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ON THE DISTRIBUTIONAL EFFECTS OF POLITICAL DECISION MAKING, AN OVERVIEW AND SYNTHESIS OF PUBLIC CHOICE RESEARCH

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ABSTRACT

This paper provides an overview of public choice models of policy formation in areas that affect the distribution of income and wealth within and among nations. Three broad areas of policy are analyzed: (i) economic liberalization and public education, (ii) corruption and rent seeking, and (iii) the welfare state. Public choice analysis shows how ideology, economics, and institutions affect the distribution of wealth by affecting policy decisions. Policy choices (indirectly) determine rates of return from human and physical capital at the margin, and thereby (indirectly) determines economic growth and the distribution of income.

Public economics demonstrates that factor endowments only partially determine differences in income within and among countries, because public policies affect rates of return at the margin. Public choice analysis assumes that neither public policy, nor the distribution of income, is entirely exogenous, but rather are influenced by the interests and choices of government policy makers. A careful analysis of the settings in which policy choices are made implies that the policy preferences of policy makers are, however, partly consequences of institutional and economic interests, partly by the knowledge and ideology of policymakers, and partly by the procedures through which public policies choices are made.

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1. Introduction: Politics and Economics and the Distribution of Income

The distribution of income within a polity is often interpreted in strictly economic terms, especially by economists. Economic explanations focus on the distribution of wealth in the form of human and physical capital and the available production technologies. Classic examples include treatments of wealth and income in Debreu's (1959) *Theory of Value*, Krugman's (1979) analysis of the distribution of income among nations, and Becker and Tomes' (1979) analysis of the distribution of income among generations within a given economy. In Becker's words (1979, pp. 1153):

> The equilibrium distribution of income of children is determined by their market and endowment luck, the own income and endowment of (their) parents, and the two parameters: the degree of inheritability and the propensity to invest in children.

Becker's analysis allows for sociological and genetic factors, but ignores political ones. Personal income, thus, is largely determined by inheritance: initial endowments of physical and human capital.

Many political scientists consequently assume that the distribution of income is largely determined by exogenous economic factors, and, moreover, suggest that democratic institutions may be consequences of that distribution (Lipset 1959, Przeworski 1991, and Bueno de Mesquita and others 2003). In between these purely economic and purely political analyses is a good deal of public choice and political economy research that models the manner in which economic considerations affect public policy decisions and how those decisions affect the distributions of human and physical capital within a country and among countries (Buchanan 1984, Tullock 1986, Usher and Engineer 1987, Alesina and Rodrik 1994, Olson1996, and Alesina and Perotti 2003). Other related literature explores how minor differences in democratic political institutions affect public policy decisions, economic growth, and income (Congleton and Swedenborg 2006).

Economic analysis implies that the distribution of income is determined by the distribution and marginal productivity of land, labor, and capital. Public policy analysis, in turn, implies that

public policies have significant effects on the marginal productivity of land, labor, and capital. Politics, thus, largely determines the distribution of income in most societies – although the evidence suggests that this is not because of policies that explicitly attempt to alter the distribution of income. Public choice analysis, in turn, implies that public policies are determined by political incentives that are jointly determined by institutional, political, and economic considerations.

2. A Brief Overview of the Public Choice Approach

The public choice research program began in the late 1940s and early 1950s, with a focus on public finance issues. It subsequently developed models of economic regulation, international trade, and of the formation and effects of political institutions. During the 1990s a second more or less independent strand of research was founded by a new group, whose work is sometimes referred to as the new political economy, but which also analyzes policy formation using rational choice models, as in the work of Persson and Tabellini. That literature has been more comparative in its empirical work, which has greatly advanced our understanding of the role of institutions in public policy formation. This paper, however, focuses on the older literature, because it has received somewhat less attention during the past decade and because it is in many respects a broader literature. Both literatures, however, provide implicit theories of the distribution of income within and among countries, although that has rarely been their focus of analysis. In this paper, I will try to make these "implicit" theories more explicit.

Mainstream public choice research uses rational choice models and game theory to explain the policies adopted by government officials. This requires analyzing the incentives faced by those officials, which in turn requires analyzing the institutions (and constitutions) within which policies are chosen, because political institutions largely determine the incentives of government officials. Public choice research demonstrates that policymaking in democracies and dictatorships differ in important respects, but in both institutional settings policy choices are partly motivated by effects on the distribution of income. Most public policies advance the interests of supporters of those with the authority (or power) to make public policy.

Unfortunately, most public choice research focuses on single policy issues within given institutions. This allows particular policy choices to be analyzed carefully, but the piece-wise nature of the literature makes it difficult for the scope of the research program to be appreciated. It also

makes it difficult to see how its main conclusions fit together. For example, there are separate literatures on the politics of taxation, economic regulation, international trade, education, public pensions, and public support for healthcare.[1] There are also separate literatures on the manner in which political institutions arise, how they affect public policies, and of incentives to reform them.[2] This paper summarizes some of the main implications of public choice research for the distribution of income in and among countries.

The remainder of this paper shows how public choice analysis can be used to explain the observed distribution of income within and among countries. There are essentially three broad areas of public policy that largely determine the distribution of income within and among countries. First, there are policies that affect the openness of markets, both internally and externally. These policies, in conjunction with education policies, have major effects on the distribution of wealth by determining the extent of commerce, industrialization, and innovation that takes place within a given polity. Second, there are policies that affect the extent of rent seeking and corruption that takes place within a given polity. Governments that induce rent seeking activities (and corruption) cause resources to flow from productive market activities into the political influence industry, which often reduces both average income and income equality. Third, there are the policies of the modern welfare state that affect the distribution of income through differential taxation, and public insurance, pension, and welfare programs.

[1] One of the first major public finance areas in which wealth and growth effects were explored was with respect to public pensions (Feldstein 1996). Social security policies are not truly exogenous, as often assumed by public policy researchers; rather they are adopted by government officials who have clear personal interests. In democracies, elected officials normally want to remain in office and this implies that they will take account of voter interests. These interests, in turn, allow social security program levels to be modeled and predicted (Browning 1975, Congleton and Shughart 1990, and Tabellini 2000).

[2] The rational choice–based analysis of political institutions began with the work of Buchanan and Tullock (1962) and Mancur Olson (1965), and includes a broad variety of subsequent work such as that by Skogh and Stuart (1982) Buchanan (1993) Congleton (1997) and Weingast (1997). Institutions create a variety of contests for control over public policies that can be analyzed. The best known parts of the literature on such contests include the literature on elections and the literature on rent seeking. The literature on rent seeking analyzes games in which politically active persons or groups invest resources in political contests that are zero sum or negative sum games. The investment of scarce resources in such contests can have major effects on the distribution of resources among individual and industries, and among countries (Tullock 1967, Krueger 1974, Shleifer and Visney 1993, Mauro 1995, and Rose-Ackerman 1999, Congleton, Hillman, and Konrad 2008). Congleton and Swedenborg (2006) provide an overview of the empirical literature on the effects that variations in democratic constitutions have on public policy.

These policy areas are analyzed roughly in order of importance. Section 3 uses models from public choice to analyze government decisions to open markets and subsidize human capital. Section 4 shows how some forms of conflict over public policy can produce rent-seeking losses and policy choices that affect the distribution of income and wealth. Section 5 analyzes the fundamental politics of social insurance within contemporary democracies. Section 6 summarizes the analysis and suggests implications for public policy.

3. Market Liberalization, Public Education, and the Middle Class

During the nineteenth and early twentieth centuries, the countries that we refer to as "the West" reformed a variety of longstanding public policies in a manner that encouraged economic development. For example, Japan opened up both its internal markets and external markets during its Meiji period, as part of its liberalization and modernization project. These policy reforms had very large effects on the distribution of income within countries and among countries. The countries that liberalized in this manner were the only countries that industrialized. New markets and new occupations emerged as new technologies were applied. The income of the countries that supported the adoption of new technologies grew far more rapidly than the rest of the world, and the increase in income and wealth were not concentrated within the old elites. Rather, a new middle class emerged to become the consumers and voters of the West.

The reforms that opened internal and external markets were not the only reforms adopted during this period. Other public policies subsidized education, communication networks, and transportation networks. And political institutions were reformed in a manner that tended to make politics more open, more competitive, and more democratic. The latter helps explain why the new economic policies were adopted, because changes in political institutions, such as the adoption of the Meiji constitution, change the interests that determine public policies at the margin. The institutions themselves were changed because of ideological change and technological change.

Consider, for example, changes in education policies that were adopted during this period. Education expenditures, for the most part, have only very indirect benefits for the grownups that make policy decisions in a dictatorship or democracy, because most of the benefits from education accrue to persons who are currently children. Such policies do, however, have direct costs for adults in the form of higher taxes. It may benefit their children, but not if their children are already

educated through private schools and tutors or if the returns to education are low. Thus, it is fairly easy to predict the public education expenditures that will be chosen if only the wealthiest persons are likely to become policy makers, and those persons are rational and self-interested. In that case, very little will be spent on public education, which was the case for most of human history.[3]

Education was, consequently, a private service provided directly by families to their children for most of recorded history. Private education varied widely within such pre-industrial societies, because inherited wealth tended to be concentrated within a few families and parental ability to provide education to their children was substantially linked to inherited wealth.[4] To the extent that there was any formal public education, it was provided by churches and generous (altruistic) men of means, rather than governments.

This situation changed during the late eighteenth and early nineteenth century in Europe and the United States and about a century later in Japan. This reflected both technological and ideological changes. Technological innovations in the manufacture of clothing, transportation, and agriculture increased the efficient size of organizations, which increased the value added by educated laborers. The demand for literate and numerate labor increased, which increased support for public education among both elites and commoners. In addition, there were ideological shifts that favored equal opportunity and personal development.

> Heaven bestows life and along with it the ability and strength needed to preserve it. But though man might attempt to use his natural powers, **if he lacked freedom his abilities and strength would be of no use**. Therefore, throughout the world, in all countries and among all peoples **self-determined free action is a law of nature**.

[3] In hierarchical societies, education was a marker of class and authority, which reinforced the economic disincentives to spend broadly on public education. The distribution of education is very similar to the distribution of family wealth in such societies. Public support for education tends to increase competition for high offices in which reading, writing, and calculating are important duties, which tended to reduce the welfare of the privately educated families that had long "owned" such positions.

[4] Within Northern Europe and the United States, changes in religious doctrine associated with the Protestant Reformation and the innovation of the movable-type printing press had previously increased the private and church supply of education. Reading became privately more valuable at the same time that the cost of Bibles and other books and newspapers diminished. However, there remained little public education at the time beyond that provided by churches and families.

For example, one of the most literate men in the American colonies, Benjamin Franklin was self-educated, rather than publicly educated. The other famous well-educated "founding fathers" were well educated, because they grew up in relatively wealthy families, rather than because of government subsidies or public schools. Similar examples can easily be found for Europe and Japan.

> In other word, each individual is independent and society is for the **good of all** … The right to **freedom** and independence, which he receives from heaven **cannot be bought and sold**. (Fukuzawa 1867, quoted in Craig 1968: 107).

New economic and ideological interests, however, only affect public policies when such new policies advance the interests of those with the power to adopt new public policies. Policymakers will favor increased public education only if they expect to benefit economically and/or politically from greater expenditures. During the nineteenth century, this was often true for policymakers for economic and ideological reasons.

Political elites are, of course, nearly always interested in personal wealth, tax revenues, and the state's military power. Increases in education during the nineteenth century tended to increase rates of return from land and capital, as new technologies were adopted, which increased real estate taxes. Increases in human capital increased productivity and, thereby, wage rates, which created a new previously untapped source of tax revenues from income taxes. Support for public education was also consistent with the new liberal ideologies, which stressed personal development, hard work, and upward mobility in societies that previously had been relatively stable family-based hierarchies. (The latter, however, tended to reduce the relative income of privileged families and motivated many privileged families to oppose liberal reforms. Liberalization was not adopted by unanimous agreement.)

In the nineteenth century, there were many countries in which the "liberals" won the policy debates and the governments "liberalized" both their economic and political systems. In these modern societies, support for public education advanced political purposes as well as economic development. It helped make the common boy, and subsequently the common girl, into better adult voters by increasing their breadth of knowledge and ability to support the more competent leaders and more effective policies. In this manner, changes in ideology, technology, and institutions created new support for public education in the nineteenth century, which created more productive workers, more productive organizations, more productive capital, and better government. These reforms had profound effects upon the distribution of income within and among countries.

A. An Illustrative Model of the Economic Demand for Public Education

To illustrate how changes in technology can affect the demand for public education, consider the following model of policymaking by a pivotal political decision maker. In a polity ruled by elite

committees, such a person would be the pivotal member of the ruling council. In a polity whose rulers are selected by voters, this person tends to represent the median voter.[5] Assume that there is a preexisting distribution of capital and land and that government subsidies for education are to be determined. The (pivotal) policymaker, *i*, owns K_i units of capital and L_i units of land, which produce income

$$Y_i = y(K_i, L_i, E_i, E_o), \quad (1)$$

where Ei is the quality of the person's own work effort and E_o is that of other persons engaged in production within the firm or economy. The individual's own quality of labor, E_i, is given (reflects past expenditures). The average quality of other workers at the firm or organization, E_o, reflects average private expenditures and current public education expenditures (at the margin), $E_o = E_p + E_g$, because recent graduates are constantly entering the job market. Assume that public education is financed by an earmarked proportional tax on income, $NE_g = \sum_i tY_i$. This allows the educational budget constraint to be written in terms of average per-student expenditures and income levels:

$$NE_g = tMY_o,$$

which implies that the educational tax rate satisfies

$$t = E_g (N/M) / Y_o = N E_g / [M y(K_o, L_o, E_p + E_g, E_p + E_g)], \quad (2)$$

where N is the number of persons to be educated (number of children), M is the number of taxpayers, and Y_o is average income of a taxpayer. Note that the tax rate required to provide educational subsidies of E_g per student varies with average income and the ratio of taxpayers to students. Note that education expenditures are partly self-financing, because increases in Eg increase the size of the tax base.

For the purposes of this illustration, it is assumed that tax rates have to increase in order to increase public education expenditures. That is, it is assumed that education expenditures are not entirely self-financing, $t_{Eg} > 0$; although, it is clear that the larger the productivity of public education,

[5] It bears noting that during the nineteenth century, may parliaments were elected, but by very narrow wealth-based electorates. The median voter in such voting systems is the median citizen entitled to vote, rather than the median citizen. Within a dictatorship, the pivotal "voter" may be regarded to be the dictator himself.

the smaller the tax increase has to be to support a given increase in public education. The after-tax income of the policymaker who supports public education *Eg* is:

$$Y_i = (1- t)\, y((K_i, L_i, E_i, E_p + E_g). \quad (3)$$

Substituting equation 2 into equation 3 for t and differentiating with respect to the education expenditure Eg allows the personal income-maximizing policy to be characterized. An income-maximizing policymaker will select the per-student education expenditure that satisfies

$$Yi_{Gp} = -t_{Eg}\,(Yi) + (1-t)\, Yi_{Eo} = 0 \quad (4.1)$$

with the associated tax rate

$$t^* = E_g^*\,(N/M) / Y_o = N\, E_g^* / [M\, y(K_o, L_o, E_p + E_g^*, E_p + E_g^*)]. \quad (4.2)$$

The first term of equation 4.1, $-t_{Eg}$ (Yi), is the pivotal decisionmaker's marginal cost and the second, (1-t) YiEo, is his or her marginal benefit from public educational expenditures. The implicit function theorem allows i's ideal public education program characterized by equation 4.1 to be written as

$$Eg^* = e(N/M, Ki, Li, Ei, Ko, Lo, Ep). \quad (5)$$

Education expenditures are affected by the ratio of adult taxpayers to children and by the wealth of the pivotal decision maker (physical capital, land, and human capital) and by the average wealth of taxpayers.

B. An Increase in the Marginal Productivity of Human Capital Increases the Demand for Public Education

Note that this model predicts that education expenditures tend to increase if the technology of production increases the marginal product of an educated work force, regardless of the specific electoral system. Technological changes associated with the industrial revolution reduced the marginal cost of public education by making it more self-financing. Public education expenditures, thus, tend to rise with the technologies of industrialization, because they increase economy-wide

returns from human capital. Literate labor became more widely valuable throughout the new economy. This effect is similar in democracies and (secure) dictatorships, insofar as policy decisions can be approximated with a rational choice model of a single person's preferred public policy in each case.

In this manner, technological advances that affect the value of human and physical capital tend to produce new public policies. In the case modeled, the technological change increased the marginal product of human capital and produced new support for public education. The new education policies, in turn, increased the average income level within the country of interest. Increased subsidies for education also affect the distribution of income, because it tends to increase the productivity of the poorest persons more than it does that of the wealthiest persons, other things being equal.[6]

In the nineteenth century, a new middle class emerged from the old medieval distribution of income in all the countries that combined public support for education with more open markets.

C. Differences in the Demand for Education in Dictatorships and Democracies

In very lean economic-based models of voter and dictatorial policy interests, systematic differences arise through time and among countries, because of systematic differences in the wealth of median voters and dictators. For example, dictators tend to be wealthier than median voters. The effect of an increase in wealth on desired education expenditures can be found by differentiating equation 5 with respect to the land and physical capital variables. The derivative with respect to capital is of somewhat greater historical interest.

If we assume that the pivotal decisionmaker's capital holdings make up only a relatively small fraction of the total capital in a nation, the implicit function differentiation rule implies that this derivative can be written as

$$Eg_{K\,i}^{*} = [\, -t_{Eg}\,(Yi_{Ki}) - T_{Ki}\,Yi_{Eg} - t_{EgEg}\,Eg_{Ki}\,(Yi) + (1\text{-}t)\,Yi_{EoKi}] \,/\, [\, -Yi_{GpGp}\,] \qquad (6)$$

[6] If some students are better than others, whether because of family support or genetic endowment, the shift in relative income will favor better students over poorer students. To the extent that "better" is correlated with initial family wealth and socioeconomic status, the income-equalizing effect of public education tends to be smaller.

The denominator is negative one times the second derivative of the pivotal decisionmaker's after-tax income and is assumed to be positive as implied by the second order conditions for a maximum. The first two terms in the numerator are negative and reflect the higher tax cost of high-income persons under an income tax. The last term is positive and reflects the greater pool of assets that increase in productivity as a consequence of a more productive labor force. The third term is ambiguous, because it reflects the effect of greater capital holdings on the demand for public education and thereby on tax rates. If the last term dominates the entire expression, the partial derivative is negative. If not, the partial derivative will be positive and public education will be a normal good in the sense that demand increases with wealth and income.

Equation 6 demonstrates that the effect of greater capital holdings on the demand for public education tends to be ambiguous when education is financed by an income tax or property tax system, because both relative price and income effects exist (Husted and Kenny 2000). If the tax effects dominate, less will be demanded by wealthier pivotal decisionmakers (an aristocracy or dictator) than poorer ones (median voter). If the income effect dominates, more will be demanded.[7] The economic demand for education expenditures is not necessarily higher in democracies or dictatorships.

Of course, other noneconomic factors also affect political support for human capital subsidies. For example, regulations that reduce productivity throughout an economy tend to reduce the productivity of human as well as physical capital, reducing support. Dictators may prefer to suppress various groups that might threaten their rule and thus may only subsidize the education of their supporters. Moreover, richer models of self-interest may also affect the political support for education within democracies. For example, voters may be concerned about their children's future income and so middle-class voters may favor larger public education programs then those that maximize parental income.

In the nineteenth and early twentieth centuries, it is clear that expenditures on public education increased substantially in all countries that liberalized their political systems, as in Europe and Japan.

[7] This result parallels that of Husted and Kenny (2000) for expenditures in the United States, but with a somewhat different specification of pivotal policymaker goals and a different interpretation of results. See Glomm and Ravikumar (1992) for an overlapping generations model of education demand. See Fletcher and Kenny 2007 for recent pivotal decisionmaker-based estimates of education expenditures within the United States.

It bears noting that similar changes in education or the distribution of income did not occur in other countries in which opponents of liberalization won the policy debates.

In the West, we take for granted the existence of a large middle class. Economics and history, however, suggest that the emergence of a middle class was substantially a result of policy decisions triggered by changes in the technology of production and ideological shifts. In governments in which policymakers chose not to invest in public education, nor to open career paths and markets up to previously excluded commoners, the distribution of income remained as before. Economic theory and many recent statistical studies suggests that similar changes in the distribution of income and wealth have also occurred more recently in countries that have chosen to liberalize their political and economic systems. Unfortunately, political incentives in many other countries are not well-aligned with average or median interests, and so the distribution of income and political authority in such countries remains essentially medieval in character (Sala-i-Martin 2006).

4. Economic Losses from Redistributional Conflict

Public choice analysis has long stressed the possibility of government failure. The countries that failed to adopt liberal economic reforms in the nineteenth century may be said to have failed, in that their policies have produced economies with much lower total, average, and median income than could have been realized with other policies. Such failures arise because the interests of what might be called the "rule-making" class and "their" citizens are not well-aligned. In addition to these major policy "mistakes," there are procedures for making public policies that tend to divert resources from productive areas of economic activity to less productive or unproductive ones.

In settings in which public policies matter, but can be influenced through lobbying activities and bribery, organizations will form that attempt to influence public policies. In some cases, efforts by such special interest groups may improve the performance of existing institutions, in the sense that the average or median citizen is better off after the reform than before. This was clearly the effect of the liberal movements of the nineteenth century. Policy reform is not always a zero or negative-sum game. Many interest group activities, however, attempt to reduce the efficiency of economic and political institutions by, for example, creating monopoly privileges of various kinds, and, moreover, consuming resources while doing so (Tullock 1967 and Rose-Ackerman 1999).

A. Rent Seeking and Corruption and the Distribution of Income

Public choice analysis of the "dark side" of politics normally begins with the (implicit) assumption that the pre-rent-seeking slate of public policies is more or less efficient. This assumption is not necessary, although it allows one to focus on cases in which politically active groups attempt to establish a new monopoly privilege rather than to eliminate an existing one. Rent seeking in such cases can only reduce efficiency, because new special privileges tend to have dead weight losses associated with them. For example, an industrial interest group may lobby for rules that prevent entry of other domestic firms into its industry, or which reduce effective competition from firms in other countries, in order to realize monopoly profits (Tullock 1967, Hillman and Ursprung 1988). In other similar cases, political decisionmakers may use their regulatory or judicial authority to secure bribes and other favors from the firms and groups over whom they exercise authority by threatening to reduce their access to markets or education (McChesney 1987).

In general, there are two sources of economic loss associated with such activities. First, losses accrue because the political influence industry consumes resources (time, talent, and other resources) that could have been used in productive pursuits (Hillman and Katz 1987). It is clear that resources used in the political influence industry are not available for other uses. Resources are attracted into the "political influence industry" until the private rate of return from rent-seeking activities equals that of productive uses of resources in other industries (Tullock 1967, Krueger 1974, and Hillman and Riley 1989). Second, the policy changes induced by rent seekers may reduce economic efficiency. In cases in which policies increase transaction costs and trade barriers, as often the case with bureaucratic corruption and monopoly privileges, the efficiency of markets diminishes and the losses from rent-seeking are increased by losses associated with the new policies adopted. In such cases, "sand" rather than "grease" is added to the gears of commercial transactions. This second source of loss does not occur in cases in which interest groups produce policy changes that increase economic efficiency by, for example, eliminating a monopoly privilege.

The effects of corruption, an illegal form of rent seeking, have been estimated by public choice researchers and economists. Most of that research implies that corruption reduces economic income and growth rates (Rose-Ackerman 1999, Aidt 2002). Rent seeking (lawful) has been shown to have similar effects (Krueger 1974, Paldam 1997).

B. An Illustrative Model of the Use of Resources in Rent-Seeking Contests

The essential features of a rent-seeking contest between interest groups seeking an exclusive privilege can be illustrated with a game developed by Tullock (1980).[8] Suppose that there is a single decisionmaker, an autocrat or bureaucrat with allocative authority, and suppose that he or she is open to influence by those seeking the special privilege to be allocated. Suppose that the value of the privilege (a special permit, license, or exemption from a regulation of some kind) is R. Suppose also that the probability of receiving the privilege is determined by the ratio of each group's expenditures on political influence relative to that of all others. In this case, the expected net gain for group i, N_i^e, associated with expenditure E_i is:

$$N_i^e = R\ (\ E_i / \textstyle\sum_j E_j\ ) - E_i \qquad (7)$$

In symmetric rent-seeking contests with K identical players, the expected net benefit-maximizing effort for each player at the Nash equilibrium can be found by differentiating equation 7 with respect to E_i and evaluating this at the symmetric equilibrium.

In the case of K interest groups, the optimal expenditure is simply

$$E_i^* = [(k\text{-}1)/k^2]\ R \qquad (8)$$

and the total amount, L, invested in the game by all k participants in the contest is

$$L = [(k\text{-}1)/k]R \qquad (9)$$

Equation 9 demonstrates that investments in rent-seeking contests tend to increase with the number of persons (groups) in the contest and the value of the privilege sought. In the limit, as the number of groups increases, resources equal to the full value of the prize is invested in the political influence contest. (Note the limit of $(k\text{-}1)/k$ is 1.)

The investment, L, is sometimes called the rent-seeking loss from such political contests. The participants would have all been better off if they had each invested the smallest possible amount,

[8] See Congleton, Hillman, and Konrad (2008) for an extensive sample and survey of the rent-seeking literature.

rather than their privately optimal amounts. The net loss for society, however, also depends on the nature of the process through which one increases his or her probability of winning and the nature of the policy or prize being contested (Congleton 1980). If R is simply a transfer from one sector of society to another, there are no gains from the contest itself, and all the resources invested may regarded as a deadweight loss for society in aggregate. If R is produced by entry barriers or taxes, which generate an economic deadweight loss, D, (Harberger 1954), the net losses are $L + D$.

On the other hand, if the method of winning the privilege requires productive activities, the losses are reduced by the net gains, G, produced by the competitive process itself, as with races for patents, and net losses are $L - G$. In the latter case, it is possible that $G>L$. Such rent-seeking contests are a positive, rather than negative sum game for society in the aggregate, although the net benefits may still be increased in many cases by policies that reduce L.

C. Rent Seeking, Political Institutions, and the International Distribution of Income

It is clear that some standing procedures for making public policies induce greater rent seeking and/or less productive economic activity than others (Congleton 1980). For example, a society with a government that is willing and able to change economic property rights in response to rent-seeking activity will tend to attract resources into the political influence sector and away from ordinary economic investments. Such policies and procedures increase returns from rent seeking relative to those of productive economic activities. In cases in which political and economic risks increase relative to those available in other countries, mobile resources also tend to shift to other countries in which investments are less subject to those risks (Kormendi and Meguire 1985, Mauro 1995). On the other hand, governments that are constrained by a constitutional "takings clause," as tends to be the case in most Western democracies, can make such transfers only by paying for the resources shifted from one person to another. This reduces risks from private investment and also reduces the returns from rent-seeking activities by reducing the extent of possible transfers.

Customs and laws with respect to the salaries of bureaucrats also affect incentives for rent seeking and corruption. A government in which officials routinely accept "compensation" for their efforts from ordinary citizens in addition to their government salaries may be somewhat more responsive to their "citizen-customers" than in settings in which they are not able to accept such "tips." These extra sources of income will reduce the tax burden necessary to support a bureaucracy

by reducing required salaries; however, such practices also tend to induce officials to use their discretion over the implementation of policy to favor those making the highest "tips." Such procedures clearly affect the distribution of income (and the legal system) by generating special laws (often in the form of exemptions and tax advantages) for those making relatively large gifts to government officials (Aidt 2003).

In cases in which productive resources are more or less mobile, economics implies that resources will shift from such high-risk societies to ones in which property rights are more secure. International factor mobility also affects the distribution of income within countries, because not all factors are equally mobile. For example, labor is often less mobile than capital. As capital departs for less risky countries, labor-capital ratios decrease, reducing income from labor and increasing it from capital. In this manner, by affecting the worldwide distribution of physical and human capital, political institutions favoring rent seeking and corruption tend to have substantial effects on the distribution of income within and among nations. Net labor migration also tends to be from "rent-seeking societies" to less corrupt ones (Shleifer and Vishney 1993).

Corruption, together with other industrialization policies generated by rent seeking, has significant effects on the international distribution of income (Weede and Tiefenbach 1981, Gwartney, Lawson, and Holcombe 1999, Sala-i-Martin 2006). Congleton (1980, 1997) suggests that rent seeking in well-functioning democracies tends to be less than that in dictatorships, which may partly explain the difference in average incomes between democracies and dictatorships.[9]

5. Social Insurance and Public Services in Contemporary Welfare States

In addition to laws affecting capital formation and the character of political competition, there are also a wide variety of other government policies that affect the distribution of income and wealth, although to a much lesser degree. For example, the provision of public services, such as police and fire protection in a uniform manner tends to equalize real income. The assignment of government contracts to particular firms and placement of government facilities in particular areas also tends to

[9] It bears noting that avoiding counterproductive rent-seeking games is not simply a matter of having the right laws formally in place. Corruption is formally illegal in most countries, including many with high levels of corruption. The extent of corruption tends to vary with the laws in place and also the enforcement measures and extent to which courts will punish officials (including the occasional judge) for violating corruption laws (Feld and Voigt 2003).

affect directly the distribution of income (and incentives for rent seeking). In addition, there are public policies that attempt to address income security and distributional issues concerns through various forms of social insurance. These programs have smaller effects on the distribution of income than might be expected, although they do increase the welfare of the (potentially) poorest m embers of their societies. Tanzi and Schuknecht (2000), for example, find that only very modest changes in the income distributions of OECD countries can be attributed to the size of "redistributive" programs.

The Tanzi and Schuknecht estimates do not necessarily indicate high levels of corruption in welfare states, but rather suggest that the main end of social insurance programs is risk pooling, rather than redistribution. True insurance programs tend to have relatively small effects on the distribution of national income, although it does shift some resources from "winners" to "losers." Encompassing social insurance programs tend to flatten somewhat the distribution of income, because those who are unfortunate tend to have lower real income because of health problems or economic bad luck receive insurance payments funded by those who are not. In the case of social insurance programs focused on the elderly, payments come largely from the middle aged, but also the working elderly in most cases. However, the "winners" are far more numerous than the "losers" in true insurance programs, and so such programs do not reduce the variation in income and wealth among policy holders very much.[10]

Countries that provide significant social insurance are often called "welfare states." Congleton (2007b) notes that European parliaments adopted new tax-funded unemployment and pension programs at about the same time that universal suffrage was adopted. Consequently, the basic institutional structure of those programs tended to one chosen by liberal and conservative political parties. The programs have had broad public support that extends well beyond the groups that receive the transfers, although few would argue they are perfect in all details.[11] Controversies at the

[10] For example, health insurance largely transfers money from the healthy to the ill within more or less similar income classes. Unemployment insurance and employment programs take from the employed middle class and give to those who are also more or less middle class, but unfortunately between jobs. Both the sick and unemployed are a small minority of persons in these social insurance programs.

[11] It bears noting that many of the national social insurance plans in Europe were initially established by governments dominated by liberal and conservative political parties in the late nineteenth and early twentieth centuries and subsequently continued by governments dominated by social democratic or labor parties. Germany's social security program began in 1889, Sweden's in 1909, and the United Kingdom's in 1911, all a decade or more before social democrats or labor parties had broad legislative power. A similar social security

policy margins imply that the parameters of such social security systems are adjusted through time and that the adjustments affect the distribution, timing, and level of income within a society.

Within standing insurance program and tax systems, policy adjustments reflect the usual political considerations. Within democracies the median voter is decisive and, within dictatorships, the dictator is. Within mixed governments, compromises between an unelected executive and an elected parliament will be decisive. As the interests and constraints of pivotal decisionmakers change, so will the level of security provided by social insurance. The economic considerations affecting publicly financed pensions and income and health insurance differ somewhat, but all three can be modeled using fundamentally similar rational choice models.

A. An Illustrative Model of the Politics of Social Insurance

To illustrate how public choice analysis can be used to predict the extent and dynamics of social insurance programs, consider the case of health insurance subsidies. Health insurance and health services are conditional "transfers" provided in most industrialized democracies. In some cases, program benefits are available only for the poor, in other cases, for the poor and the elderly, and in still others, for all citizens. When health benefits are restricted to the poor, they should be regarded as an "in-kind" part of an income security program. When benefits are limited to the elderly, they should be regarded as an in-kind part of the public pension program.

Health subsidies may be provided by government directly (as in-kind conditional transfers) or may take the form of subsidies for insurance purchased in markets, for example, as occurs in the United States through various provisions of the income tax. Indeed, the United States has separate programs for the poor, the aged, and middle-aged persons, which demonstrates that public support for health insurance can take many forms. Health insurance is demanded because it (in the form of medical services) reduces discomfort from illness and also speeds return of the insured to ordinary

program was introduced in Japan in 1922, at approximately the peak of democracy within the Meiji parliamentary system and at a time when a liberal-moderate coalition held a majority in parliament. The social security programs of the United States were adopted somewhat later, but by a Republican Congress in 1935, albeit at the insistence of a Democratic president and with much dissension. It was extended to include disability insurance under a Republican administration in 1954 and recently extended to include broader health benefits by another Republican Congress.

work life. The latter case is focused on below, because this seems the more relevant consideration for contemporary policy debates.

To simplify for purposes of illustration, consider the case in which a subsidy for health insurance is to be chosen by the median voter and the median voter is narrowly concerned with his own economic welfare.[12] An individual's private demand for health insurance can be modeled as a decision to maximize expected income, Y^e. In a setting in which illness strikes more or less at random, illness reduces the number of days that can be worked, W. Health insurance through its payment for medical benefits reduces the days lost from work by speeding recovery. Suppose that the probability of being healthy during the period of interest is P_h and the probability of being sick is $(1-P_h)$, while the days worked if healthy are $W(h)$ and those worked if sick are $W(s|I)$ with insurance coverage I. In this case, expected income (private consumption) during the period of interest can be written as:

$$Y^e = P_h\, W(h)w + (1- P_h)\, W(s|I)\, w - cI \qquad (10)$$

if the individual earns wage w per day of work and c is the marginal cost of additional insurance coverage. Differentiating with respect to I allows the expected income (consumption)-maximizing level of health insurance, I*, to be characterized as

$$Y^e_I = (1-P_h)W(s|I)_I\, w - c = 0 \text{ at } I^* \qquad (11)$$

Given equation 11, the implicit function theorem implies that the private demand for health insurance can be written as

$$I^* = i(P_h, w, c) \qquad (12)$$

The first term of equation 11 is the marginal benefit from the insurance and the second is its marginal cost. Equations 11 and 12 imply that the private demand for medical insurance increases as

[12] Congleton (2007b) argues that such self-interested programs serve as the foundation of the observed "liberal" welfare state. Of course, other considerations, especially altruistic and ideological factors, may also affect voter (and dictator) preferences. These are neglected here to illustrate how mainstream public choice models that neglect such factors can be applied to analyze a social insurance (subsidy) program.

the probability of being sick increases, as the effectiveness of health care increases, as personal wage rates increase, and as the marginal cost of more encompassing insurance decreases.

A voter's demand for public subsidies is partly based on his or her private demand for health insurance and partly on fiscal considerations. Suppose that a subsidy, *s*, is to be paid for with an earmarked flat payroll tax, as often used to finance social insurance programs. To simplify a bit, suppose that the supply of labor is inelastic, so that the payroll tax is borne entirely by labor. The typical voter's tax price for health insurance subsidy *s* varies with the distribution of income and the size of the health insurance market. Suppose there are three income classes characterized by wage rates w_1, w_2, and w_3 with n_1, n_2, and n_3 persons in each class and that the health insurance subsidy is targeted at these families. The expected tax revenue, *T*, generated by flat tax of rate *t* in this case is

$$T = (1\text{-}t) \sum_i n_i [\, P_h\, W(h) w_i + (1\text{-}\, P_h)\, W(s|I)\, w_i \,] \tag{13}$$

and the aggregate demand for insurance, I^A, given a subsidy of *s* yen per unit of insurance, is

$$I^A = \sum_i n_i\, i(P_h,\, w_i,\, c - s\,) \tag{14}$$

given the above results, which implies that an insurance subsidy program of amount *s* costs

$$S = sI^A. \tag{15}$$

If the health insurance subsidy must be entirely self-financing, this implies that the tax rate *t* has to be such that:

$$(1\text{-}t) \sum_i n_i [\, P_h\, W(h) w_i + (1\text{-}\, Ph) W(s|I)\, w_i \,] = sI^A, \tag{16}$$

which the implicit function theorem implies can be written as

$$t = g(s,\, n_1, n_2, n_3, w_1, w_2, w_3,\, c). \tag{17}$$

The required tax rate will vary with the distribution of income, probability of illness, and elasticity of demand.

The median voter will select the subsidy and tax rate combination that maximizes his or her expected after-tax income (personal consumption):

$$Y^e = P_h\, W(h) w_2\, (1\text{-}t) + (1\text{-}\, P_h)\, W(s|I^*)\, w_2\, (1\text{-}t) - (c\text{-}s)\, I^*. \quad (18)$$

Substituting equation 17 for t, differentiating 18 with respect to s, and setting the result equal to zero yields the first-order condition that characterizes the median voter demand for health care subsidies:

$$-t_s\, w_2\, [P_h\, W(h)\, (1\text{-}t) + (1\text{-}\, P_h)\, W(s|I^*)] + I^*$$

$$+(1\text{-}\, P_h) w_2\, (1\text{-}t)\, W(s|I^*) I\, I^*_s - (c\text{-}s)\, I^*_s = 0 \quad (19)$$

The median voter's ideal subsidy level, s^*, occurs where his or her marginal cost from additional taxes (the terms on the first line) equals his or her savings from insurance and the reduction in time lost from work. Note that the subsidy is partly self-financing, because days at work and tax revenue increase as insurance coverage becomes more extensive. It also bears noting that the relative-price effect of a health-insurance subsidy also has effects similar to a redistribution of income. To the degree that poorer workers are more price sensitive than richer workers, poorer workers purchase relatively more insurance, given the subsidy, and so work relatively more days than they would have without it.

The private demand for health insurance subsidies differs from that of an income transfer, because the median voter can, at most, recover all of the lost sick days. Health insurance, thus, is less likely to produce a corner solution (when motivated by economic considerations) than a truly redistributive plan, because there are clearly diminishing returns to this indirect shift in income from relatively high income to relatively high poor workers. Consequently, the ideal subsidy program from the perspective of the median voter is not likely to eliminate all economic risks from illness.[13]

[13] The maximal economic advantage may be presumed to occur with a finite health-care given available technologies. The subsidy adopted will be less than this maximal level, because the marginal tax cost of the program is larger than zero. Corner solutions, cannot be entirely ruled out, however, because conditions exist under which the preferred subsidy reduces the marginal cost of insurance to zero, $s^*=0$. Corner solutions are not, however, impossible. For example, in cases in which personal income increases with s, and the marginal tax cost (net of the self-financing effect) is zero for the median income group, health insurance might be used as an indirect form of redistribution. Such tendencies may be reinforced by altruism and misperceptions of the productivity of health care.

B. Limits to Democratic Redistribution of Income and Wealth

In other social insurance programs and transfer programs the risks of corner solutions are somewhat greater, because redistributive aspects of the programs are greater and risk-pooling aspects smaller. Such concerns have been noted by numerous political theorists, stretching back to the time of Aristotle (Congleton 2003). In addition to these long-standing concerns of political theory, the public choice literature has also noted that majority rule is not always able to make (stable) decisions. Majoritarian "cycles" often exist, unless countered by institutional arrangements or procedural norms (Black 1948, Arrow 1951, Usher 1981, and Congleton and Tollison 1999). These public choice analyses imply that there are circumstances in which a democracy will not be able to make a policy decision, and by failing to do so, may fail to produce services desired by voters.[14] In cases in which the services are essential to state survival, majoritarian cycles can cause democracies to fail.[15]

Redistributive programs are subject to such destabilizing effects, because the "dividing the pie" game lacks a Nash equilibrium under majority rule. Every possible way of dividing "a pie" (redistributing wealth or income) is majority dominated by some other. To see this, suppose that three units of income are to be divided up among three persons (or three coalitions casting the same number of votes). Note that a uniform distribution of income (1, 1, 1) is majority dominated by a less equitable one (1.5, 1.5, 0), which in turn is dominated by other distributions (2.5, 0, .5), some of which are, in turn, dominated by the uniform distribution (1, 1, 1), and so forth. For any given distribution of income of wealth, another can always be found that will be preferred by a majority.

Policy decisions in such areas cannot be freely made through democratic procedures. Other supporting institutions are evidently necessary to escape from such majoritarian traps (Weingast and Shepsle 1981, Buchanan and Congleton 1998). Whether such institutions are adopted by intent or are products of good luck, such institutions are evidently necessary for democratic policy formation to produce tolerable results. In the absence of such institutions, the lack of a clear policy choice unde

[14] Buchanan and Congleton (1998) suggest that a uniform provision of government services increases the efficiency of democratic governance partly for this reason.

[15] The politics of a subsidized health insurance program under a secure dictatorship are similar to that modeled above. However, net tax revenues would be maximized, rather than median income, insofar as the dictator is a residual claimant on the society as a whole (Olson 2000). Subsidies are below than this level for insecure dictators, because their planning horizon tends to be shorter. However, a dictatorship is not subject to majoritarian cycles and, so, can engage in more redistributive programs than a democracy can without undermining its core decisionmaking procedures.

majority rule may reduce support for democracy or weaken its ability to defend itself (Congleton 1998, 2003). In such cases, it may not be the policy decisions of democratic governance that determine the distribution of income and political authority, but rather ones not made. Usher (1981) argues that such considerations limit the extent to which a democracy can engage in truly redistributive policies.

6. Conclusions and Overview

The distribution of national and international income has long been affected by major and minor public policy decisions. And, for at least the past two centuries, it can be argued that politics has been a more important determinant of the distribution of income than economics or technology, although the latter are also important. The most important political decisions were with respect to policies that allow resources to flow to higher valued uses. The liberal trade and education policies that the OECD countries adopted in the nineteenth and twentieth centuries reduced internal and external barriers to trade and increased the formation of human capital through major increases in government support for education. As a consequence, the productivity of both capital and labor increased, which produced a new higher and broader distribution of income that included a broad middle class. The existence of a broad middle class is a relatively recent development, and was an important distributional effect of political and economic liberalization.

The countries that failed to adopt policy reforms that opened markets, increased support for public education experienced far less "revolutionary" changes in their societies, with the result that their preexisting distribution of income also remained largely in place, with a relatively large number of persons living more or less at subsistence. The wealth increasing and equalizing effects of more open markets and education subsidies, did not emerge from redistribution, per se, but rather from equalizing productivity and expanding economic opportunities within the countries of interest. The emergence of a broad middle class did not eliminate differences between the rich and poor, it simply filled in the middle of the distribution by reducing the number of poor persons.[16]

[16] Part of the confusion that remains today is a consequence of past confusions and coincidences. The policies that actually produced wealth in the West were adopted at about the same time as great empires were often created by conquest. Nonetheless, it bears noting the countries that liberalized without creating empires also prospered in the nineteenth century (Sweden, Norway, Switzerland). Other countries remained wealthy when their great empires were given up (often peacefully) after their voters finally recognized that the economic cost of such empires exceeded their economic benefits (Belgum, Denmark, the Netherlands, the United Kingdom). (There were other private, ideological, and nationalistic benefits of empires that partially explain their

The great divergence in national incomes produced by liberalization in the nineteenth century, perhaps surprisingly, remains evident today, particularly in the parts of Africa and the Middle East that have adopted the fewest liberal reforms. By now it should be clear that the distribution of income within undeveloped countries is not the result of exploitation from the West, with minor exceptions, but rather of policy decisions made in those countries. In spite of the many economic advantages associated with economic and political liberalization, many policymakers favored their medieval status quo, and in many countries it was such "conservatives" that won the internal policy debates. The conservatives did not (usually) favor their old policies because of ignorance about the consequences of economic and political liberalization, but rather because they directly or indirectly benefited from their closed political and economic systems.

In addition to the major differences in the distribution of income associated with fundamental economic and political institutions, there are also differences in the distribution of income among countries with similar economic and political institutions. Public choice analysis suggests that, other things being equal, countries tend to be richer (have higher average income) if they can avoid internal and external redistributive conflict, especially over income-reducing policies. Rent-seeking and corruption can reduce national income in three ways. They divert scarce resources into unproductive pursuit of special privilege(s), and when groups succeed in obtaining special privileges those privileges tend to retard economic opportunity and development. Higher transaction costs, regulatory uncertainty, and barriers to entry also induce outflows of the mobile factors of economic and cultural production. As persons in the (potential) middle class move to countries with more opportunities, the distribution of income within rent-seeking states shifts toward the nearly bipolar medieval distribution of rich and poor.

Domestic social insurance policies also influence the distribution of income within and among countries, but evidently to a smaller degree than economic liberalization, rent seeking, and corruption. For the most part, contemporary welfare states have created "safety nets," rather than large-scale programs of redistribution. Such programs shift income from relatively numerous groups of "non losers" to unlucky "losers," which somewhat narrows the distribution of income, but less so than much of the rhetoric of redistribution suggests. Taxes and benefits associated with generous social insurance programs affect incentives to work and save and to have children in the short run.

existence, which also shifted through time.)

These, in turn, affects the rates of return on human and physical capital and land at the margin, and through such effects the supply of productive resources in the long run. There are also, evidently, risks of long-term cultural effects, such as the erosion of work ethics (Knack and Keefer 1997, Lindbeck, Nyberg, and Weibull 1999).

All three of these clusters of public policies suggest that politics tends to be the fundamental determinant of the distribution of income in and among nation states. This is not usually because of explicitly redistributive policies, but rather because public policies "frame" the competitive contests that emerge in society, and because some contests increase wealth while other diminish it.

Public choice research directs attention to the interests of policy makers. The interests of policymakers are substantially products of the procedures and constraints through which government officials are selected and public policies are adopted. As a consequence, public choice analysis implies that elected officials who want to remain in office should pay a good deal of attention to the interests of their median voters. Institutional interests, however, are not the only determinants of public policy. Technological and ideological shifts can also have significant effects on the decisions of policymakers by creating new possibilities or new estimates of benefits and costs that are relevant for the aims of policymakers. Indeed, in some settings, changes in technology, economic theory, and political theory can induce institutional reform, as was the case in many countries during the nineteenth and twentieth centuries.

Public choice analysis, however, implies that institutional reforms are not always adopted in the countries that could profit from them, because the persons and coalitions that rise to positions of authority under a given set of institutions tend to favor those institutions. Proposed institutional reforms will be taken seriously only if policymakers believe that changes will actually improve their circumstances and/or that of their supporters. Public choice analysis implies that institutional reforms are most likely to be adopted when "exogenous" shocks affect the interests of the officeholders with the authority to adopt reforms. In the nineteenth century, technological innovations and ideological shifts provided such shocks. A minor extension of that analysis implies that such "exogenous shocks" can be produced by the policies of countries and groups outside the countries of interest.

This conclusion has recently induced a variety of efforts by developed countries to promote reform through international agencies and interest groups in third world countries, as with the World Bank's recent emphasis on governance and corruption, the recent attention given to the importance

of judicial independence, and efforts to increase central bank independence and the transparency of financial markets. To the extent that these programs are successful, we may see another wave of political and economic liberalization that changes the distribution of income within and among nation states, as seem to be underway, for example, in India and China.

It is interesting to note that public choice research, itself, can also potentially induce such reforms. Insofar as public choice analysis sheds light on issues neglected by other social scientists, it can change a preexisting political equilibrium by providing a new clearer assessment of the effects of reform. These new assessments, in turn, can create new opportunities for policy and institutional exchange among those with the authority to adopt reforms.[17]

[17] Mainstream models rarely include the effects of advice from policy experts or social science research, because most research is based on models that assume perfect information or stable information sets and expectations. Scientific innovation, however, demonstrates that new information is always possible, and new information can change predictions that are relevant for public policy choices. Here one may note that present debates over policies to address global warming are all grounded in relatively new scientific discoveries, theories, and controversies.

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