

Post-Marxian economics: labour, learning and history

Over the past two decades a strand of Marxian economic theory has diverged from classical Marxism. Because no precise formulation of what may be termed post-Marxian economics may be said to represent a consensus, any attempt at synthesis is bound to be idiosyncratic. Yet elements of a common model and methodological approach may be identified.¹ This approach may be distinguished from both the classical Marxist economic model and the neo-classical alternatives in its theoretical method, its conception of the economy, and its treatment of structural change. Given the methodological focus of this essay, I will not dwell on the substantial differences in the content of the analysis but will introduce just one sustained example — the analysis of labour — to illustrate the characteristic methods and approach of post-Marxian economics.

Post-Marxian economics shares with classical Marxism not only an emphasis on class relationships absent from other schools of economics, but a method in which the customary distinctions among exogenous and endogenous variables play a limited role. Amending Herodotus, Marxists often appear to proclaim: “There is nothing

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Project IDEA’s interest in relationships among exogenous and endogenous variables in social science is reflected in the theoretical focus of the following pages. Because a companion paper by Ernest Mandel addresses analogous issues in classical Marxian economic analysis, I will give particular attention to those aspects of post-Marxian economics which are distinct from the classical Marxian model.

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exogenous under the sun!" As we will see, the distinctions — economic/non-economic — also play a limited role in post-Marxian theory in view of its political and cultural as well as economic modelling of the capitalist economy.

The distinctive character of the Marxian approach in this respect may be illustrated by means of a comparison with the paradigmatic treatment of exogenous and endogenous variables in neo-classical economic theory. The model of change in neo-classical economics (and by methodological imperialism in many strands of the adjacent disciplines as well) is generally termed comparative statics. A familiar example of this method is the standard model of supply and demand described by a system of $2n$ simultaneous equations in $2n$ unknowns (the prices and quantities exchanged of the n goods). The endogenous elements in the system — the prices and quantities exchanged — are termed economic variables, while some of the exogenous terms are considered to be non-economic, referring to such phenomena as consumer tastes, technologies, the supply of non-reproducible inputs such as land and the distribution of the ownership of initial property claims. Change is described as a displacement of equilibrium occasioned by the alteration of one or more of the exogenous terms in the equational system, for example through a shift in consumer preferences or a change in one of the technologies of production. In general equilibrium systems the exogenous/endogenous distinction corresponds (in pedagogical and research practice if not in logic) almost exactly to the economic/non-economic distinction. Both the mathematics of displaced equilibria (e.g. Cramer's rule) and the logic of the underlying models bears the interesting implication that change is fully reversible: if the exogenous shock which initially perturbed the system is withdrawn, the system will return to the *status quo ante*.

The building blocks of the comparative static analysis of change are thus the exogenous/endogenous distinction, the privileged causal status of exogenous variables and the concept of logical, ahistorical, or reversible time. By contrast, post-Marxian analysis displaces the exogenous-endogenous distinction and causal ordering by an analysis of the mutually constitutive articulation of practice and structure, giving rise to a concept of learning, historical time and irreversible change.

I will first seek to distinguish the underlying methodological orientations of classical Marxian and post-Marxian economics. I will then illustrate the methodological presuppositions of the post-

Marxian approach by means of its argument for the specificity of labour in economic theory, and turn in the concluding section to an analysis of the process of learning and change.

Marxian and post-Marxian economics

The designation "post-Marxian" refers to the rather considerable recent extensions and emendations of the basic economic model developed by Marx and presented in the outstanding modern works of the classical Marxian tradition such as Paul Sweezy's *Theory of capitalist development* and Ernest Mandel's *Marxian economic theory*.²

The innovations of the post-Marxian school — if it may be termed that — pertain both to the methods of analysis and to the substance. The main methodological developments reflect two important intellectual currents in post second world war intellectual life: the emergence of what Perry Anderson (1976) has termed Western Marxism, and the adoption of mathematical methods by economists and particularly the extensive use of linear economic models by economists working in the tradition of Piero Sraffa.

With respect to the first influence, post-Marxian economists have been greatly influenced by the critique of economicism Marxism which emerged during the inter-war period in the works of Georg Lukacs, Antonio Gramsci, and Karl Korsch and which flowered after the war in the writings of Jean-Paul Sartre, Andre Gorz, Lucio Colletti, Jurgen Habermas, E.P. Thompson, Louis Althusser and others. Interestingly, none of these contributors to the Western Marxian tradition was an economist, while the outstanding classical Marxist economists of the post second world war period — Maurice Dobb, Ernest Mandel, and Paul Sweezy — remained unmoved by Western Marxism's primarily philosophical critiques of the structure of the classical model.

The result was a curious hiatus: the cultural and political analysis of the Western Marxist tradition and the economic theory in the classical Marxist tradition evolved in isolation. Because the innovations of the Western Marxist tradition did not extend to economic theory per se, the issues of contention between the two tendencies did not so much involve the structure of economic theory itself as the place of economics in Marxism. The critique of economicism was therefore limited to a critique of economic

determinism: the classical Marxian economic tradition was faulted only for placing too large an emphasis on the economic base as a determinant of the structure and dynamics of the society as a whole. The Western Marxist school thus did not achieve a rethinking of economic theory, but photo reduction of economics; not a transformation of its structure but a demotion of its importance.

By contrast, the post-Marxian economic approach affirms the centrality of class, surplus, and other economic categories in understanding the advanced capitalist world system. Its critique of the classical economic model focuses not so much on the problem of economic determinism — the relationship between the economy and the non-economic — as on the classical conception of the economy itself. Here, post-Marxian economists have identified another form of economism: by excising cultural and political practices from the constitution of the economic, the classical model reduces capitalist production to a restricted — indeed impoverished — subset of the variety of practices which jointly determine the dynamics of accumulation. Thus the economism of classical formulations is expressed at least as much in its economicistic treatment of the economy as in its analysis of the articulation of the economy with other instances of the social formation.

The extensive use of mathematical methods also distinguishes post-Marxian economists from what C. Wright Mills termed (describing himself) the “plain old Marxists”. The developments in mathematical economics associated with the names of Sraffa, Leontief and von Neumann have allowed a significant clarification of the underlying structure of Marxian economic models. Morishima, for example has strongly vindicated what he terms the fundamental theorem of Marxian economics, namely, that a necessary condition for profits is the exploitation of labour. Curiously, while the favoured target of critics of Marxian economics for a century — the transformation of labour values into prices — was shown to present no fundamental problems in the newly developed linear economic models, the use of labour values to determine prices, wages, and profits was simultaneously shown to be unnecessary. From a purely formal standpoint inputs and outputs may be measured indifferently in labour hours, bushels of corn or tons of steel; no important mathematical result hinges on which unit of measurement is adopted.³ Thus the labour theory of value was found innocent of the charge of illogic and mathematical contradiction only to be found guilty of redundancy.

Of perhaps greater importance, the infusion of mathematical methods has allowed a more searching analysis of the relationship between action and system or — in terms more congenial to the Marxian framework — practice and structure.⁴ Much of the Marxian economic theory is based on an often implicit theory of the relationship between the self-interested actions of economic agents (capitalist firms, workers, others) and the processes of stability and change in the structures of prices, profits, wages, and economic relationships which induce and constrain these actions. A common example of this aspect of Marxian economic theory is the relationship between the profit seeking competition of capitalist firms and the transformation of the system of competition through the centralization of capital.

While the analysis of self-interested action of non-colluding agents was central to Marx's analysis of capitalism as a competitive system, later Marxian economists have sometimes adopted a quite distinct approach, which may be termed the expressive theory of action. According to this view we may derive the actions of individual agents from a knowledge of their class position or perhaps from the conditions necessary for the reproduction of their class position. Closely related is the functionalist view of action — also prevalent in classical Marxism — according to which the dynamics of a structure and the actions of agents may be inferred from some pre-given function attributed to the structure. Thus, to take a concrete example of the functionalist theory, the action of state managers in a liberal democracy might be explained by the pre-given function of the state to reproduce the capitalist relations of production. By contrast, a post-Marxian approach to this problem would be to inquire into the opportunities, objectives and constraints facing state managers — perhaps balancing the desire for greater tax revenues with the necessity of securing electoral success — the contingent result of which *may* be the reproduction of the capitalist relations of production.⁵

Within economic theory proper, a striking application of this careful attention to the opportunities and constraints facing individual actors is the celebrated Okishio theorem, which has prompted a reconsideration of Marx's theory of the tendency of the profit rate to fall due to the rise in the organic composition of capital.⁶ Marx had asserted that there exists a class of innovations which will raise a single capitalist's profit rate but which, when adopted generally by all competing capitalists, will lower the average

social profit rate. Okishio investigated this claim using a general equilibrium linear economic model to capture the effects of the general adoption of the initial innovation. According to Okishio's theorem, any innovation which at existing prices and money wages would yield super profits for an individual capitalist will, when it is emulated by other capitalists and a new set of prices and money wages emerges, result in a rise in the general competitive profit rate. While Marx had understood that a rise in the rate of exploitation *might* offset the possible increase in the organic composition of capital associated with the technical change, what Okishio demonstrated was that for the innovation to have been individually profitable in the first place, any resulting increase in the organic composition of capital *must* be offset by an increase in the rate of exploitation. Thus, whatever the effect on the organic composition of capital, individually profitable innovations will be generally profitable once they are generalized. The flaw in Marx's original reasoning was not that he assumed that individual and collective interests may diverge, but that he failed adequately to investigate the microeconomics of innovation which — according to the individual capitalist's profit criterion — would eliminate all innovations in which the rise in the organic composition of capital is not fully offset by a rise in the rate of exploitation.

The demise of the theory of the falling rate of profit due to a rise in the organic composition of capital, and the displacement of the labour theory of value from its privileged position in Marxian economics cannot be attributed primarily to developments in mathematical economics, however. Both of these fundamental propositions of classical Marxian economics were subject to criticism not only from the standpoint of formal logic, but also for their tendency to posit a structural determination of economic outcomes in which individual or collective human agency played little or no part. Thus the labour theory of value and the rising organic composition of capital theory of economic crisis were among the first casualties of the post-Marxian attempt to devise a non-economistic economic theory in which human action guided by culture and politics as well as economic considerations would play a major part.

The apparent results of the methodological orientations of post-Marxian economics appear at first blush to be almost entirely negative and perplexing; for they appear to deprive Marxian economics of two of its most fundamental structural and dynamic

principles, and even to throw into question the *differentia specifica* of Marxian economic theory: the unique status it awards to labour as a theoretical category. But, as we shall see, this is not the case. Indeed, it is precisely the post-Marxist treatment of the uniqueness of labour which is the basis of its distinctive relationship among politics, culture, and economics as well as its historical conception of time.

The specificity of labour

In analysing capitalist production, all Marxists regard labour as distinct from other inputs. Marxian economics argues that profits arise from the fact that the capitalist pays for the *labour power* of the worker, but gets the benefit of the *labour* of the worker. The difference between the two is the fulcrum on which the entire structure of Marxian economics turns. Few Marxian economists would disagree. Disagreements, however, surround the manner in which the distinction between labour and labour power is represented. In classical Marxian economics the specificity of labour is identified as its unique ability to produce a value greater than its own value, the results being surplus value or profit for the employer. Or, more formally, the value of labour power is less than the use value (to the capitalist) of labour. The post-Marxian model argues for the specificity of labour and the importance of the distinction between labour and labour power on grounds quite independent of the classical labour theory of value.⁷

The central analytical concept in the post-Marxian model of the production process is what may be termed a *substantive* rather than a *formal* distinction between labour and labour power, based on the treatment of labour as the initiator of practices rather than as an object.

Marx, of course, originally was attracted to Ricardo's labour theory of value because he thought that suitably amended it could combine the structural insights of the classical economists with his commitment to make human subjectivity central economic theory. Labour — the intentional transformation of nature to meet human ends — was the lynchpin which would unite structure and practice in his model.

Yet in the formal renditions of Marx's labour theory of value, the worker is represented by the wage bundle of commodities which

reproduces the worker at his or her customary standard of living. Labour is represented not as a practice but as an output or at best as a use value for the capitalist. Paradoxically, the worker as an actor disappears in this formalization of the labour theory of value. It is only a small step from this formulation to Sraffa's conception of *The production of commodities by means of commodities*.

The theoretical consequences of this representation are as debilitating to the Marxian analysis of the politics of production as they are to the analysis of the more familiar objects of economic analysis. For if labour is treated as an object, little different (except perhaps morally) from other inputs, the distinction between labour and labour power would hold no more theoretical interest than a simple translation of one metric (hours) into another (work); the amount of labour performed could be represented as a given multiple of the number of hours hired. In this case the following unfortunate theoretical results would obtain in a competitive model of the type Marx describes in Volume 3 of *Capital*.

First, capitalists would be forced by competitive pressures to utilize efficient technologies, and to adopt an efficient organization of production. It follows that neither technologies nor the organization of production would be altered by a change in the ownership or decision-making structure of the firm unless this change altered relative input or output prices. The clear implication is that a shift to democratic worker control could alter the distribution of income in the firm, but could change the social organization of production only at the cost of lower productivity. Ironically, this is just a restatement of Samuelson's dictum that in the competitive economic model it makes no difference whether capital hires labour or labour hires capital.

Second, just as the capitalist will avoid paying more for a ton of coal than the minimal supply price, so too will he seek the lowest price of an hour of labour power, preferring to hire women over men, or blacks over whites, should their wages (for equivalent levels of productive capacity) be lower. Those who, for racist, sexist, or whatever reasons, persist in hiring high-priced white male labour will be eliminated by competition.

Finally, if labour is "just another input", then any unsold units of labour must be considered to be voluntarily withheld from the market. For, as with a glut of shirts on the clothing market, the excess supply can generally be eliminated if the seller is willing to lower the price. In this case, unemployment must be considered

voluntary, based on a refusal to work for a lower wage — a form of speculation in one's own productive capacities. Involuntary unemployment could still occur as the result of frictions in the adjustment process, but we would have no more reason in the long run to expect excess supply than excess demand in the labour market.

The political import of these three consequences of treating labour as an object is clear enough. The first constitutes a wholesale denial of the critique of domination and fragmentation of work life. For if worker-run firms would organize production no differently from capitalist enterprises, the issue becomes a trivial choice of masters, neither of which exercises substantive options in the determination of technology and the structure of work life. The second implication of treating labour as an object is that racism, sexism and other forms of discrimination will wither away as a natural result of capital's competitive search for super-profits. Racism and sexism may exist, but only as cultural (or perhaps "superstructural") attributes reproduced autonomously and despite the structure of the accumulation process of the capitalist economy. The third implies that unemployment is caused by workers' choices rather than by the structure of capitalism. Moreover, unemployment is neither the source of social waste, nor even a social problem — any more than is the fact that many workers do not choose to work full time.

The treatment of labour as an object thus achieves a radical partition in economic thought: politics and culture are banished from production. Because production is both efficient and apolitical, the socialist critique of capitalist production — that is undemocratic, unjust, and wasteful — is narrowed to the problem of distribution of property. Socialism is thus reduced to a redistribution of property, with the cultural addition of the dissemination of "new values".

However, it can be easily shown that when labour is treated as a practice rather than an object, each of the above implications is sharply contradicted.

To do this I will adopt a simple model of the extraction of labour from labour power developed by post-Marxian economists in recent years. The production process may be represented by two relationships: first, the combination of labour with non-labour inputs to produce a given output; and second, the extraction of labour from labour-power through the combination of labour power with whatever inputs the owner allocates to induce a specific level of work intensity. I term the first the input-output relation and

the second the labour extraction relation. The latter is precisely the missing relationship, whose absence from Sraffian, Keynesian and neo-classical models implies the treatment of labour as an object.

Labour must be *extracted* from labour power because workers will not willingly pursue the type and intensity of labour which maximizes profits. This is not because labour is naturally unpleasant, as the theory of the “disutility of labour” from Adam Smith to the present would have it. The way in which the worker experiences work, and the resulting motivations, resentments and resistances derive in important measure from the social organization of the production process itself. Indeed, the social structure of the capitalist production process — most particularly its authoritarian and exploitative form — induces a level of conflict over the organization and intensity of work above and beyond the conflicts induced by the simple free rider problem which would exist in any social organization.

But how is labour to be extracted? The power of capital over labour derives from the workers’ need for employment as a means to livelihood, and from the scarcity of jobs.⁸ Job scarcity simply means that jobs are hard to find, and that those who have them would like to hang on to them. The employer’s only formal power over the worker — the right to hire and fire — depends on job scarcity and the worker’s dependence on the job. Thus, the extraction of labour from labour power must be induced, in the last instance, by enhancing the threat of firing. Specifically the employer may raise the expected cost to the worker of pursuing a non-work strategy by any one of the following three counter-strategies: (a) raising the expected cost of losing one’s job; (b) raising the expected probability of getting fired if detected pursuing a non-work strategy; and (c) increasing the probability of being detected if pursuing a non-work strategy. By investigating the application of these strategies, we may come to understand why the three above implications of the labour as object view of production — efficient production, no discrimination, and no involuntary unemployment — are false. Let us consider each.

The probability that a non-work strategy will be detected by the employer will depend on the organization of work and the efficacy of the capitalist’s surveillance system. The capitalist can organize the work process so that each worker’s performance is more visible and measurable, for example through the use of such production techniques as the assembly line. Even when such techniques are less efficient in the input-output sense, they may be profitable due to

their ability to secure a high level of labour input (effort). Similarly, the capitalist can divert resources from production into surveillance — in the form of careful accounting, electronic equipment, surveillance personnel, and the like. In either case, the claim that cost reduction pressures render capitalist production efficient must be rejected. Were it not for the problem of extraction of labour from labour power, additional resources could be allocated to increase output per worker, to shorten the work week, or to lower work intensity.

Next, consider the probability of being fired if a non-work strategy *is* detected. For simplicity I will represent this probability as a decreasing function of the unity of the work force; if firing a worker will incite a strike or slowdown of all workers, the capitalist will think twice about firing a worker whose non-work strategy has been detected. In general the degree of unity of the work force will depend on its racial, sexual, age, credential based and other divisions — including differences in wages and hierarchical status within the firm. Thus as John Roemer (1979), Michael Reich (1980), and others have demonstrated, the discriminating capitalist may facilitate the firing of a worker and otherwise weaken workers' bargaining power by promoting division, invidious distinction and hierarchy, even when such policies are costly from the standpoint of efficiency. Discrimination is thus consistent with rational profit maximization in a competitive environment.

Lastly, consider the third capitalist strategy, raising the cost to the worker of being fired. In view of the fact that the expected duration of the worker's spell of unemployment, and the level of unemployment benefits are both beyond the control of the firm, the only way the capitalist can raise the cost to the worker of getting fired is to pay the worker more than that wage which would make the worker indifferent to being fired or not. But if the profit-maximizing wage is thus higher than the worker's supply price, other workers who currently lack jobs would also prefer to have a job at that wage rather than remaining unemployed. And if this is the case, they are involuntarily unemployed according to any reasonable sense of the term. Job scarcity implies involuntary unemployment, and the converse.

Thus this simple model of labour extraction illustrates the fact that profit maximization and labour market equilibrium — even under the most stringent atomistic competitive assumptions — does not lead to market clearing. Unemployment, in the context of

capitalist production, is thus involuntary and wasteful. The micro-economic basis of the “reserve army” and its role, the subjugation of labour to capital, is thus vindicated by a model in which labour is represented as a practice rather than a commodity.

Given Marx's concept of labour as practice, and of exploitation as the domination of labour through a structure of power, it is ironic and regrettable that in the past half century at least, Marxian economics has been associated with what Helmut Fleischer (1969) termed a nomological and economicistic conception of Marxism. Notable among the many consequences of this association has been the tendency of critics of economicistic and of formalist structuralism to be critics of Marxian economics as well. Marxists who would save Marxism from economism have mistakenly attempted to save Marxism from economics.

But if the post-Marxian analysis is correct, the supposed opposition between culture and politics on the one hand and economics on the other is based on the false conception of the economy as apolitical and devoid of cultural content. Thus the crucial flaw in economicistic Marxism is not the importance attributed to the economy, but the conception of the economy itself. Whence the misconceived notion of the photo reduction as a strategy to rid Marxism of economism.

Classical Marxian economics shares with its neo-classical adversary, and also with Cambridge and Keynesian economics, a conception of the capitalist economy as a property-based system of contractual exchange, or as Ernest Mandel puts it, as system of “generalized commodity production”. As such, the political aspects of the economy are confined to the protection of property rights and the enforcement of contracts. Both of these political elements lie within the realm of the state rather than the economy. The economy is thus essentially apolitical.⁹

The labour extraction mechanism described above illustrates a major shortcoming of this conception. For it demonstrates that a fundamental capitalist relationship, that between employer and employee, cannot be treated as a contract enforced by means of the coercive apparatus of the state. The capitalist economy is political because the power to enforce the labour exchange must be embodied to a major extent in the structure of capitalist production itself.

The tendency to equate the endogenous with the economic and the exogenous with the non-economic is thus questioned: for the enforcement of the labour contract and determination of the intensity

of labour is clearly endogenous to the economy, yet it exhibits aspects which would normally be termed political. This might be of little more than terminological importance, of course. But, as we shall see, a more fundamental issue is at stake: the status of the exogenous/endogenous distinction itself.

Historical time: learning and irreversible change

Expressing as he did so well the commonplaces of his day, the American sage Benjamin Franklin said, "Time is money", a view most fully developed in the Hahn-Arrow general equilibrium model in which futures contracts in all goods are generally available. In his populist poem, "The People, Yes", Carl Sandberg expressed a quite different view, one which resonates in post-Marxian analysis: "Time is a great teacher". Central to the writings of particularly the young Marx, and to the economics developed by post-Marxian theorists is the view that the economy produces people as well as commodities. More generally, the preferences, desires, sentiments, capacities of workers and others are transformed in the production process as surely as are the raw materials converted into finished goods. As we shall see, the joint production of people and commodities by the capitalist economy ensures that the logical time of the comparative static approach will need to be jettisoned in favour of a concept of historical or irreversible time.

The endogeneity of people does not, of course, destroy the distinction between endogenous and exogenous. For most analytical tasks it is useful and not misleading to consider some aspects of a problem as exogenous, even when in some larger framework they are the result of the variables under consideration. And even the larger framework is likely to face its limits: genetically inherited traits (but not their social meaning), the geographic location of continents (but not the economic importance of the resulting distances), and other arguably exogenous phenomena readily come to mind even to the most cosmic of thinkers.

Nonetheless the peculiarity of the Marxian (both classical and post) framework is that change is represented as substantially the result of an endogenous process. While exogenous developments may be of considerable importance, change or stasis is explained by the internally generated erosion or consolidation of the conditions for the reproduction of the social relations which define the status

quo. While classical Marxian models, following Marx, will endogenously generate change from the analysis of the mode of production itself, the post-Marxian model generates endogenous change from the practices of agents structured by the capitalist relations of production and its articulation with the family, the state, and other sites. Thus the post-Marxian model is based on a considerably more complex conception of the reproduction of the social relations of production which define the capitalist system.

Two distinctive aspects of the theory of reproduction are particularly important; one dealing with the question of human agency and the other concerning the relationship among capitalist and non capitalist structures. The reproduction of structures of domination — whether of class, state, race, gender or other — is not assured by the structure itself. Nor is the non-reproduction of these structures guaranteed by the logic of the structure. Rather, the reproduction of each structure is the contingent result of individual and collective practices taking place throughout the society and hence structured by the full variety of social relations.

The theory of economic crisis illustrates this difference. The classical Marxist model generates crisis from the internal logic of the capitalist mode of production itself — most often from the rising organic composition of capital or from the instability and insufficiency of aggregate demand. Political and other influences on crisis are regarded as modifying the outcomes of this process but not its logic. Thus political, ideological, and other influences are not theorized as part of the model itself, and thus remain exogenous empirical interventions into the otherwise self contained working of the logic of the mode of production.

While not contesting the centrality of the profit rate in the theory of crisis, the post-Marxian theory roots the analysis of the profit rate in the variety of power relationships which mediate the relationship of capital to workers, to the state, and to external economic agents. Further, the relationship between the profit rate and the reproduction of the capitalist system is not represented as direct, but rather is mediated by political organization, ideology, family structure and other relationships. A low or declining profit rate only constitutes a crisis under conditions which cannot be fully specified except by reference to phenomena generally considered to be superstructural or “external” to the capitalist mode of production itself.

Thus post-Marxian crisis theory as developed in the Kaleckian

tradition by Raford Boddy and James Crotty (1975), Thomas Weisskopf (1979), Robert Sutcliffe and Andrew Glyn (1972), and others considers the articulation of the capitalist economy and the state and with other economies as of central importance, a downward pressure on profits possibly occurring through the politically induced movement towards full employment, the socialization of the reproduction of labour power achieved by the extension of the welfare state, or a deterioraton in the international terms of trade reflecting shifting patterns of world-wide economic and military ascendency.

The main theoretical orientations of this position may thus be summarized by four propositions: first, that change is the effect of the interaction of structure and practice (or in more common terms, system and action); second, that neither may be either reduced to the other or taken as exogenous; third, that the reproduction or transformation of any given structure generally involves actions and discourses structured by other sites of social activity, and fourth, that because the actors are transformed by their own and others' practices, the process of change is irreversible in the same sense that learning is considered to be irreversible.

The view of change which emerges from the post-Marxian model obviously defies representation in terms of system adjustment to exogenous shocks. The couplet structure/practice has displaced the couplet exogenous/endogenous. Historical time has displaced logical time.

However, expressed in the highly abstract form above it may be considered to be so general as to be vacuous, for its main theoretical orientation is to broaden the theoretical terrain upon which the study of change is to take place. However, the impression of vacuous abstraction would be misplaced, for the post-Marxian theory of change (and of economic crisis) has been developed with respect to particular structured articulations of capitalist economies, states, families and other institutions. This articulation of structures, often termed the social structure of accumulation, is a conceptual framework for the analysis of reproduction and system transformation which occupies a theoretical terrain between the grand abstractions of Marxian theory — class, mode of production — and the empirical investigation of concrete societies. Thus, for example, David Gordon, Richard Edwards and Michael Reich (1982), and others have developed the concept of a social structure of accumulation of the advanced liberal democratic capitalist societies

in the post second world war era; while Samir Amin (1976) and others have developed the quite distinct concept of a social structure of accumulation in the peripheral Third World capitalist societies. These and related contributions attempt a model of the political and cultural as well as economic structuring of the accumulation process and the manner in which the accumulation process gives rise to the potential for change in not only its institutional framework but other social structures as well.

Scholars, priests, engineers and militants: the politics of methodology

Not surprisingly, in none of these contributions does the distinction between exogenous and endogenous or economic and non-economic variables play a prominent role. Why is a set of distinctions so essential to non-Marxian economic theory almost completely lacking in the Marxian approach? Some of the reasons have been suggested above: the functional analogues to these distinctions are to be found (in classical Marxian theory) in the base-superstructure couplet and (in post-Marxian theory) in the practice-structure couplet and the concept of society as an integrated totality of reproductive and contradictory structures none of which can claim a monopoly on economic affairs.

Let me offer a further speculation: the central role of the exogenous-endogenous distinction in neo-classical economics and its lesser importance in Marxian economics reflects not only the peculiarities of each school's approach to scholarship, but their quite distinct social position in the advanced capitalist countries as well. If I am correct, the exogenous-endogenous distinction is congenial to neo-classical economists not only for its utility as a simplifying device but for its service in the justification or administration of the capitalist order.

Neo-classical economists are not only scholars, like other intellectuals they are — outside the universities — also social actors. Some are engaged in popular ideological defences of the capitalist economy; others — through government employment and other means — are engaged in managing the capitalist economy. Without insult to any of the professions involved, I term the first, the neo-classical priests and the second, the neo-classical engineers.

The priests invoke the exogenous-endogenous distinction to

deflect the criticism of economic injustice, insecurity, the dictatorship of the workplace, and alienated labour away from the economy and to locate the origins of these social problems instead in the exogenous variables of the neo-classical model: individual preferences, technologies, natural endowments, and the distribution of titles to property. Their reasoning is impeccable. If one accepts the general equilibrium model (and imagines that its solutions are unique), one is thereby committed to tracing any unpleasant economic outcome to one of the above exogenous variables.

The import of this ideological *tour de force* is that the critique of capitalism is transformed into a lament against nature — be it the human nature underlying individual preferences or the natural world which limits and informs our level of technology. Among the permissible culprits, only the distribution of property titles is socially contrived, and even this determinant of economic outcomes may be attributed to the ostensibly sovereign liberal democratic state and hence — if indirectly — to the preferences of the voters. The critic is thus hustled away from what naïvely may have been thought to be the scene of the crime and urged to track down the nemesis of the good life instead in the farflung theoretical suburbs of economics.

The neo-classical engineers pursue more practical concerns: they deploy Keynesian models, human capital theories, input output tables and the like to guide more intelligently both government and corporate policy. The engineers are often at odds with the priests, as might be expected. And their uses of the exogenous-endogenous distinctions are similarly at odds.

While priests use the distinction to displace responsibility for unpleasant outcomes, the engineers use the distinction to focus attention on the forms of state or corporate intervention which may be used to correct economic deficiencies. For the engineers the exogenous variables are the very policy instruments which they (or those whom they advise) control. Thus an archetypal engineer's model of the macro economy will include, as exogenously determined parameters, the tax rate on corporate profits and the level of government expenditure, both seen as policy instruments to be manipulated towards the end of stable economic growth or other desirable social objectives. The endogenous variables — the level of investment or consumption demand in this case, for example — measure those phenomena which escape the direct manipulation of the policy-maker.

Whatever their differences, the priests and the engineers alike

draw inspiration in their use of the exogenous-endogenous distinction from the liberal theory of the state. In the first case the liberal democratic state is the means by which the critique of the distribution of property ownership is displaced to a critique of the voters' preferences. For the engineers, the exogeneity of the state — its autonomy from the economy — is essential to their conception of autonomous policy intervention through the manipulation of the exogenous variables of their models.

In the case of Marxian and post-Marxian scholars, moral inclination and social marginality conspire to produce a quite different social role: that of critic and militant. These are not quite the roles of anti-priest and anti-engineer. For the critic the exogenous-endogenous distinction has little value except as a scholarly simplification. For the militant, however, the matter is more complex. Political activists are interested in the effects of collective interventions, whether they be by unions, revolutionary cadres, feminist organizations, or environmental groups. But the Marxist militant does not have the luxury enjoyed by the neo-classical engineer who, having the ear of the powerful, may devise models which presume the secure location of decision-making power. By contrast the militant must seek to understand not only the effects of an intervention within a given structure but more importantly the ability of these interventions to enhance the possibilities for structural change. Thus the structural parameters often taken as datum in the neo-classical model are precisely the object of analysis and mobilization for the militant. Quite apart from the historical orientation of Marxism as a body of thought, it is hardly surprising that structural relations taken as exogenous by neo-classical theorists are more generally taken as endogenous by Marxists.

Rendering economic relations endogenous means understanding how they change and may be changed. The predilection to do so among Marxists is thus at once a political project and a scholarly practice.

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Appendix

Mathematics and post-Marxian economics

Many of the propositions presented here have been rendered elsewhere in mathematical form, and often tested (or at least illustrated) econometrically. Herbert Gintis (1974), for example, developed an inter-temporal general equilibrium model with endogenous preferences. Other post-Marxian economists have developed mathematically precise and econometrically robust models of the extraction of labour from labour power, the effects of racial discrimination on the distribution of income, and the determination of the profit rate by the social structure of accumulation.

Yet the mathematics used in these models — linear algebra and multivariate calculus — differ in no important respect from the methods employed in neo-classical economics. While much of the criticism of the use of mathematics in Marxian and post-Marxian economics is simply ill informed, it is certainly the case, as Frank Ackerman has claimed, that the mathematics of thermodynamic equilibrium — from which Samuelson borrowed the tools which revolutionized neo-classical economics — are inappropriate in the analysis of far-from-equilibrium structures with irreversible time, which seemingly would include much of what post-Marxian (and classical Marxian) economics is about. And it is equally the case that a coherent post-Marxian approach cannot make general use of the mathematical simplifications made possible by rendering economic interactions in the subject-object form via the assumption that all actors in competitive equilibrium treat prices and wages as parametric (i.e. given). For in these models firms are active, interacting strategically with workers and other firms, and economic interactions generally take a subject-subject form.

The application of chaos theory and game theory to economic reasoning — as Roemer (1982), Ackerman (1984), and others have done — may provide a more appropriate methodological basis for post-Marxian economics. But the application of chaos theory to any of the social sciences is still in its infancy. And the correctness of the

game theoretic attempt to model genuine interactions between two or more agents rather than the subject-object formulation which pervades most economic reasoning is matched by the difficulty of the task. Once one rejects the convenient assumption (the basis of neo-classical micro-economics) that each actor takes all prices as given (and hence treats all other agents as *not* reacting to the actor's decisions) the subject-object model of a decision-maker facing known and given parameters must be discarded in favour of a model of intersubjectivity, of strategy and counter-strategy, for the most part with indeterminate outcome. The sparse result of the application of game theory to the problem of strategic interaction in economics thus lends credence to Abba Lerner's wise remark: neo-classical "economics has gained the title Queen of the Social Sciences by choosing solved political problems as its domain".

Notes

1. As Thomas Kuhn has pointed out, the appearance of a textbook often marks the consolidation of a paradigm and expresses its fundamental commitments and methods. The basic structure of post-Marxian economics, as it has been taught to undergraduates at the University of Massachusetts for the past decade is expressed in Bowles and Edwards (1985).

2. The relationship of post-Marxian to classical Marxian economics is thus similar to that between post-Keynesian economics and the economics of Keynes. While the term post-Marxian appears an apt description of the body of work I will describe, it is not generally used by practitioners of the art, who are variously termed "radical economists", "neo-Marxian economists" or simply "Marxian economists". Any attempt to demarcate a precise boundary between classical Marxian and what I term post-Marxian economics would be highly arbitrary and pointless, in part because the two viewpoints share a vast body of common theory and outlook.

3. Marxian economists had long defended the labour theory of value as the only method by which a set of prices and a profit rate could be derived from the conditions of production (input-output relationships and the real wage bundle). The system developed by Piero Sraffa, however, makes it transparent that the derivation of prices and the profit rate need not make use of labour values and can proceed directly from the conditions of production to profits and prices. See Ian Steedman's insightful and polemical critique of the labour theory of value (1977).

4. Though considerably less direct, the influence of modern linguistic theory has also been felt in this respect: many post-Marxian analyses of the practice-structure relationship correspond closely to the relationship of a speech act to a discursive structure.

5. Jon Elster's influential critique of functionalism and advocacy of a game theoretic foundation for Marxism (1979) expresses much of the underlying post-Marxian orientation. But with the exception of the significant contributions of John

Roemer (1982) not much has come of the game theoretic approach. See appendix for a comment on why this might be the case.

6. See Okishio (1961) and Bowles (1981).

7. The arguments below, with citations to the relevant literature are developed in Bowles and Gintis (1981 and 1986).

8. The model sketched below is presented formally in Bowles (1985).

9. The political nature of the capitalist economy is argued more formally against counter claims based on neo-classical general equilibrium theory in Bowles and Gintis (1982).

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