Gradstein (1999) and Conley and Temimi (2001).

party cannot win an election on other issues and then use its majority in Parliament to change the franchise. Therefore, such models cannot quite explain the evolution of the suffrage in countries like Britain where voting rights can be changed by simple Parliamentary majority.

On the other hand, if one incorporates into the model the actual constitutional characteristics of the country in question, these characteristics set the rules of the game between the various constitutional agents and often falsify the prediction of the expansion of democracy. We shall show in particular that the basic features of the British constitution, when integrated into a typical game-theoretic model of the broadening of the franchise, make the equilibria of the latter subgame-imperfect.

Note that the logical problems we discern appear only in models of representative democracy. Direct democracies, like Classical Athens, are not affected and analyses of the growth of democracy in such environments (such as Fleck and Hanssen's [2006])⁵ are immune to them.

An implication of our analysis is that the extension of the franchise in countries like Britain cannot be explained in terms of endogenous constitutional processes.⁶ Extra-constitutional factors must play an essential role: these may include revolutionary violence *a la* Acemoglu and Robinson or bargaining games (involving the entire population, not just the electorate) that generate new implicit contracts among the classes that are then implemented by their representatives in Parliament. The bargaining games may involve threats of violence, which, if credible, could affect the equilibrium bargain.

At this stage we should clarify the sense in which we use the phrase "endogenous democracy". Other authors have used this term to denote different things. For example, Boix and Stokes (2003) use the phrase to denote democracy that comes into being in response to economic development. Cervellati, Fortunato and Sunde (2005) use it to denote the link between democracy and features of the economy like the level of inequality. In our paper, as mentioned in footnote 1, we use "endogenous democracy" to denote franchise extensions which evolved purely through constitutional processes, rather than in response to extra-constitutional forces like

⁵ Olson (2000) and Weingast (1997) survey the literature on models such as Fleck and Hanssen's that imply that democracy is a commitment device used by the elite to solve a holdup problem.

⁶ Examples of such models, apart from Lizzeri and Persico, include Jack and Lagunoff [2006] and Llavador and Oxoby [2005]

the threat of revolt, or more generally, bargains involving the disenfranchised, where revolt may, but need not be, a credible threat.

How does our paper contribute to the existing economics literature on democracy? Our work explores the processes leading to franchise extensions in representative democracies with flexible constitutions and limited suffrage. This is novel in three ways :

- (a) So far, the literature has involved models of either extra-constitutional forces – specifically, incidents or threats of violence – triggering franchise extensions, or of peaceful extensions of the franchise through purely constitutional processes. In this paper, we argue that the school that advocates purely constitutional peaceful transitions is in fact unable to explain transitions in indirect democracies *with flexible constitutions* – and therefore, its theories do not apply to cases like Britain’s which it claims to address. Therefore, we establish the necessity of extra-constitutional means in promoting franchise extensions in such democracies.
- (b) We also extend the literature on extra-constitutional forces. Instead of focusing solely on threatened or actual rebellion, we develop a more general bargaining framework which accommodates cases where the elite struck a bargain even when revolt was not a credible threat. (We provide details on such episodes backed by historical data). Ghosal and Proto (2009) have independently developed a bargaining model which can lead to democracy. We refer readers to footnote 7 for a summary of the differences between this paper and ours, and for reasons why we believe that our model fits historical reality better.⁷

⁷ In Ghosal and Proto (GP) two numerically equal and fully enfranchised “elites” consider extending the franchise to workers (the non-elite). The two elites are risk-averse and must decide on franchise extension behind a “veil of ignorance” – before, that is, they are hit by perfectly correlated negative income shocks. GP predict that the workers, if they find it worthwhile to organize, can be expected always to coalesce with the “weaker” elite (the one that receives the bad shock): the credibility of this threat will prompt an ex-ante choice of democracy if the elites are risk-averse. Thus democracy is the outcome of the randomness of income shocks, which create ex-ante uncertainty about who might emerge as the economically successful elite with, in GP’s formulation, the assured capacity to win any conflict. Since the randomness persists forever, the democratic solution is renegotiation-proof. This restricts the applicability of their model to the very narrow set of cases in which no one knows today who will be the dominant elite tomorrow. Further, the bulk of GP’s analysis is about pure redistribution under a threat of revolt. It does not fit a democratization process in which the threat of revolt is not credible. Finally, the GP transition to democracy is a once-for-all renegotiation proof event, not a gradual process. In contrast, our model is not dependent on risk aversion or random income shocks. It is compatible with democratization processes that produce non-zero-sum improvements and work therefore even when revolt is not a credible threat. And it depicts a gradual progress towards full democracy as parameters change and the social compact is renegotiated accordingly. Our model therefore fits historical reality better – in nineteenth century Britain, for example, where the long run income trends were very clear, where non-zero-sum issues like repeal of the Corn Laws and urban infrastructure improvements

- (c) We also supplement the existing understanding of franchise reforms in Britain. We illustrate how changes in the numbers and wealth of different classes affected the nature and pace of reform (political rights, attitudes to public goods, spending on the poor, openness of trade) via a change in bargaining power and the probability of success of any revolts initiated by the disenfranchised.

The rest of the paper is organized as follows. In Section 2, we show that franchise extensions cannot evolve endogenously in a two-party indirect democracy with a limited franchise. In Section 3, we set up a model which can explain peaceful franchise extensions such as those that occurred in nineteenth century Britain. We explore two different versions of a bargaining model based on different assumptions about the bargaining power of workers. We also link the predictions of these models to actual economic and political reforms in nineteenth-century Britain. In Section 4, we refer to the institutional requirements of our model and the political science literature on these institutions. In Section 5, we conclude after briefly contrasting our contribution with others’.

2. Can democracy evolve endogenously under a representative government and a flexible constitution?

Visualize a country with

1. indirect democracy,
2. a limited franchise,
3. a flexible constitution (one that does not mandate any special procedure for amendments like a change in the franchise rule),
4. two parties representing the two different groups in the electorate – the landlords and some of the capitalists respectively,
5. a significant disenfranchised population of workers.

Suppose there exists a policy that benefits capitalists and workers, injures landlords, but increases national income, implying that the benefits derived by capitalists and workers exceed the losses of landlords. Examples include

were crucial (and created natural coalitions between industrialists and workers) and where democracy emerged in slow and gradual steps.

1. the opening up to free trade of a closed economy in which population pressure is rising and food prices have drifted far above world levels,
2. the supply of urban infrastructure (public goods like public health, sanitation and safe drinking water) funded by a tax on the general population.

Median opinion among capitalists favors the policy, as does median opinion among workers, though there may not be unanimity in either group (because of the differential incidence of the benefits and costs among different individuals). Median opinion among landlords, on the other hand, opposes it. The capitalist party would prefer to implement the policy – indeed, to commit the country permanently to it and, to this end, to extend the franchise to an extent that would ensure this. The landlord party would like to jettison the policy and, to ensure this, to restrict the franchise if at all possible to the landlords. If restriction is not possible, it would want at least to prevent any expansion.

However, the median voter theorem implies that electoral competition would compel both parties to promise an essentially identical policy and an essentially identical franchise rule – a combination that corresponds to the median opinion within the existing electorate, whatever that might be. If the electorate believes these promises, victory is equally probable for either party – and, in order to sustain this belief, the winner would have to keep its promise. But would this represent a subgame-perfect equilibrium? Why should the winner, once ensconced in power, fulfil its promises? It would, of course, if these promises corresponded to the policy and the franchise rule that it desires. But if they did not, the winner has no incentive to implement them. It can instead follow the policy it actually prefers and the franchise rule that would sustain this policy permanently. It cannot be punished by the electorate since it manipulates the franchise to forestall any possibility of punishment.

Election promises, then, are not credible. Voters with rational expectations will dismiss them as irrelevant and vote for whichever party's underlying interest is closest to their own. The party that represents the interests of the majority of the existing electorate will be voted to power and can rule for ever without manipulating the franchise. Obviously, it will have no incentive to change the franchise rule. Thus, we do not have a model of continued endogenous franchise expansion (or contraction) at all, but of constitutional stagnation.

An alternative attempt to endogenize the growth of democracy assumes that voters are far-sighted and patient and that the parameters that determine their choices between alternatives

are stable or, at any rate, perfectly predictable over the infinite future. Voters then optimize as between alternative Markov-perfect time-profiles of choices, often perhaps preferring present pain for future gain. This procedure yields an elegant dynamic model, which, in a stable, predictable environment, would have great value in explaining sequences of constitutional change leading up to democracy. However, its ability to explain actual history depends on the accuracy in that historical context of its assumptions about voter foresight and stability (or predictability) of parameters over very long horizons. In the context of mid-nineteenth century Britain, such assumptions would be of dubious value. To argue that British voters in 1830 could accurately foresee large-scale railway building in the New World (or, for that matter, the development of the telegraph, the steamship and refrigeration) and the consequences for British food prices and agriculture or the transformation of England from an agricultural to a highly industrialized economy and could vote accordingly would be straining the limits of plausibility. It would be far more realistic to assume that voters have relatively short time-horizons, that they condition their choices on events in the foreseeable future – though they may seek to retain the option of reversing course if excessively uncertain about what may lie beyond this horizon.

3. The English Enigma

How then does one account for phenomena like England's peaceful democratic revolution in the nineteenth century? The endogenous dynamics of the electoral process cannot be invoked in explanation. One needs to shift one's theoretical viewpoint from non-cooperative game theory to bargaining games between groups.

All models that involve members of a group acting in pursuit of a common goal (such as voting to elect a new government or revolting against an old one) are beset by the free rider problem. This has been minimized by the model-makers through a variety of specific assumptions. Lizzeri and Persico (2004) (LP) assume that each voter acts as if he were pivotal and therefore does not free ride. Since people in their model do not have the option of rebellion, this is equivalent to totally assuming away the free-rider problem. Acemoglu and Robinson (2000) (AR), who explore the possibility of revolt, require additional assumptions. They reduce the benefits of revolt to appropriable private goods – the wealth expropriated from the overthrown elite. Those who do not participate in the revolt are denied a share in this booty: this precludes free riding. We prefer not to commit ourselves to such specific scenarios. We simply

assume that there is no collective action problem within groups in order to focus more sharply on group interactions. In essence, each group is considered as a single entity with all intra-group distribution questions peacefully resolved.

In the light of this perspective, different groups in the population determine their political positions through a bargaining game among themselves. Those with Parliamentary representatives seek to implement these positions through the legislature. A franchise change may be a part of the equilibrium bargain, a clause necessary in fact to seal it. All such bargaining equilibria are however transitory. Exogenous changes in parameters like perceptions of the threat of violence or of economic constraints and opportunities may change people's interests and therefore the equilibrium bargain. So may changes in the proportions of different groups in the population. This would then force renegotiation – and a possible further change in the franchise rule.

During the transition of power from the landed gentry to the capitalists and their initially disenfranchised allies, the workers⁸, the threat of revolt by the latter generally, though not always, looms in the background; when it does, it becomes a major factor in the bargain. Accordingly, we study the possibility of revolt as a prelude to our discussion of bargaining processes. Revolt has a cost (of armed conflict, which may be lower for the incumbent than for the challenger) and a limited probability of success. In the event of failure, the rebels face expropriation and other possible punishment while, if successful, they could expropriate the incumbents. The threat of rebellion is credible only if the rebels' expected payoff (taking all these considerations into account) exceeds their payoff in status quo. But if it is credible, the incumbent's expected payoff in the face of the threat of revolt will figure in the equilibrium bargain: it will represent the incumbent's threat point.

Suppose in status quo, the landlords enjoy a rent of R_{l0} and the capitalists and workers a rent of R_{c0} . Suppose that a policy and franchise change is contemplated that would generate an aggregate surplus of R_1 for the entire population. In the event of armed conflict, we assume that the victor establishes or restores the policy he prefers, appropriates the entire surplus under this policy and imposes an additional punishment on the defeated. Let A_i and A_c be the costs of armed conflict for incumbent and challenger, p the probability of success of the revolt (by the

⁸ We assume that workers are mobile between sectors. We do not, thus, consider a separate category of "agricultural workers". In any case, we find that in those instances where workers were actually able to affect the equilibrium bargain, the huge majority of workers was already urban.

capitalists and workers) and P_l and P_c the maximum punishments that landlords and the others may receive in the event of defeat. Then, the rebels' expected payoff from revolt is

$$pR_1 - (1 - p)P_c - A_c \quad (1)$$

while the incumbent's expected payoff is

$$(1 - p)(R_{10} + R_{c0}) - pP_l - A_i. \quad (2)$$

The threat of revolt is credible if

$$pR_1 - (1 - p)P_c - A_c > R_{c0} \quad (3)$$

and

$$(1 - p)(R_{10} + R_{c0}) - pP_l - A_i < R_{10}. \quad (4)$$

The first of these conditions ensures that it will be worth the challenger's while to revolt rather than accept the status quo, the second ensures that the threat of revolt improves his bargaining position. Together, (3) and (4) boil down to

$$p > \text{Max} [(R_{c0} + P_c + A_c)/(R_1 + P_c), (R_{c0} - A_i)/(R_{10} + R_{c0} + P_l)] \quad (5)$$

If revolt is a credible threat, it determines the threat points for a Nash bargain: it increases the threat point for the capitalists and workers and reduces that for the landlords, thus reducing the share assigned to landlords in equilibrium.

p , the probability of success of a revolt by the capitalists and workers, is a crucial parameter. The credibility of revolt is an increasing function of p , and, where revolt is credible, the landlord's equilibrium share is decreasing in p . Other crucial parameters are the possible punishments and the costs of armed conflict, which are typically heavily weighted in favor of the incumbents.

Having examined the determinants of the credibility of revolt, we now explore two alternative specifications of the bargaining game, one in which revolt is not a credible threat and another in which it is both credible and crucial. The first follows the traditional Ricardo-Malthusian subsistence theory of wages, which argues that workers are driven down to subsistence consumption levels and therefore have no bargaining power. The second model however assumes that workers have some bargaining power and that any revolt initiated by them would have a significant chance of success. Our reading of the historical evidence suggests that early nineteenth-century Britain (before and during the First Reform Act of 1832) was better described by the first model while later (during the Second and Third Reform Acts) it was better described by the second model. We elaborate on this in later sub-sections.

3.1 A Ricardo-Malthus model of constitutional change and the Reform Act of 1832

The first specification of the bargaining equilibrium that we explore in detail follows the traditional Ricardian-Malthusian subsistence theory of wages and can claim therefore the powerful endorsement of two great economists of that age. According to this approach, the workers have no bargaining power since they are always driven down to subsistence consumption levels. Such a model implies a low credibility of revolt. The economic weakness of the workers means that they cannot afford a prolonged confrontation with the landed gentry, nor mobilize military force against them so that a revolt by the workers is exceedingly unlikely to succeed and the cost to them of armed conflict is exceedingly high. It also implies that the levers of civil power, the constabulary and the judiciary, as well as the military, are firmly controlled by the aristocracy – so that the punishment likely to befall rebels against the aristocratic regime in the event of defeat would certainly be severe. In terms of inequality (5) above, it means very low p , high P_c and A_c and low A_i – all of which make it highly unlikely that (5) will be realized. Since the option of revolt is not credible and workers lack bargaining power, the only bargain that matters is that between capitalists and landlords with workers adapting to its terms at subsistence wages. Assume that each capitalist has a Cobb-Douglas utility function in income after tax and the public good

$$U_k = C^{\alpha_k} Y_k^{1-\alpha_k} \quad (6)$$

where Y_k is the average income after tax of an individual capitalist and C the quantity of a public good that is funded by taxation. α_k is a measure of the taste for, or dependence on, the public good of a capitalist. The public good is essentially urban infrastructure (including public health) and does not therefore enter the utility functions of the landlords (who constitute a rural class and are indexed by l):

$$U_l = Y_l \quad (7)$$

The production function of the public good is linear homogeneous in public expenditure – therefore also in revenue:

$$C = Y - S - \sum_j Y_j N_j \quad (8)$$

where Y is national income, S the subsistence requirement of workers and N_j is the number of individuals in the j -th class ($j = k, l$). Similar production functions have been used in the literature, for instance, in Fleck and Hanssen (2006).

Consider a situation in which all landlords have the vote, but only a fraction of the capitalists do. Suppose that in a Parliament elected on this basis, legislation that could increase national income – (say from $\underline{Y}$ to $\hat{Y}$) while injuring the landed interest (eg. repeal of the Corn Laws) cannot be enacted. Suppose further that there is no credible threat of revolt that might persuade the landlords to acquiesce in an extension of the franchise. Can an equilibrium be achieved by implicit, or explicit, bargaining between the classes that widens the franchise enough to ensure passage of legislation like repeal of the Corn Laws while at least compensating the landlords for their resulting losses?

Such an equilibrium can be easily designed. Given Y and S such that $Y \geq S \geq 0$, define a set W of non-negative triples (Y_k, Y_l, C) that fulfil equations (6) – (8). Each triple in W is associated with a pair (U_k, U_l) . The set of all pairs thus defined, Z , is convex and compact.

Definition 1 : We define a *bargaining equilibrium* as a triple $(\hat{Y}_k, \hat{Y}_l, \hat{C}) \in W$ such that the associated pair $(\hat{U}_k, \hat{U}_l) \in Z$ satisfies the Nash axioms of Pareto-optimality, invariance under affine transformations, symmetry and independence of irrelevant alternatives as well as the conditions $\hat{U}_k \geq \underline{U}_k$, $\hat{U}_l \geq \underline{U}_l$ where the bar under a variable denotes its disagreement value (in this case equal to its value in *status quo*).

Pareto-optimality restricts the admissible equilibria to the ray through the origin in the (Y_k, C) space of slope $N_k \alpha_k / (1 - \alpha_k)$. If we also impose the other requirements of a Nash bargain, we can focus on the unique equilibrium that maximizes the Nash product $[\hat{U}_k - \underline{U}_k][\hat{U}_l - \underline{U}_l]$.

Proposition 1 : In the unique bargaining equilibrium described in Definition 1, there will be a substantial increase in the landlord's disposable income relative to status quo. This increase will be larger than in the capitalist's as long as $N_k > (1 - \alpha)/\alpha$. The franchise is extended to enough capitalists so that the policy favored by the capitalists can be implemented.

Proof : In the appendix.

Proposition 1 reflects the Nash axiom of symmetry in bargaining power between the two classes, coupled with the fact that capitalists, unlike landlords, derive utility not only from disposable income increases, but also from the increase in public goods that a higher tax revenue may support. Other equilibria in which capitalists have more bargaining power than landlords

may not require quite so large an increase in landlord incomes. However, as long as disagreement values correspond to the *status quo* (because of the absence of a threat of revolt), landlords end up with substantial gains in disposable income as a result of the bargaining game. Thus the implication of Proposition 1 is that landlords would have to be bribed to extend the franchise and pave the way for a policy change that could hurt their economic interests.

Our choice of the Nash bargaining equilibrium may be questioned as arbitrary. The reason we have opted for the Nash equilibrium is that it corresponds to the equilibrium outcome of Rubinstein's alternating offer game where a delay in reaching agreement is costly to both players – which seems to us to depict a reasonable approximation to the process of bargaining between groups and political parties. However, we believe that our qualitative conclusions would not be affected by some other bargaining model. Indeed, we prove in the appendix that, in this particular case, the Kalai-Smorodinsky bargain – the best-articulated theoretical alternative to Nash – will in fact be identical with it.

If – as our bargaining models suggest – the landlords had to be compensated to agree to an extension of the franchise, the simplest way of doing this was to reduce their tax-burden, in particular the parish rates that were essentially paid by them. The Poor Law Amendment Act of 1834 did precisely this, though it is hard to estimate the quantitative importance of such measures. And, while the government of 1832 could not possibly have synchronized this Act with the Reform Act of 1832 without at least the appearance of a non-partisan enquiry into the operation of the existing system of poor relief, it committed itself to such an amendment act by appointing a Royal Commission of Enquiry the composition of which was obviously rigged.

We argue that the Reform Act of 1832 conformed broadly to the Ricardo-Malthus model of a bargain struck between the capitalists and the landlords without reference to the workers who were driven down to subsistence and therefore lacked bargaining power. If revolt can be discounted, as it can in this case, a bargain between the landed gentry and the urban capitalists would mean a constitutional settlement that basically ignores the workers, defines a larger constitutional role for urban men of property (implied by the fact that capitalists also gain relative to *status quo*) and prescribes substantial bribes for the landlords to induce them to extend the franchise. The historical record bears out all these implications.

Until the 1840's and the abolition of the Corn Laws, the aristocracy was so solidly entrenched in its control of the economic, political and military infrastructure of Britain that the

probability of success of any revolt against it was exceedingly low. This despite the wave of protest and agitation that swept over the country between Waterloo and the First Reform Act of 1832. Evidence of this is the Peterloo Massacre. On 16th August, 1819, the Lancashire magistrates ordered the cavalry to charge with drawn sabers into a peaceful, unarmed mass meeting that demanded electoral reform and the repeal of the Corn Laws, killing 15-20 and injuring many hundreds. The organizers of the meeting were sentenced to long prison terms while the magistrates who ordered the charge were honoured by the Prince Regent. The casual nonchalance with which the massacre was executed and justified indicated that the elite expected no revolutionary repercussions. And, indeed, there were none: even the cries of protest from the press found no echoes in the corridors of power, there was not the slightest move towards political or economic reform and the existing power structure was instead reinforced through a series of repressive Acts of Parliament. (Marlow [1969], Reid [1989], Foot [2005]).

Equally revealing is the fate of the bill introduced by Sir Francis Burdett in the Commons calling for universal adult male suffrage, secret ballot and equal-sized constituencies. The bill was laughed out of court and secured a grand total of two votes (May[1896]).

Thus, though Earl Grey argued that his Reform Act was necessary to avert revolution, the elite remained distinctly skeptical. Indeed, even after it passed the Commons, the Act was rejected by the Lords; and though riots occurred immediately in several cities, the House of Lords did not reverse itself till it was threatened, not by revolution, but by the creation of enough Whig peerages to change its composition altogether.

To understand the passage of the Reform Bill through the Commons, we must examine not only the concessions it contained for the landed gentry, but also subsequent Parliamentary legislation which possibly reflects the tacit understanding that may have persuaded a significant segment of the gentry to support the Bill. The 1832 Reform Act did nothing for the proletariat since property qualifications were far from eliminated. The Act abolished 143 'rotten boroughs', but added 65 county (i.e. rural) constituencies, and while many of the abolished boroughs were 'owned' by the landed nobility, many others had been controlled by wealthy merchants. Further, the Act also enfranchised 'tenants-at-will' paying an annual rent of at least £ 50, a group that generally voted as their landlords desired (May [1896]). All these represented major concessions to the landed interest. Indeed, the Tories made significant gains in the ensuing elections of 1835 and 1837 and recaptured the Commons in 1841. The Lords too continued to have a powerful

voice in legislation, forcing amendments on issues like municipal reform and Jewish emancipation (May [1896]).

More important than the contents of the First Reform Act was its sequel. The Parliament elected in 1831 passed the Reform Act of 1832 (the Commons in March, the Lords in June), but only after a Royal Commission of Enquiry into the operation of the Poor Laws had been instituted in February. The Commission was dominated by Nassau William Senior, Professor of Political Economy at Oxford, Bishop John Bird Sumner and Edwin Chadwick, all men who openly advocated minimizing poor relief in order to reduce the incentives for population growth (the ‘Malthusian’ view) and for idleness (the ‘Benthamite’ view). While the Commission appeared to make an effort to collect data on the existing system, its conclusions were essentially predetermined: there is evidence that Senior and Chadwick wrote the report before the data had been assembled and that much of the data that was collected (but not presented) was inconsistent with their conclusions. The report, such as it was, was presented in 1834, and, on that basis, the new Parliament passed the Poor Law Amendment Act, which restricted the franchise on all issues related to rural welfare spending to property owners: only rate-payers above a certain property threshold could vote and the number of votes you could cast was an increasing function of the size of your property. Any substantial increase in parish rates required the approval of two-thirds of the electorate. Further, every effort was to be made to limit welfare spending. The destitute were to be separated from their families and forced to live and work in prison-like workhouses in prison garb and provided meager rations that rarely reached subsistence levels. This was a major concession to the landed gentry who paid most of the parish rates. The consequence was a dramatic fall in welfare spending as a fraction of GNP from 1835 (Lindert [1994]). Even in absolute terms, poor relief fell from about £ 7 million in 1832 to about £ 4 million in 1837 (Ernle [1936]).

Indeed, there was a steep decline in government revenues as a proportion of GNP till 1867, in all central government taxation till 1880. It is true that there was a marginal rise in all direct taxes – but this was such a negligible proportion of the tax basket that it made hardly any difference. Moreover, central government direct taxes stagnated at abysmally low levels till the Reform Act of 1884 (Lindert [1989]). So substantial were the benefits reaped by the landlords, particularly those who had switched from arable farming to livestock and dairying, that the

period 1850 to 1873 is generally regarded as “the golden age of British agriculture.” (Ernle [1936]).

While the concepts of group-bargaining and of the credibility of revolt are of general applicability, they led to democratization only because of the specific parameters of nineteenth-century Britain. Population pressure, rising food prices and the presence of opportunities for cheap food imports and manufactured exports that could not be exploited because of landlord-imposed trade restrictions created a common interest among capitalists and workers in the dismantling of these restrictions and in franchise reforms that would facilitate this change. The growth of democracy in archaic Athens from Solon to Themistocles can probably be explained along very similar lines. However, group-bargaining had entirely different consequences in different environments. In mid-nineteenth century Germany, for example, where food prices were below world levels, liberalization meant increasing food *exports* and strengthening the landlords through restrictions on the franchise,

3.2 An alternative model

An alternative scenario in the British case is one in which the workers have bargaining power. Workers, if disenfranchised in such an environment, are likely to form a coalition with their ‘natural partners’, the capitalists, because of a convergence of interests in cheap food and urban infrastructure. Their bargaining power, singly and in coalition, stems partly from their increased prosperity and numerical strength, which leads to a higher probability of success p of any revolt they participate in. Given a high enough p , condition (5) is fulfilled, and the coalition of workers and capitalists can mount a credible threat of revolt against the landed gentry, which will affect their threat points and, consequently the bargaining equilibrium.

Assume that, like the capitalists, each worker has a utility function

$$U_w = C^{\alpha_w} Y_w^{1-\alpha_w} \quad (9)$$

where the subscript w is self-explanatory.

Consider a pair-wise coalition between workers and capitalists based on their common interest in the public good C . If such a coalition does not form, it may not be possible to credibly threaten revolt and thereby induce an expansion of the franchise to include any of the workers. The upshot will correspond to the equilibrium of bargaining between capitalists and landlords (without reference to the workers), essentially the one in the previous model, with public goods

limited to what capitalists are interested in and willing to pay for. This then represents the disagreement point in the bargain underlying the formation of the capitalist-worker coalition. For any level of disposable income Y_c available to the coalition, we can figure out the distribution of disposable incomes Y_k and Y_w and the public good output C that satisfies the standard Nash axioms (see Appendix):

$$Y_k = Y_c(1 - \alpha_k)/2N_k \quad (10)$$

$$Y_w = Y_c(1 - \alpha_w)/2N_w \quad (11)$$

$$C = Y_c(\alpha_k + \alpha_w)/2 \quad (12)$$

The utilities U_k and U_w are then linear in Y_c .

$$U_k = \beta_k Y_c \quad (13)$$

$$U_w = \beta_w Y_c \quad (14)$$

where $2\beta_k = (\alpha_k + \alpha_w)^{\alpha_k} \{(1 - \alpha_k) / N_k\}^{1 - \alpha_k}$

$$2\beta_w = (\alpha_k + \alpha_w)^{\alpha_w} \{(1 - \alpha_w) / N_w\}^{1 - \alpha_w}$$

Again, note that this distribution of the fruits of coalition assumes the Nash axiom of symmetry; a less equitable distribution of bargaining power between the classes would result in a coalitional agreement more skewed in favor of the capitalists.

Assume that the coalition seeks to maximize U_c , a weighted average of U_k and U_w

$$U_c = \lambda U_k + (1 - \lambda) U_w \quad (15)$$

λ could be $N_k/(N_k + N_w)$, the fraction of capitalists in the total population in the coalition.

(13), (14) and (15) imply

$$U_c = \theta Y_c \quad (16)$$

where $\theta = [\lambda \beta_k + (1 - \lambda) \beta_w]$. We now state

Proposition 2 : A Nash bargaining equilibrium that emerges through a bargain between landlords and a coalition of workers and capitalists, and supported by a credible threat of revolt (condition (5)), entails enfranchising the working class and a low disposable income for landlords.

Proof : A Nash bargain between the coalition and the landlords, driven by the threat of a revolt which might well succeed and which might then imply total expropriation of the landlords, would have a threat point involving a very low reservation utility for the landlord and a relatively high one for the coalition. Maximization of the Nash product

$$\begin{aligned}
& [\hat{U}_c - \underline{U}_c][\hat{U}_l - \underline{U}_l] \\
& = \theta[\hat{Y}_c - \underline{Y}_c][\hat{Y}_l - \underline{Y}_l]
\end{aligned} \tag{17}$$

subject to $\hat{Y}_c + \hat{Y}_l = Y$, the national income (in accordance with our calculations in equations (10) to (14), we use the convention that the public good is financed entirely out of Y_c)⁹, leads to

$$\hat{Y}_c - \underline{Y}_c = \hat{Y}_l - \underline{Y}_l. \tag{18}$$

Given the high level of $\underline{Y}_c$ and the low value of $\underline{Y}_l$, this implies a low disposable income for the landlords. To implement this, the legislative balance of power has to shift decisively in favour of the workers: the working class has to be enfranchised. Thus, the implicit Nash bargain implies the emergence of a new wider franchise.

This is a model of franchise expansion that is quite consistent with the Acemoglu-Robinson picture of a redistribution of voting power and income from the incumbents to the new voters under the threat of violence – though of course this is not the only possible outcome. We believe that this model fits the Second and Third Reform Acts. Britain had changed dramatically in the decades between the First Reform Act and the Second and Third. In 1832, England and Wales were primarily rural economies with 72% of the population living in the countryside. Industrialization transformed the landscape and the demographics. By 1871, the rural population had dwindled to 38% and by 1881 to 32% (Friedlander [1969]). The balance of economic power had shifted as well as the distribution of the population. The concentration of labour in large industrial agglomerations fostered unionization and made the labour movement a potent political force. The probability of success of an extra-constitutional threat to the existing power structure had multiplied many-fold since the 1830's – though working class living standards had been rising since the repeal of the Corn Laws, slowly till the 1870's and rapidly thereafter. The fear of expropriation made the landed elite very much more amenable to power-sharing arrangements than it had been in 1832. At the first hint of popular discontent with the pre-existing dispensation – the Hyde Park Riot of 1866, the aristocracy capitulated and coopted industrial labour into the power structure – so much so that it was Benjamin Disraeli and the Tories who presided over the enactment of the Second Reform Bill. It was no longer necessary to bribe the elite with tax-breaks and other such advantages. The fear of revolt was enough to ensure that they stayed in line. From the 1870's moreover, the supply of public goods – particularly public

⁹ Note that this is strictly a convention: we are choosing to label the sum of the entire expenditure of the coalition on private goods and the total taxes (or, equivalently, total public goods C) as $\hat{Y}_c$.

health expenditures – began to rise. This was followed from the 1880's onward by the rise of public education and the increase in the share of direct taxes in the revenue.¹⁰ The economic repercussions of the enfranchisement of a substantial section of the working class played themselves out. But though they reduced the power and prosperity of the landed gentry, such cuts were obviously preferable to wholesale expropriation.

4. Discussion

We have not addressed the precise processes of the formation and organization of groups and of their mutual interactions. These issues involve problems of collective action, of agency and of credibility. How for instance are bargains implemented in which simultaneous action on all the elements is impossible? If the different parts of the bargain are sequentially implemented, why should the beneficiaries from the earlier elements carry out the later parts, in which they may possibly stand to lose? What commitment devices enable sequential implementation of bargains and thereby make bargaining between groups possible? Important though these issues are, we have chosen to abstract from them because there exist well-known sets of institutions designed to solve such problems and a vast literature in political science that explains how they do so. These institutions include for instance the mass-integration (extra-legislature) political party, which must elect and control its representatives in Parliament and possibly in the government and which, because of its continuity, must maintain a reputation with the electorate and with other political parties. A small sample of the voluminous literature on how the party system resolves the problems we have mentioned includes Aldrich [1995], Blondel and Cotta [1996], Cox and McCubbins [1993, 1994], Damgaard [1995], Jones and Hudson [1998], Katz [1986], Katz and Meir [1992], Kiewiet and McCubbins [1991], Laver [1997], Mueller [1996], Muller [2000], Robertson [1996], Strom [1990], Weingast and Marshall [1988] and Wittman [1995]. Thus, our concerns about collective action problems and the like should not deter us from recognizing the insights that the group-bargaining approach offers into the process of democratization.

¹⁰ The analysis above complements studies like Engerman and Sokoloff (2005) that imply an association between greater equality and wider franchise (although their study is about the Americas). In our model this occurs through greater equality being associated with an increase in workers' bargaining power along with an increase in the probability of success of any revolt they might initiate.

5. Conclusion

We should emphasize that our focus in this paper has not been on identifying the determinants of democracy (on which there is a huge literature). Nor is our focus on episodes of democratization that follow wars (unlike authors like Ticchi and Vindigni (2008) who provide explanations for such episodes).

We have, instead, shown that, in a two-party representative democracy with a flexible constitution, the franchise cannot endogenously evolve, as many authors seem to believe. We need extra-constitutional processes to explain constitutional change in countries like nineteenth-century Britain, the standard example of peaceful democratic evolution. These extra-constitutional factors may include the threat of revolt (*a la* Acemoglu-Robinson). But, more generally, they involve bargaining games and implicit contracts between groups and classes, contracts that may be renegotiated as the parameters that determine the policy preferences and bargaining strengths of different groups alter.

We have then suggested that the constitutional history of nineteenth century Britain is best interpreted in terms of bargains between a coalition of ‘natural partners’ – capitalists and workers – and a landed gentry that, at the beginning of the century, firmly controlled the levers of power. The threat of revolt played a significant role in this process: it was not very credible at the outset and may not have influenced the Reform Act of 1832; but while the provocation for revolt diminished over the century, the credibility of the threat increased as the capitalists and workers increased in numbers, income and power while the landlords dwindled in numbers and significance. When credible, the threat of revolt meant that the ‘disagreement option’ was substantially worse for the landlords than the *status quo*. Their ability to extract any concessions in bargains struck under such circumstances was accordingly limited. Unlike Acemoglu and Robinson, therefore, our “elite” is not homogeneous (it comprises both landlords and some capitalists), nor are economic and political reforms always driven by a credible threat of revolt – allowing us to better explain episodes where reforms favored “urban men of property” but not workers, and involved many concessions (side payments) to the landed interest. Since revolt may, but need not, play a role, our model is more general. We repeat however a crucial caution: while our approach – assessing the credibility of revolt and using this to set threat points in a

group-bargaining process involving the entire population (and not just the current electorate) – is of general applicability, parameters specific to the time and the place determine whether the outcome is democratization or not.

APPENDIX

The Ricardo-Malthus model : Proof of Proposition 1

Given equations (6), (7) and (8) in the text, the requirement of a Pareto-optimal bargain implies maximization of U_k with respect to Y_k and C for any given value of U_l .

Now

$$dU_k/dY_k = \partial U_k/\partial Y_k + (\partial U_k/\partial C)dC/dY_k \quad (1a)$$

$$= (1 - \alpha)U_k/Y_k - \alpha N_k U_k/C. \quad (2a)$$

Equating this to 0 yields

$$Y_k/C = (1 - \alpha)/\alpha N_k \quad (3a)$$

(3a) implies

$$C/\alpha = Y - S - Y_l N_l = N_k Y_k/(1 - \alpha) \quad (4a)$$

Substituting for C in (6),

$$U_k = \{\alpha N_k/(1 - \alpha)\}^\alpha Y_k \quad (5a)$$

implying

$$Y_k = \{(1 - \alpha)/\alpha N_k\}^\alpha U_k \quad (6a)$$

Substituting for C from (4a) in the production function (7), we generate the linear production possibility frontier

$$Y - S = N_k Y_k \{1/(1 - \alpha)\} + N_l Y_l \quad (7a)$$

Along with (7) and (6a), this yields the linear utility possibility frontier

$$Y - S = N_k^{1-\alpha} U_k/\alpha^\alpha (1 - \alpha)^{1-\alpha} + N_l U_l \quad (8a)$$

The utility possibility set of all non-negative pairs $(U_k - \underline{U}_k, U_l - \underline{U}_l)$ that lie on or within the frontier (8a) is the bargaining set B : it is compact and convex and the Nash axioms can be applied to it to yield a unique solution that maximizes the Nash product $M = [U_k - \underline{U}_k][U_l - \underline{U}_l]$. In the present case, this has a particularly simple geometrical representation which we illustrate

in Fig. 1. The Nash product is the area under the utility possibility frontier after translation to a new set of axes through $(\underline{U}_k, \underline{U}_l)$. Given the linearity of the frontier, it is trivial to show that this area is maximized at the midpoint of the segment of the frontier that lies between these axes, implying equal sharing of the utility gains from cooperation. This does not however mean equalization of the gains in incomes $(\hat{Y}_k - \underline{Y}_k)$ and $(\hat{Y}_l - \underline{Y}_l)$:

$$\hat{Y}_k - \underline{Y}_k = \{(1 - \alpha)/\alpha\}^\alpha N_k^{-\alpha} (\hat{U}_k - \underline{U}_k) \quad (9a)$$

$$\hat{Y}_l - \underline{Y}_l = \hat{U}_l - \underline{U}_l \quad (10a)$$

If $N_k > (1 - \alpha)/\alpha$, - highly likely as the number of capitalists will be significantly higher than 1 - the coefficient of $(\hat{U}_k - \underline{U}_k)$ in (9a) will be less than unity. Then, even if $(\hat{U}_k - \underline{U}_k) = (\hat{U}_l - \underline{U}_l)$, landlords will enjoy higher increments in disposable income than capitalists. The existence of a solution where both classes gain implies that landlords are willing to extend the franchise to enough capitalists to ensure that the policy favored by the capitalists is enacted – provided the landlords are promised a very significant share of the economic gains.

Equivalence with the Kalai-Smorodinsky solution

Fig. 2 illustrates the Kalai-Smorodinsky solution to this game. Kalai and Smorodinsky represent their solution geometrically as follows. Let $b(B) = (b_k(B), b_l(B))$ where

$$b_k(B) = \sup \{U_k \in \mathbb{R} : \text{for } U_l \in \mathbb{R} (U_k, U_l) \in B\}$$

$$b_l(B) = \sup \{U_l \in \mathbb{R} : \text{for } U_k \in \mathbb{R} (U_k, U_l) \in B\}.$$

Consider the line L joining the threat point $(\underline{U}_k, \underline{U}_l)$ to $b(B)$. The maximal element of B on this line is the Kalai-Smorodinsky solution. In Fig. 2, $b(B)$ is the north-eastern vertex of the smallest rectangle with sides parallel to the axes within which the set B can be inscribed and L is a diagonal of this rectangle. In the present case, the utility possibility frontier is the other diagonal. The two diagonals intersect at the midpoint of each, which thus represents both the Nash bargain and the Kalai-Smorodinsky equilibrium.

Coalitional bargaining among three classes

Formation of the worker-capitalist coalition

For any given Y_c , maximize the Nash product

$$P = (C^{\alpha_k} Y_k^{1-\alpha_k} - K)(C^{\alpha_w} Y_w^{1-\alpha_w} - W) \quad (13a)$$

with respect to disposable incomes and public good output, subject to

$$C = Y_c - N_k Y_k - N_w Y_w \quad (14a)$$

where K and W are the disagreement options of capitalists and workers respectively.

This yields equations (10), (11) and (12) in the text..

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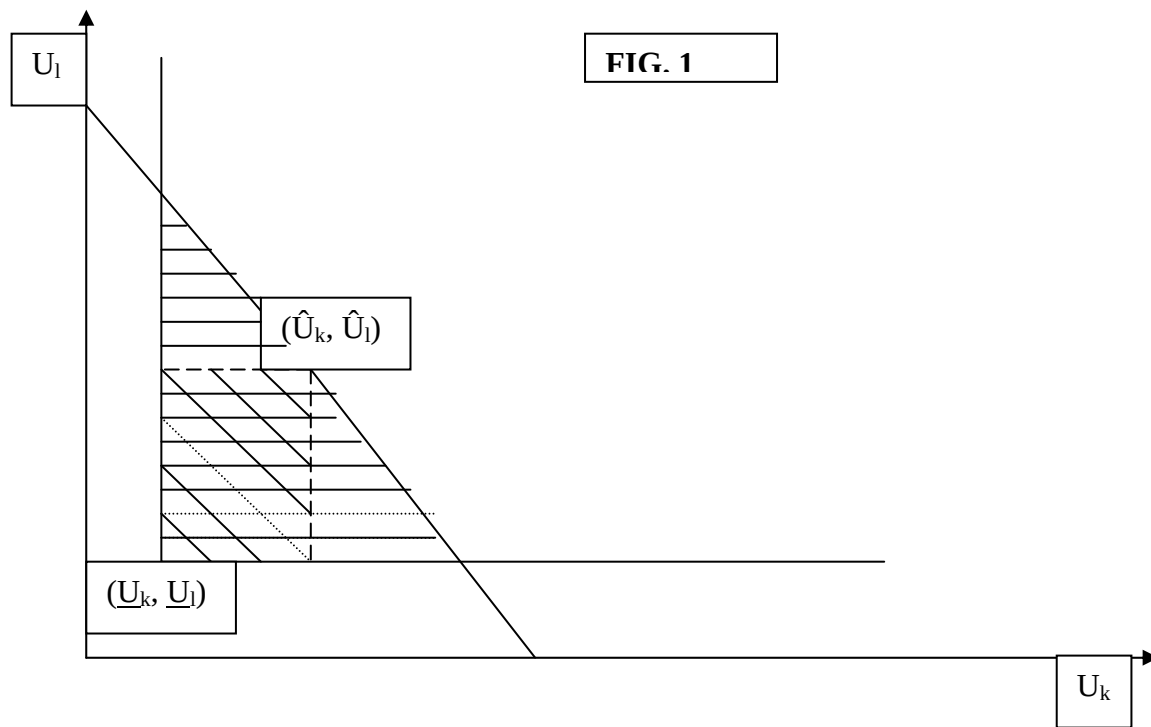


FIG. 2

