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EDITORIAL POLICY STATEMENT

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WHY WERE INVESTMENT RATIOS SO HIGH IN SOVIET-TYPE ECONOMIES?

A PUBLIC CHOICE APPROACH

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THE PROBLEM

High ratios of investment to national income were the hallmark of nearly all socialist economies known to this day. Ever since the inception of the planning era in the Soviet Union, socialism was almost coterminous with industrialization and commitment to rapid growth. Investment ratios in the neighborhood of 30 percent were perhaps typical of socialist countries in the postwar era, compared to some 20 percent for the average developed capitalist countries. Even though significant variation over time and space did occur and measurement problems abound, this simple, stylized fact seems sufficiently well-established to call for theoretical explanation—as opposed to historical justification or ad hoc accounts.

Yet no such explanation is available in the economic literature. The most popular account among students of socialist economics, perhaps the only one available, appeals to the preferences of the political elite or nomenklatura. The latter are fond of rapid growth and give first priority to capital goods industries—also because they are at least partly sheltered from bearing the costs of accumulation in terms of consumption forgone. Further, once a planning bureaucracy has been set up, a pro-accumulation bias becomes embedded in the routine operation of the system: the “steel eaters” want more and more factories. If pushed too far, this account boils down to a sort of conspiracy theory of investment ratios. The poor working classes, the alleged beneficiaries of the socialist revolution, are forced to abstain from consumption even more than under capitalist rule. It is remarkable how often and steadily the working classes have been so fooled all over the world. If not pushed that far, the standard account contains an obvious grain of truth, but then it can even less claim to be an explanation.

Among the problems raised by the supply-side approach summarized above and especially disturbing is the fact that it hardly squares with the evidence of widespread popular support for many socialist regimes. Even in these years of decline and fall, some, though not all, of those regimes proved capable of commanding mass support. Even in the absence of democratic elections, it is as if many socialist regimes had somehow been able to gain the consent of large constituencies, which is just what they were supposed to be there for after all. If so, then the pro-investment bias of the ruling classes must be traced back to the preferences of (some relevant subset of) the population.

This step takes us into the domain of mainstream economics built on the paradigm of rational individual choice. But here we are faced with a seeming paradox. When confronted with saving and investment decisions, a trained (Neo-Classical) economist will typically look for rates of time preference. But if, as usually is assumed, these rates are inversely related to income, then the capitalists would typically save and invest more than the workers. To the extent that socialism reflects, however imperfectly,
workers' preferences, as suggested above, then a socialist economy should be expected to exhibit a lower, not higher, investment ratio than its capitalist counterpart.

The paradox is easily solved, however, if we drop the incorrect assumption that consumption decision approach altogether and start thinking of investment in physical capital as a normal private good that is allocated by the market under capitalism but is socialized under socialism. The term "private good" is used here in the technical sense of the polar opposite of the textbook case of a pure public good. That is, a private goods is one for which exclusion of nonpayers from consumption is technologically feasible and which exhibits no relevant efficiency gains from joint consumption. Whether or not such a good is collectively supplied is thus the consequence of a political decision, not of a technologically imperatively. Market allocation means (at least in a long-run, Neo-Classical framework) that individuals "buy" their preferred amounts of investment on the market and pay for it through voluntary saving. If the market capital is perfect, it will ensure consistency of the firm's investment decisions with the consumers' saving decisions, resulting in a Pareto-optimal intertemporal consumption allocation, or consumers' sovereignty on investment as well as consumption decisions. This implies that investment is a private good in that all externalities are internalized and no individual free riding occurs. By contrast, socialization or collectivization means that the overall level of investment is decided by some political processes and that all consumers (as a simplifying hypothesis to be discussed shortly) are made to share equally in its proceeds. In turn, this accumulation is financed by the state through forced saving. Then, if, as argued above, (some significant section of the population has a voice in political decisions under a socialist regime, it becomes a meaningful question to ask what level of collective investment individuals would prefer and "vote for", given the collectivist arrangement just described. Since individuals here are assumed to have identical tastes or time preferences (to sharpen our focus on essentials), and since they enjoy equal shares of the benefits from accumulation, the answer will necessarily depend on the costs individuals will have to bear to finance it — that is, on the ex post distribution of net income after financing the accumulation.

If such an approach is thought to be worth exploring, then a framework developed within the public choice literature, and known as the collective provision of private goods (Buchanan, 1970; 1971; Spann, 1974; Lovell, 1975), becomes directly applicable to our problem. This literature employs a rational individual-choice approach to public decision making to derive comparative propositions about efficiency, distributional, and total output effects of two alternative mechanisms for allocating a private good such as education or medical care — the market and the ballot box. My claim in this paper is that the same can be done for capital accumulation. The focus is on output effects alone, disregarding allocative efficiency altogether. Also, I concentrate on the demand side of the problem, leaving the supply side to take care of itself: my approach is intended to be complementary, rather than alternative. As the supplementary literature in the sociological literature. My basic innovation will be the assumption of a progressive tax structure, whereas the existing literature works mainly with proportional taxation or Lindahl taxes. Three key modeling devices employed by the public choice literature will, however, be incorporated here: a political decision process governed by the voters' equal sharing in the stream of benefits from the collective good, and the financing of collective provision through income taxation. Since this set of assumptions may strike the reader as remarkably out of joint both form and substance of historic socialist regimes, their use requires justification, which is the subject of the next section.
persist under socialism as an incentive to performance and occupational and sectoral mobility. In the place of egalitarianism, economic development and industrialization became foremost in Communist priorities. The historical record suggests that inequalities in official personal incomes, as gauged by such measures as quintile ratios, were indeed narrower on average in Soviet bloc countries (especially in countries outside the Soviet Union) than in comparable capitalist countries, although not tremendously narrower and with some overlap across samples. Here the nonexistence of private capitalist incomes is a key factor. The picture, however, is blurred by the very substantial, though hardly measurable, scale of hidden privileges and perquisites accruing to the nomenklatura and by the huge spread of unofficial, unreported, and often illegal private incomes earned on the side by all classes of people involved in the parallel or secondary economy. Whatever the divergence between official and actual income spreads on account of hidden privileges and black market activities, however, the basic fact remains that socialism provided an extensive safety net to shield the workers from the hazards and losses of a market economy. The package — often labeled a "social contract," implicit if not explicit, between the regime and the workers — included full employment, pervasive job security, avoidance of open inflation, and a commitment to keep a bottom and a top on the income ladder, that is, to prevent extremes of poverty and wealth. One should add to this list a moderate but steady increase in real living standards. This, however, is a benefit to society at large, like a public-good byproduct of the growth process. Much more important, from the workers' standpoint, were the educational, occupational, income, and status consequences of industrialization itself. Socialist industrialization carried with it waves of upward social mobility on a colossal, and in the countries involved, unprecedented, scale: from peasants to industrial workers, from manual or blue-collar to managerial and white-collar workers, from workers to technical and managerial personnel and then to the bureaucrat and political elite. It is essentially in this way that the benefits of socialized investment were received, and perceived, by "the masses," that is, by the regime's constituency. Much the same can be said for the regional or ethnic dimension of income inequalities: multinational socialist states such as the Soviet Union, Yugoslavia, and Czechoslovakia featured a continuing commitment to the leveling off of inequalities as among constituent national republics. This interregional redistribution took the form not of income maintenance or transfer programs but mainly of a reallocation of investment directed to build up industrial capacity and infrastructure in the underdeveloped areas. This was only appropriate under socialism where one was supposed to "earn" his income by his own labor and had the key advantage of building a reliable working-class constituency for Communist rule where none existed.

It could be argued that occupational mobility, welfare policies, and interregional redistribution are not unique to socialism, but are also part of the historical record of capitalist economies over the long run. There is no need to engage in questionable exercises in counter-factual history here: it may well be that, had they remained capitalist, socialist countries would have ended up with a not-too-different pattern of income distribution. The important point for our purposes is, however, that while in the capitalist case mobility and redistribution were ex-post consequences of economic development and local democratic politics, in the socialist case they were ex-ante commitments of the leadership, enshrined in the party programs and implemented through drastic, purposive measures from the very start — something which could be reckoned with in the individual cost-benefit calculus, for which the regime was able to claim the credit, and on which the leadership could be made "accountable" to its actual or potential working-class constituency through the party-mediated, consensus-building process described above. It is precisely because of this expected or anticipated nature of the indirect benefits from collective investment that, in contrast to the "strict" approach prevailing in the sociological literature, it is appropriate here to treat collective investment decisions under socialism as driven by the demand side (the consumers' interests) rather than by the supply side (the existing producers' interests).

If the foregoing politico-economic characterization of socialist regimes is accepted, then the modeling devices listed in the previous section can be used without unduly straining the stylized facts that are the focus of this paper. A majority-rule voting procedure may be thought of as a first, and admittedly crude, approximation to the process of Communist-style political participation and mobilization. "Equal sharing" in investment proceeds, coupled with progressive income taxation, is to be understood not as equality in a literal sense, but as an approximation to the wider diffusion of net benefits that socialist industrialization, as described above, brings about as compared to capitalist industrialization. "Taxation" is introduced in the model in a virtual sense: it is a measure of the static difference between income distribution under socialism and under capitalism. It is well known that socialist regimes hardly ever resorted to direct income taxation, but favored indirect taxation through turnover taxes and profit taxes which is relatively neutral per se with respect to the pretax distribution of income prevailing under socialism. Socialist regimes, however, did enforce a drastic redistribution of income compared to a typical capitalist economy, chiefly by means of straightforward expropriation, income policies, and wage fixing. Thus progressive income taxation in the model of this paper can be thought of as an "as if" device to capture the difference between net income distribution under socialism and what distribution would be under capitalism, other things equal. This difference is surely something people will take into account when making their choices under the alternative arrangements.

It is worth emphasizing that no attempt is made here to address the grand question of whether and on what conditions people would opt for collectivization of investment, that is, whether people would "vote" for socialism as opposed to capitalism on this count. Although related literature (Usher, 1977; Wilson and Katz, 1983) provides clues to such a broader question, the question asked in this paper is both narrower and more modest: given that a socialist system has been set up and that the rules of the game are known to all, how will individuals respond to those rules when making their investment choices? A formal analysis is offered in the next section. The essence of the argument, however, can be stated in plain words. Collectivization makes the price of saving and investment, that is, the amount of consumption forgone per unit of investment, dependent upon one's placement in the market income distribution ladder. The redistribution of income effected by socialism compared to capitalism, coupled with "equal" sharing in the benefits of investment, is tantamount to a rebate in the price of investment for the lower-income classes at the expense of the higher-income classes, as if the financing of its provision were effected by means of progressive income taxation. If investment is a normal good, a lower price will make people demand more of it ceteris paribus. If the bulk of the lower-income classes are the natural constituency of socialist regimes, these changes will depend, and get, more investment than they would if they had to pay the full market price for it, as is the case under capitalism. In a word, one is likely to consume more of a commodity if one can manage to have someone else pay a more-than-
proportional share of its cost. Collectivization is just like a price subsidy to the poor bailed to the rich.

**A SIMPLE MODEL**

Consider an economy producing two goods, called "consumption" C and "investment" I, both assumed to be normal goods. There are n individuals (indexed by i = 1, 2, ..., n) with different pretax incomes but identical preferences described by a simple utility function of the CES type:

\[ U_i = \left[ \frac{y_i^{1-\beta}}{1-\beta} \right]^{-\frac{1}{1-\beta}} \quad \text{for} \quad \beta > 1, 0 < \beta < 1 \]

In a capitalist market economy, each individual earns an income \( Y_i \) which is entirely spent in the purchase of the two goods subject to the budget constraint:

\[ Y_i = C_i + p_i I_i \]

where p is the unit market price of investment, while consumption is taken as the numeraire good. Individuals choose their preferred quantities by maximizing equation (1) subject to constraint (2). The relevant first-order condition for a maximum is

\[ \frac{(1 - \beta)}{\beta} \left[ \frac{1}{Y_i^{1-\beta}} \right] \left[ \frac{1}{(Y_i - p_i I_i)^{\gamma-\beta}} \right] = p \]

which yields the standard demand function:

\[ I_i = Y_i (bp^* + p) \]

where \( b = \frac{1}{1 + \beta} \) is the (constant) elasticity of substitution between the two goods and \( h = \frac{(1 - \beta)}{\beta} \) is a parameter reflecting the preference for consumption relative to investment. This time invariant, b takes the place of the rate of time discount. Predictably, investment demand is positively related to income and negatively to price.

Facing the same market price, individuals with different incomes will buy different amounts of investment. Summing over quantities and dividing by the population we get average per capita consumption of the investment good:

\[ I' = \frac{1}{n} \sum_i I_i = \frac{1}{n} \sum_i Y_i \left( \frac{bp^* + p}{p} \right) = Y' (bp^* + p) \]

(Starred magnitudes will henceforth denote average per capita magnitudes.) Thus, per capita investment obtained through individual utility maximization turns out to be the amount purchased by the individual endowed with mean income. For ease of comparison and without loss of generality, let us now set price p equal to unity. Per capita investment becomes:

\[ I' = Y' (b + 1) \]
quantity of the good at his own individual tax price (excluding the unreal case of Lindahl tax-prices), with a resulting deadweight loss in social welfare (Buchanan, 1970; 1971). We are therefore entitled to take the mean-income solution given by equation (6) as the benchmark for comparison, which would replicate the market outcome within a collective arrangement.

But will the mean-income recipient dictate the solution for the socialist system? No. Here I introduce two key assumptions in the model. First, the decision about investment levels, which under socialism as defined here becomes the object of a collective decision process as opposed to individual market choices, can be represented, for reasons given in the previous section, as if it were the outcome of an electoral process under majority rule. Hence, it can be analysed by means of a standard median-voter model. In this sort of model, the electoral process is dominated by the preferences of the median voter, that is, in our setting, the voter endowed with median income: a majority of voters will be able to defeat any alternative to the median voter’s proposal. Second, in a market economy pre-tax income distribution is skewed to the right, which means that median income is lower than mean income: the poor typically outnumber the rich. It follows, as indicated by equation (10) above, that the median-income voter is somewhat lower than that faced by the mean-income voter. If by majority-rule decision, the median-income voter is empowered to choose the level of collective investment, this choice should be expected to be for a higher level than would be obtained in a market system, since the latter, as shown above, can be construed as though it were dominated by the preferences of the mean-income voter. Denoting the median-voter magnitudes by a zero superscript, the collective equilibrium level of investment is found by substituting median income into the tax-price expression (10) and then substituting the latter into the demand function (4):

\[ I^* = Y^*(6p^m + p^*) = Y^*(6(-a + \frac{\alpha}{\alpha + 1}b + \frac{\beta}{\beta + 1}b)^2 + (-a + \frac{\alpha}{\alpha + 1}b + \frac{\beta}{\beta + 1}b)^2) \]

Clearly, to ensure the existence of an equilibrium, the median voter’s tax price \( p^* \) must be positive, which implies that the collective arrangement is feasible only if the median voter — however low his pre-tax income — is a net taxpayer. This is no real restriction, however, especially since the marginal tax rate \( t \) is not restricted to be smaller than one. Given \( a \), the higher is \( t \), the steeper is the tax schedule, which for \( t > 1 \) reaches full confiscation at \( Y = a/(t-1) \). And the steeper the tax schedule, the lower the subsidy threshold \( a/t \). A confiscatory redistribution of income, reversing the income ladder and at the same time making the decisive voter pay positive taxes, is clearly not an inappropriate policy for a socialist regime.

Working with the special case of a proportional tax structure (which can be easily worked out from equation (11) by setting \( a = 0 \)), Lovell (1970) comes to the interesting but perplexing conclusion that results depend critically on the value of the elasticity of substitution in the utility function: if \( \sigma \) is greater (less) than one, equilibrium supply of the collectivized good is larger (smaller) than market supply, with the borderline case of \( \sigma = 1 \) (like Cobb-Douglas function case) yielding the same output in either system. On our assumption of progressive income taxation, however, we are able to derive much more robust results. Recalling that the market solution (6) also represents the electoral choice of the recipient of mean income (as can be easily checked by substituting \( I^* \) for \( Y^* \) in equation (11)), from equations (6) and (11) we obtain that collective output is greater than market output if the following condition holds:

\[ \sigma Y^* > (6p^m + p^*)(b + 1) = \tilde{b}(\sigma \alpha + \frac{\alpha}{\alpha + 1}b + \frac{\beta}{\beta + 1}b) + (-\alpha + \frac{\alpha}{\alpha + 1}b + \frac{\beta}{\beta + 1}b)(\frac{\sigma}{\sigma + 1}b + 1) \]

In evaluating this condition, recalling that the median voter’s tax price \( p^* \) is positive, a key role is played by the skewness assumption that \( Y^* < Y^* \). If \( \sigma > 1 \), since \( \delta Y^* > \sigma p^*(\alpha \sigma \alpha + \frac{\alpha}{\alpha + 1}b + \frac{\beta}{\beta + 1}b) \) inequality (12) is satisfied irrespective of the value of \( b \) (unlike in the proportional taxation case referred to above). If \( \sigma < 1 \), since \((-\alpha + \frac{\alpha}{\alpha + 1}b) / (\sigma \alpha + \frac{\alpha}{\alpha + 1}b) < 1, p^* > p^0 \) and inequality (12) is satisfied a fortiori, again irrespective of \( b \). If \( \sigma < 1 \), given \( b \), for any given value of \( a \) there will be a threshold value of \( a \) low enough to reverse the sign of inequality (12). But then, there will always be a value of \( a \) high enough to satisfy the inequality for any value of \( a \). In other words, since the median voter’s tax price \((-\alpha + \frac{\alpha}{\alpha + 1}b + \frac{\beta}{\beta + 1}b) \) decreases monotonically as \( a \) is increased, a sufficient increase in the progressivity of the tax structure (parameterized in this model by the value of \( \alpha \)) will always be able to offset the depressing effect of a low elasticity of substitution on the level of collective output of the investment good.

Moreover, now the value of \( b \), the preference parameter, becomes relevant since the derivative of the right-hand side of inequality (12) with respect to \( b \) has the same sign as the difference \( p^* - p^0 \), when \( p^0 > p^* \), the right-hand side of (12) increases with \( b \). A low value of \( b \), implying a low value of \( \sigma \) in the utility function (1), thus helps to satisfy the inequality. Other things equal, a strong preference for investment relative to consumption enhances investment demand, as one would expect. Lastly, whatever the elasticity of substitution, collective output is greater as the income distribution is more skewed — i.e., the lower is skewness measure \( Y^* \delta Y^* \), the poorer the median voter and the lower the tax price he faces.

The conclusions are that whatever the elasticity of substitution, collective output of the investment good is more likely to be greater than market output as (1) the prevailing tax structure is more progressive, (2) individual preference for investment is stronger, and (3) the pre-tax distribution of income is more skewed.

EXTENSIONS

Mobilitation Systems

Our results are robust to different specifications of the collective decision process. It could be argued that the median-voter model is not a good analog of actual decision-making processes in socialist systems. At several times and places, these systems seem to have relied on a (sizable) minority of committed, militant zealots—the so-called "mobilation systems" or "social communes" (Montias, 1970; Grossman, 1971). In terms of statistical distributions, these people can be characterized as the largest compact segment of the distribution — the mode. If the political leadership is looking for active mass support, it will naturally cater to the needs of the modal voter. If we allow the mean-income voter to "choose" the level of collective output of the investment good, however, this will only strengthen our results. If income distribution is skewed to the right, modal income in general lies below median income. The collective output would then be even greater than predicted by our standard model. It is as if the decisive voter
model's assumption that the supply price of investment (p) is the same in the two systems. Such an assumption, while adequate to capture a static, ex ante utility calculus by people confronted with the prospect of system change, is increasingly called into question as time passes and people learn from experience and reconsider their choices. As is borne out clearly by the historical record of socialist economies, the investment process under Soviet-type socialism turns out to be dramatically insufficient for a number of reasons rooted in the incentive, information, and coordination problems that plague resource allocation under central planning. This is more true as the economy enters the stage of "intensive", technically sophisticated capital accumulation that comes with higher levels of development, as opposed to the "extensive" overhead accumulation of the early days. As the productive utility of additional investment expenditures keeps declining, perhaps approaching zero in some instances, people will find that their initial utility calculus of revolutionary times needs to be revised, and will ask for reductions in investment rates. In the meantime, however, the pronouncement bias will have become embedded in the ruling bureaucracy, which will thus increasingly alienate itself from its original constituency. It is no accident, then, that this clash played a major role in recent political developments in the more advanced socialist countries of Central-Eastern Europe, where major items in the agenda of the 1989 revolution that overthrew the former socialist regimes were both a radical shift of priorities from investment to consumption out of national income and a restructuring of property rights designed to enhance the productive efficiency of capital formation.

Systemic Changes

The argument developed in this paper naturally prompts the question, in what ways the sweeping systemic changes that are currently taking place in formerly socialist countries will affect the pro-investment bias embedded in the traditional Soviet-type system. One likely possibility is of course the outright demise of the socialist system with all its biases, and that would be the end of it. By the time of this writing, however, such an outcome cannot be taken for granted for all the fragments of the former Soviet bloc, especially in the East and the South. Therefore, it may be worth asking, at least as a theoretical exercise, what would be the investment implications of a transformation process that stops short of complete privatization and marketization. From the perspective of our model, the answer must depend on whether the transformation is going to affect the pattern of pretax income distribution within the constituencies of the relevant decision-making bodies. Now one key dimension of the ongoing change is surely the devolution of decision-making power down to smaller territorial units, which in the case of Yugoslavia, the Soviet Union, and Czechoslovakia has reached the point of splintering historical state units into a collection of independent republics. Since regional inequalities are no doubt an important factor in the skewness of income distributions, if population mobility across the new states is ruled out and, for the sake of argument, assuming that income policies in each state remain unchanged, it seems likely that each territorial unit emerging from the collapse of socialist empires and federations will exhibit a narrower income spread than the larger state units of the past. If this is the case, then in each territorial unit the demand for investment (if state control of investment is retained at all) should be expected to be lower than it was when the unit was part of a larger state unit. As a result, the aggregate of investment expenditures
across the independent states should be expected to decline as compared to what it was when they were all part of the same nation. The logic of this perspective, in other words, the median-income voter will now be closer to the median-income voter. The people of Central Asia or of Macedonia will demand less investment now as they no longer have the people of the Russian Republic or of Slovenia to subsidize investment costs. Thus the breakdown of the former multicore states seems likely to bring about a reduction in overall investment rates, even if investment decisions are not entirely turned over to private enterprise and the market.

NOTES

Earlier drafts of this paper were presented at the first EACER Conferences in Verona, Italy (September 1980) and at the second meeting of the European Public Choice Society in Beesix, France (April 1981). Will Bartlett, Francesco Cagno, Gregory Grossman, Michael Kiern, Ronald Wintrobe, a referee, and the editors provided especially helpful comments. The usual caveat applies.

1. A prototypic rationalization of this kind, entirely revolving around a time preference disequilibrium between the central planners and the population, may be found in Akerlof (1970). In a recent paper, Son (1993) has for the first time provided a general formulation of this approach—and, without adding further insight into the problem. In his model the central planner’s objective function is derived in terms of both per capita consumption and per capita capital stock.

2. While emulates in the paper on physical capital, the same framework can readily encompass investment in human capital such as education and—prejudiced private goods in a market economy, where public goods are supplied can plausibly be accounted for by informational imperfections in credit and insurance markets. An estimation of the model to human capital is sketched out in the last section of the paper.

3. It might be argued that the actual accumulation pattern of a capitalist market economy substantially departs from the Pareto-efficient intertemporal allocation implied by the Neo-Classical capital market model referred to in the text. Capitalist accumulation might be thought less-than-optimal for any one of at least these reasons (1) the private market does not allow the pooling of risk that is feasible under collective decision making; (2) the state has a longer time horizon than private capitalists in that, under socialism, it is the “agent” for all future generations of workers, not just the present one — an argument akin to Pigo’s (1932, Book 1, Ch. 2; 1957,138-34) contention, elaborated by Good (1931, Ch. 8; 1966, Ch. 2), that the individually’s preference for the present over the future is due to a “deficiency of the teleological faculty” and is therefore “irrational”; (3) the separation of workers saving decisions from capitalist investment decisions sets up a dynamic conflict over income distribution which results in less-than-optimal investment, as in the Keynesian-Macroeconomic model explored by Lumsden (1992). However that may be, the argument developed in this paper establishes a comparative proportion about equilibrium solutions to alternative (market versus collective) arrangements without relying, in any essential way, on the dynamic efficiency properties of these solutions. If indeed the market solution should turn out to be suboptimal, then the higher investment rates brought about by collectivization would be, within limits, a Pareto-improving change.

4. The basic reference on political decision-making and participation in the Soviet Union is Rough (1979) and Fainstein (1979). Rough (1977) and Bailer (1980) helped to put the matter in theoretical and historical perspective respectively. For the “social contract” and inequality under Eastern Europe, the account in the text relies heavily on Connors (1979, 1998, Chs. 7 and 8); see also the reference cited therein. Winstone (1980; 1986) is so far the only systematic attempt to interpret the socialist political economy in a way that drastically departs from the standard totalitarian communist-corporate story and is broadly congruent with the approach taken here. Bailer (1987) is the best treatment of the interplay of local and national political power and budgetary politics in the Union. Elsewhere (1980), I have attempted to explain the emergence of nationalism in post-Communist multinational states as a legacy of the ethnic mobilization and inter-regional investment redistribution carried out under Communism, in tune with the political science approach of this paper.

5. Relaxation of the median-voter assumption will only strengthen our results, as shown in the last section below.

6. This central conclusion seems to be at odds with a result found by Holmeby and Zarbecho (1990) for public investment in a democracy. They find that the scale of investment in the public sector must be biased downward due to the fact that the median voter has a finite lifespan and that ownership rights in public capital are not transferable. An implication is that the median taxpayer will have a higher price for investment in the public sector than the private sector; another is that the investment/ consumption mix in the governmental budget will come to depend on the age structure of the population. The latter result is due to the large scale of the well-known common-property and horizon problems that lead investment decisions in self-financed producer cooperatives (the standard reference is Purkho (1976) and Jensen and Modick (1979)). Indeed, in the Yugoslav experience, decentralization of investment decisions to labor-managed firms had to be backed by pervasive administrative controls to forestall tendencies toward underinvestment. Things are different, however, under classic Soviet-type socialism, where investment decisions are made at the center and the “self-financed cooperative” reduces to a single nationwide community of “taxpayers.” Here the alternative option of private investment is insufficed, and the negative price effect highlighted by Holmeby and Zarbecho (1990) may well be outweighed by the positive price effect of collectivization, stressed in this paper, provided an alternative mechanism is available to enforce exchange over time in the absence of transferable property rights over public capital. Such an alternative mechanism is provided by the Communist party, even, as Wintrobe (1990), as a long-lived institution that facilitates exchanges between the young and the old (high investment rates in exchange for low performance), thereby making decisions in time horizon irrelevant.

7. In addition to ensuring that both the median-income and the median-income voter be net taxpayers, the tax parameters in $m$ must be such to balance the budget (equation (39) at the collective equilibrium level of investment given by equation (1)). The condition the parameters must satisfy is

$$\alpha_k - \frac{\alpha_k}{\alpha_k + \beta} \leq 1 \quad \text{or} \quad 1 - \frac{\alpha_k}{\alpha_k + \beta} - \frac{1}{\alpha_k} \leq 1.$$

8. Whatever the obliquity of substitution, it can be easily checked that collective output is always greater with progressive taxation than with proportional taxation, since the tax price paid by the median voter is lower in the former case than in the latter.

REFERENCES


CONTINUOUS FEMALE WORKERS:
HOW DIFFERENT ARE THEY FROM OTHER WOMEN?

Elaine Sorensen
The Urban Institute

INTRODUCTION

Many economists have argued that women, on average, earn less than men because they have less commitment to the workforce than men [Mincer and Polachek, 1974; Smith and Ward, 1984]. In essence it is argued that because of gender differences in biology and socialization, women focus upon their maternal role and de-emphasize market work, while men do the opposite [Fuchs, 1988]. These disparate roles are the reason for the gender pay disparity. A number of examples have been given that supposedly reflect the different priorities women give to market work and family life. For instance, it is argued that most young women are less likely than men to invest in wage-enhancing human capital while in school. This is reflected in women's choice of major and their reluctance to enter advanced degree programs in business, medicine, and law [Blakesmore and Low, 1984]. It is also asserted that women are more likely than men to accept lower wages in exchange for shorter and more flexible hours, a job location near home, and limited out-of-town travel so that they can meet the demands of their families [Polachek, 1976].

Perhaps the most important way in which women de-emphasize their work outside the home is that they tend to leave the labor market for extended periods of time during childbirth and when their children are young. These interruptions reduce women's future earnings because their skills depreciate during their time out of the labor force. Furthermore, they are not acquiring the training and work experience that lead to higher earnings in the future. On the other hand, men remain in the labor market throughout their adult life, gaining the necessary human capital to enhance their earnings. This difference between female and male lifetime labor force participation is typically identified as the most glaring example of how women are less committed to the workforce than men [Fuchs, 1988].

A number of studies have attempted to estimate the extent to which intermittent labor force participation reduces women's earnings relative to those of men. Mincer and Polachek [1974], among the first to study this issue, found that 35 percent of the male/female earnings gap could be attributed to differences between women's and men's work experience and time at home. Others argued that intermittent work behavior explained little of the pay disparity between women and men [Corcoran and Duncan, 1979]. These studies were followed by others that estimated the extent to which intermittency depreciated human capital [Mincer and Oké, 1982; Corcoran, Duncan, and Ponzs, 1983]. More recent studies have predicted that practically all of the earnings disparity between women and men can be explained by differences in accumulated human capital [Paglin and Ruffo, 1990].