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TABLE OF CONTENTS

Technology: A Paradigmatic Look <i>Kavous Ardalan</i>	1
A Critique of a Marxist Critique Of Thorstein Veblen <i>Adil H. Mouhammad</i>	19
The Employment –Wage Relationship: Was Keynes Right After All? <i>Nicholas Apergis and Ioannis Theodosiou</i>	40
Fire in the Firehouse? Preference Falsification and Informal Economic Activity in Peru <i>Enrico Marcelli and Zagros Madjd-Sadjadi</i>	51
On Sraffa’s q-System <i>Romar Correa</i>	68
Book Review Section	73

Technology: A Paradigmatic Look

Kavous Ardalan

Marist College

ABSTRACT:

Any adequate analysis of technology necessarily requires fundamental understanding of the worldviews underlying the views expressed with respect to the nature and role of technology. This paper starts with the premise that any worldview can be associated with one of the four basic paradigms: functionalist, interpretive, radical humanist, and radical structuralist. The paper looks at the current state of mainstream academic finance and notes that it is founded only on the functionalist paradigm. It argues that any view expressed with respect to technology is based on one of the four paradigms or worldviews. It, therefore, discusses four views expressed with respect to the nature and role of technology. The paper emphasizes that the four views expressed are equally scientific and informative; they look at the nature and role of technology from a certain paradigmatic viewpoint. Emphasizing this example in the area of technology, the paper concludes that there are opportunities for mainstream academic finance, in general, and technology, in particular, to benefit from contributions coming from the other three paradigms if they respect paradigm diversity.

JEL CLASSIFICATION CODES: B50, B51, B52, B53

KEY WORDS: Philosophy; Worldviews; Paradigms; Perspectives; Diversity

I. INTRODUCTION

An analysis of technology necessarily requires a fundamental understanding of the worldviews underlying the views expressed with respect to the nature and role of technology. Four general views with respect to technology, corresponding to four broad worldviews, are discussed. These four views with respect to the nature and role of technology are equally scientific and informative; each looks at the nature of technology and their role from a certain paradigmatic viewpoint.

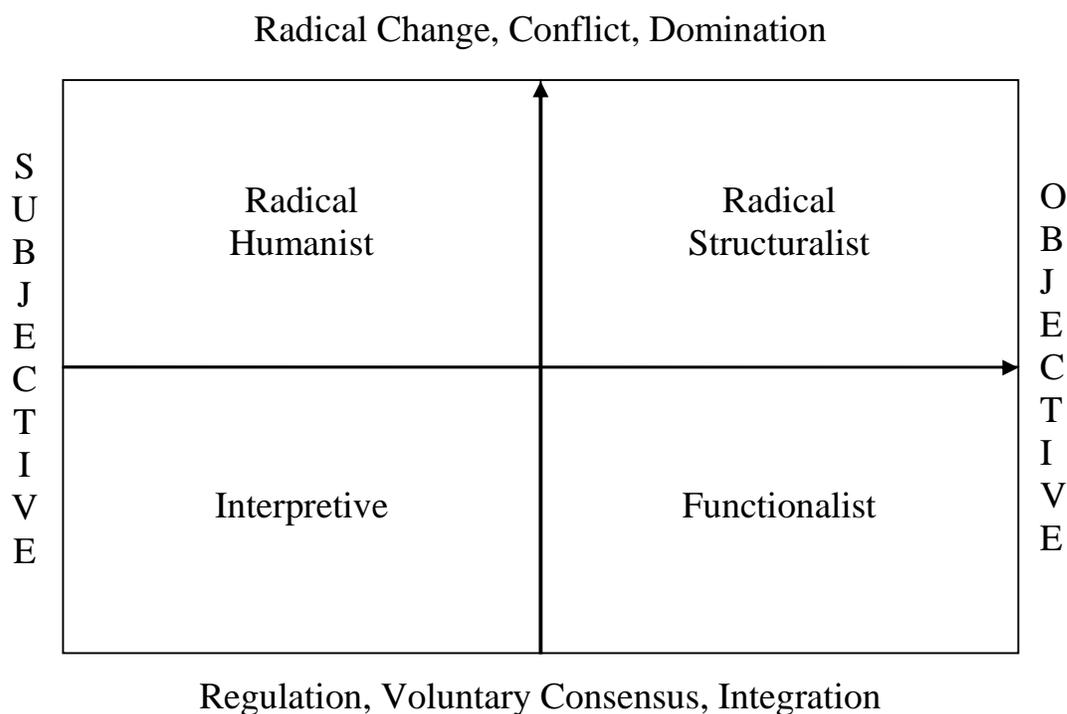
The paper takes the case of technology as an example and emphasizes that, in general, any phenomenon may be seen and analyzed from different viewpoints and that each viewpoint exposes a certain aspect of the phenomenon under consideration. Collectively, they provide a much broader and deeper understanding of the phenomenon. Therefore, academic finance can benefit much from contributions coming from other paradigms if it respects paradigm diversity.

Ardalan (2007a) and Ardalan (2007b) respectively show how each of the four paradigms views and analyzes corporate governance and markets differently and therefore how each one of them can benefit from the insights of the other three paradigms. For instance, as a sub-discipline of economics, mainstream finance does not concern itself with social structure. This paper proposes that the consideration of social structure is one way to improve the insight into the multi-faceted issues in finance.

This paper claims that there is no independent definition of technology because such a definition is dependent on the paradigm or worldview from whose vantage point the technology is viewed. In other words, the definition and treatment of technology depend on the paradigm or worldview from which these subjects are approached. As a sub-field of economics, mainstream finance treats technology as a factor of production and considers its effect on the efficiency with which financial operations are performed. The paper claims that there are other aspects to technology and therefore for a fuller understanding of technology it is useful to also look at the other dimensions of technology, i.e., it is useful to look at technology from other paradigms or worldviews.

Any adequate analysis of the role of paradigms in social theory must recognize the assumptions that underwrite that paradigm or worldview. Social theory can usefully be conceived in terms of four key paradigms: functionalist, interpretive, radical humanist, and radical structuralist. The four paradigms are founded upon different views of the social world. Each generates theories, concepts, and analytical tools which are different from those of other paradigms.

Exhibit 1: The Four Paradigms



The four paradigms are based on different assumptions about; the nature of social science (i.e., the subjective-objective dimension), and the nature of society (i.e., the dimension of

regulation-radical change), as in Exhibit 1.¹ This can be used as both a classificatory device, or more importantly, as an analytical tool.

The paper is organized as follows. Sections II to V, first, each lays down the foundation by discussing one of the four paradigms. Then, each presents the nature and role of technology from the point of view of the respective paradigm. Section VI concludes the paper.

II. THE FUNCTIONALIST PARADIGM

In Exhibit 1, the functionalist paradigm occupies the southeast quadrant. Schools of thought within this paradigm can be located on the objective-subjective continuum. From right to left they are: Objectivism, Social System Theory, Integrative Theory, Interactionism, and Social Action Theory.

The functionalist paradigm assumes that society has a concrete existence and follows certain order. These assumptions lead to the existence of an objective and value-free social science which can produce true explanatory and predictive knowledge of the reality out there. It assumes that scientific theories can be assessed objectively by reference to empirical evidence. Scientists do not see any roles for themselves within the phenomenon which they analyze through the rigor and technique of the scientific method. It attributes independence to the observer from the observed. That is, an ability to observe “what is” without affecting it. It assumes there are universal standards of science, which determine what constitutes an adequate explanation of what is observed. It assumes there are external rules and regulations governing the external world. The goal of scientists is to find the orders that prevail within that phenomenon.

The functionalist paradigm seeks to provide rational explanations of social affairs and generates regulative sociology. It emphasizes the importance of understanding order, equilibrium and stability in society and the way in which these can be maintained. Science provides the basis for structuring and ordering the social world, similar to the structure and order in the natural world. The methods of natural science are used to generate explanations of the social world. Their approach to social science is rooted in the tradition of positivism.

Functionalists are individualists. That is, the properties of the aggregate are determined by the properties of its units.

The functionalist paradigm has become dominant in academic sociology and mainstream academic finance. The world of finance is treated as a place of concrete reality, the individual is regarded as taking on a passive role; his or her behavior is being determined by the economic environment.

Theories and policies in current mainstream academic finance may be listed² as follows: (1) Efficient market theory, (2) Portfolio theory, (3) Capital asset pricing theory, (4) Option pricing theory, (5) Agency theory, (6) Arbitrage pricing theory, (7) Capital budgeting policy, (8) Capital structure policy, and (9) Dividend policy.

Bettner, Robinson, and McGoun (1994) note that the common threads among theories in mainstream academic finance are:

¹ See Burrell and Morgan (1979).

² For overviews of the finance literature, see Brennan (1995), Smith (1990), and Weston (1994).

1. There is a cause and effect mechanism underlying all nature and human activity (ontology);
2. It is known through the set of nomological connections between initial conditions and final outcomes (epistemology);
3. Human beings interact with each other and their society in accordance with this mechanism (human nature); and
4. Information regarding all natural and human activity can be acquired through observations and measurements unaffected by individual perceptual differences (methodology),³ (page 3)

which lead to the conclusion that the current theories in finance are clearly based on the functionalist paradigm.

Functionalist paradigm's views with respect to the nature and role of technology are presented next.⁴

Capital goods are heterogeneous commodities due to their different technical characteristics. Capital goods are one of the factors of production. In contrast to labor and land, capital goods are not given, because they are themselves produced. Capital goods are both an output and an input and, therefore, the size and variation of the capital stock are determined endogenously. That is, as a factor of production, capital stock is not a given but it is the result of an economic process in which it participates as one of the determinants. Consequently, the formation of capital stock or investment is the major channel through which all other determinants (such as technical progress, change in labor supply, or the exploitation of natural resources) influence the long-run growth of an economic system.

Classical economists became interested in the analysis of economic growth because of their philosophical concern with growth in national wealth, consumption, and the material basis of society. They regarded the principle of national advantage as an essential criterion of economic policy. Accordingly, their purpose of analysis was to identify the forces in society that promoted or hindered economic growth in order to provide a basis for policy and action to influence those forces.

Classical economists provided an account of the mechanisms underlying the growth process and major forces that influence economic growth. Their important achievement was the recognition that the main driving force behind economic growth is the investment of a part of the social product towards accumulation of capital stock. Such capital accumulation forms as a result of the reinvestment of a portion of profits.

At the core of the problem of economic growth lies the explanation of the forces underlying the process of the accumulation of capital stock. Closely associated with the accumulation of capital stock is the technical change, as expressed in the division of labor and changes in methods of production.

³ See Bettner, Robinson and McGoun (1994) and McGoun (1992) for more complete treatments.

⁴ For this literature see Domar (1946), Hahn (1965), Hahn and Matthews (1964), Harrod (1939), Hicks (1965), Kaldor (1956), Mitra (1976), Pasinetti (1981), Robinson (1956, 1962), Solow (1956), Sraffa (1960), Uzawa (1961), and von Neumann (1937). This section is based on New Palgrave Dictionary of Economics.

The most common analysis of the accumulation of capital has viewed the problem as the expansion of the productive potential of an economy with a given technology, which may be improved in the process. This approach leads to analyses based on the idea of steady growth.

Accumulation of capital is the result of plowing back part of the surplus generated from production. Accordingly, accumulation of capital is the investment of part of society's net product – the surplus of output over consumption and the requirements for maintaining the existing capital stock – in order to expand productive capacity to take advantage of new or developing markets. The study of the accumulation of capital in the steady state growth of the economy explains both the availability of the surplus and the motivation for plowing it back.

Most of the modern work studied accumulation of capital in the context of steady growth. Economic growth can have a specific target, or can continue indefinitely. The former is the subject of “turnpike” studies (that is, in order to reach a target set of outputs, first the economy most rapidly shifts to the balanced growth path – the “turnpike” – and grows along it, and changes to the desired set of outputs when it reaches the right size). The latter is the subject of models in which equilibrium paths of perpetual growth are determined and their properties examined. In other words, given a system of production, the above two approaches answer the question how that system can be organized in order to grow either over some finite period of time to reach some target set of outputs or over the indefinite future. In either case the accumulation of capital, which is the core of economic growth, will result from the investment of part of the surplus, and will be analyzed either as a case of steady growth or as a deviation from steady growth.

Classical economists provided a complex structure of ideas expressing a deep understanding of the nature of the economic system, the sources of its expansion, and the barriers or limits to its expansion. However, their ideas were constrained by the conditions of their agrarian economy, i.e., without significant change in methods of production. Without technological progress, the limited quantity and diminishing fertility of the soil results in the limit to growth by increasing the cost of production of agricultural commodities. Their analysis underestimated the role of technological progress in transforming the conditions of productivity both in agriculture and in industry.

Neoclassical economists explicitly incorporate technological progress in their analysis. The neoclassical model determines a path of steady and stable full-employment growth. For example, when the rate of growth of labor, measured in efficiency units (the natural rate of growth), exceeds the rate determined by the propensity to save and the capital-output ratio (the rate that will just balance aggregate demand and aggregate supply), the real wage will tend to fall. This leads firms to substitute labor for capital. Consequently, the capital-output ratio will decline, raising the rate of growth. If the production function is well-behaved (linear and homogeneous, positive first and negative second derivatives, marginal product of capital tends to infinity as capital-labor ratio tends to zero, and tends to zero as capital-labor ratio tends to infinity), then there will exist an equilibrium growth path. Technological progress which leaves the capital-output ratio unchanged (Harrod-neutral) will not affect the steady-growth path; and technological progress which leaves the ratio of the marginal products of capital and labor unchanged (Hicks-neutral) will change the path, but the economy will adjust smoothly to the new equilibrium.

In neoclassical theory, equilibria tend also to be optimal, but in general the steady growth path will not be. Along an optimal path per capita consumption is at a maximum. Consumption is

output minus investment. Investment must grow at a constant rate in order to fully employ the growing labor force. If the marginal product of capital is more than is required to equip the labor force, consumption rises; if it is less, consumption falls. Hence when the marginal product of capital just equals the additional investment required to equip the growing labor force, consumption will be at a maximum. The “Golden Rule of Growth” means consumption per head is maximized and obtains when the rate of profit equals the rate of growth.

III. THE INTERPRETIVE PARADIGM

In Exhibit 1, the interpretive paradigm occupies the southwest quadrant. Schools of thought within this paradigm can be located on the objective-subjective continuum. From left to right they are: Solipsism, Phenomenology, Phenomenological Sociology, and Hermeneutics.

The interpretive paradigm sees the social world as a process which is created by individuals. Social reality, insofar as it exists outside the consciousness of any individual, is regarded as being a network of assumptions and intersubjectively shared meanings. This assumption leads to the belief that there are shared multiple realities which are sustained and changed. Researchers recognize their role within the phenomenon under investigation. The goal of interpretive researchers is to find the orders that prevail within the phenomenon under consideration; however, they are not objective.

The interpretive paradigm believes that in cultural sciences, the subject matter is spiritual in nature. In the cultural sphere, human beings are perceived as free. An understanding of their lives and actions can be obtained by the intuition of the total wholes. Cultural phenomena are seen as the external manifestations of inner experience. The cultural sciences, therefore, need to apply analytical methods based on “understanding;” through which the scientist can seek to understand human beings, their minds, and their feelings, and the way these are expressed in their outward actions.

The interpretive paradigm believes that scientific knowledge is socially constructed and socially sustained; its significance and meaning can only be understood within its immediate social context. Interpretive finance research enables scientists to examine aggregate market behavior together with ethical, cultural, political, and social issues. The interpretive paradigm believes that there are no universally valid rules of finance and financial management.

Interpretive research in academic finance is negligible compared to the functionalist research. The following is a list of examples of interpretive research: Baker (1992), Baker and Wruck (1989), Cray and Haines (1992), Frankfurter and Lane (1992), Kryzanowski and Roberts (1993a, 1993b), Lintner (1956), O’Barr and Conley (1992), and Rosen (1990).

Interpretive paradigm’s views with respect to the nature and role of technology are presented next.⁵

The social construction of technology (SCOT) shows how social processes influence the content of technology, e.g., when a technology is deemed to be working. SCOT illustrates that

⁵ For this literature see Bijker (1990), Bijker, Hughes, and Pinch (1987), Bijker and Law (1992), Jasanoff, Markle, Petersen, and Pinch (1995), Klein and Kleinman (2002), Pinch (1996), and Pinch and Bijker (1984). This section is based on Klein and Kleinman (2002) and Pinch (1996).

technology and the facts about its working, which are established through processes of engineering design and testing, are social constructs.

The conceptual framework of the social construction of technology (SCOT) consists of five related components.

The first component of the SCOT framework is the *relevant social group*. The understanding of technological development requires the understanding of the technological artifacts, i.e., materials and processes. SCOT, which is fundamentally a sociological approach towards technology, approaches and analyzes artifacts in the context of society. Society is conceptualized and related to artifacts through the notion of relevant social groups. These are social groups who play a role in the development of a technological artifact. Such social groups share a meaning of the artifact. This meaning is then used to explain particular development paths which the artifact takes. Some examples of social groups are as follows: engineers, advertisers, public-interest groups, and consumers. The understanding of a complex technology involves a whole array of such social groups. Although the only defining characteristic of a social group is its homogeneous meaning given to a certain artifact, the intention is not just to make general statements about any of the social groups, such as consumers and producers. For each relevant social group, its detailed description is needed in order to be able to define the functioning of the artifact with respect to that social group.

Relevant social groups have particular interpretations and accordingly all members of a social group share the same set of meanings with respect to a given artifact. In other words, they are the agents in this agency-centered approach whose actions reflect the meanings they associate with specific artifacts. Technological development is a social process which involves multiple social groups, each of which has a specific interpretation of a certain artifact, and they negotiate over its design, with different social groups seeing and constructing quite different technological artifact. For instance, if social groups have different definitions of a working technology, then the technological development continues until all groups come to a consensus that their common artifact works. At this stage, the technological development culminates not because the technological artifact works in some objective sense but because all relevant social groups agree that it works for them.

The second component of the SCOT framework is the *interpretive flexibility*. It means that different social groups may associate radically different meanings to a certain artifact. That is, there is interpretive flexibility with respect to the meaning given to a given artifact. Interpretive flexibility applies to both a compound artifact and to its separate components.

Interpretive flexibility implies that technology design (and use) is an open process that can generate different outcomes depending on the social circumstances in which they are development. That is, technological artifacts are the outcomes of inter-group negotiations. There are several possible outcomes of the design (and use) of technological artifacts, therefore, the final design (and use) that finally results from the process, it could have been different.

The third component of the SCOT framework is the *closure and stabilization*. The involvement of several social groups in the technological design (and use) process can lead to controversies since their different interpretations lead to conflicting images of an artifact. Technological design (and use) continues until such controversies are resolved and the technological artifact is considered satisfactory by all relevant social groups. At this point, the process achieves closure and the artifact stabilizes in its final form. Two examples of closure

mechanisms are as follows. Rhetorical closure involves a declaration that no further problems exist and that no additional design is necessary. Closure by redefinition involves a redefinition of unresolved problems such that they no longer pose problems to all relevant social groups.

Closure and stabilization obtain when an artifact seems to have fewer problems and become increasingly the acceptable and dominant form of the technology. This may not necessarily lead to all competing technological artifacts disappearing, and often two very different technologies may co-exist. Furthermore, the process of closure or stabilization need not necessarily be final. New problems can arise and the interpretive flexibility of the technological artifact can reappear.

The fourth component of the SCOT framework is the *wider context*. This is the wider socio-cultural and political context in which the development of the technological artifact occurs. The background conditions of group interactions, such as their relations to each other, the rules ordering their interactions, and factors contributing to differences in their power fall in this category.

The fifth component of the SCOT framework is the *technological frame*, i.e., frame with respect to technology. This is a social group's shared cognitive frame of reference that forms social group members' common interpretation of a certain artifact. Similar to a Kuhnian paradigm, a technological frame can include goals, key problems, current theories, rules of thumb, testing procedures, and exemplary artifacts that, tacitly or explicitly, structure group members' thinking, problem solving, strategy formation, and design activities. A technological frame usually promotes certain actions and discourages others. In the process, technological frame acts as a frame of meaning with respect to a particular technology which is shared by several social groups, which, in turn, further guides and shapes the development of the artifact. This helps to shed light on how the structured character of the larger social context is linked to technology design (and use).

IV. THE RADICAL HUMANIST PARADIGM

In Exhibit 1, the radical humanist paradigm occupies the northwest quadrant. Schools of thought within this paradigm can be located on the objective-subjective continuum. From left to right they are: French Existentialism, Anarchistic Individualism, and Critical Theory.

The radical humanist paradigm assumes that reality is socially created and sustained. It provides critiques of the status quo. It tends to view society as anti-human. It views the process of reality creation as feeding back on itself; such that individuals and society are prevented from reaching their highest possible potential. That is, the consciousness of human beings is dominated by the ideological superstructures of the social system, which results in their alienation or false consciousness. This, in turn, prevents true human fulfillment. The social theorist regards the orders that prevail in the society as instruments of ideological domination. The major concern for theorists is with the way such ideological domination occurs and finding ways in which human beings can release themselves. They seek to change the social world through a change in consciousness.

Radical humanists believe that everything must be grasped as a whole, because the whole dominates the parts in an all-embracing sense. Moreover, truth is historically specific, relative to a given set of circumstances, so that one should not search for generalizations for the laws of motion of societies.

The focus of the radical humanists upon the “superstructural” aspects of society reflects their attempt to emphasize the Hegelian dialectics. It is through the dialectic that the objective and subjective aspects of social life interact. The superstructure of society is believed to be the medium through which the consciousness of human beings is controlled and molded to fit the requirements of the social formation as a whole. The radical humanists emphasize the political and repressive nature of purposive rationality, logic of science, positive functions of technology, and neutrality of language.

Radical humanist research in academic finance is non-existent. Examples of radical humanist research, although not even mentioned in academic finance, are: Biewener (1999, 2000), Cullenberg (1994, 1997), Perelman (1987, 1993, 1999), and Tinker, Merino, and Neimark (1982).

Radical humanist paradigm’s views with respect to the nature and role of technology are presented next.⁶

The concept of “rationality” refers to the form of capitalist economic activity, bourgeois private law, and bureaucratic authority. Rationalization means subjecting different areas of society to the criteria of rational decision, i.e., the criteria of instrumental action penetrate into different areas of life. It implies purposive-rational action, which refers to the organization of means of choice between alternatives. In this framework, planning can be regarded as purposive-rational action of the second order. This is because it aims at the establishment, improvement, or expansion of systems of purposive-rational action themselves.

The increasing “rationalization” of society is related to the institutionalization of scientific and technical development. Technology and science progressively permeate social institutions and transform them, and in this way old legitimations are replaced.

The concept of technical reason is ideological. Both the application of technology and technology itself are forms of domination, i.e., domination of nature and domination of men. Technical reason is methodical, scientific, calculated, and calculating control. Specific plans of domination are not superimposed on technology subsequently and externally; they enter *a priori* in the construction of the technical apparatus. Technology is always a historical-social phenomenon, i.e., it shows what a society and its ruling interests intend to do with men and things.

The technological *a priori* is a political *a priori* to the extent that the transformation of nature involves that of man, and to the extent that the man-made creations affect and are affected by their societal ensemble. It might be said that the machinery of the technological universe is indifferent towards political ends. However, when techniques become the universal form of material production, they affect and modify an entire culture; they project a historical totality, i.e., a world.

In the name of rationality, “rationalization” realizes a specific form of unacknowledged political domination. This sort of rationality intends to lead to the correct choice among strategies, the appropriate applications of technologies, and the efficient establishment of systems with presupposed aims in given situations. Therefore, it removes the total social framework of interests in which strategies are chosen, technologies are applied, and systems are

⁶ For this literature see Feenberg (1991, 1999), Habermas (1970), Heidegger (1977), Lukacs (1971), and Marcuse (1964). This section is based on Habermas (1970).

established, from the scope of reflection and rational reconstruction. This type of rationality intends to lead only to relations of technical control and therefore encourages actions that imply domination, whether of nature or of society. By its very nature, purposive-rational action is the exercise of control. According to this type of rationality, the “rationalization” of society is the institutionalization of a form of domination. However, the political character of this domination becomes unrecognizable. This is despite the fact that the technical reason of a social system of purposive-rational action does not lose its political content.

The institutionalized growth of the forces of production, which surpasses all historical proportions, follows from scientific and technical progress. This gives the institutional framework the opportunity for legitimation. The idea that the objectively superfluous, repressive character of historically obsolete relations of production can be measured against the growth of productive forces is denied because the existing relations of production are the technically necessary organizational form of a rationalized society. The forces of production, at this stage of their scientific-technical development, enter a new arrangement with the relations of production. Growth in the forces of production are not used as the basis of a critique of prevailing legitimations, instead they are used as the basis for legitimation.

The objectively superfluous repression of individuals is experienced in their intensified subjection to the enormous apparatus of production and distribution, and in their de-privatization of free time. Ironically, however, this repression might not register in the consciousness of individuals because the legitimation of domination is based on the growth of the forces of production and the domination of nature which provide individuals with increasingly comfortable lives.

The rationality embodied in the system of purposive-rational action is limited. In addition, the rationality of science and technology, instead of being reducible to unvarying rules of logic and method, is a substantive, historically derived, and transitory *a priori* structure.

Modern science was *a priori* structured in such a fashion that it could serve as conceptual instrument for productive control. Consequently, theoretical operationalism came to correspond to practical operationalism. The scientific method which led to the progressive domination of nature provided the concepts and instrumentalities for the progressive domination of man by man through the domination of nature. Domination is perpetuated and extended not only through technology but as technology. The latter provides the legitimation of the expanding political power, which encompasses all spheres of culture.

Technology rationalizes the unfreedom of man in being autonomous and in determining one's own life. This unfreedom is recognized neither as irrational nor as political, but rather as submission to the technical apparatus which increases the productivity of labor and enlarges the comforts of life. In this way, technological rationality legitimizes domination and opens on a rationally totalitarian society.

The nature of fusion of technology and domination, rationality and oppression is contained in the material *a priori* of the logic of science and technology and determined by class interest and historical situation. Therefore, social emancipation cannot be conceived without a complementary revolutionary transformation of science and technology themselves.

The transcendental framework within which nature would be made the object of a new experience would replace the functional system of instrumental action. The viewpoint of possible

technical control would be replaced by one of preserving, fostering, and releasing the potentialities of nature.

V. THE RADICAL STRUCTURALIST PARADIGM

In Exhibit 1, the radical structuralist paradigm occupies the northeast quadrant. Schools of thought within this paradigm can be located on the objective-subjective continuum. From right to left they are: Russian Social Theory, Conflict Theory, and Contemporary Mediterranean Marxism.

The radical structuralist paradigm assumes that reality is objective and concrete. It uses scientific methods to find the order that prevails in the phenomenon. It views society as a potentially dominating force.

This paradigm is based on four central notions. First, there is the notion of totality, i.e., the phenomenon as a whole. This notion emphasizes that the totality shapes and is present in all its constituent parts. Second, there is the notion of structure. The focus is upon the configurations of social relationships, called structures. The third notion is that of contradiction. Structures, or social formations, contain contradictory and antagonistic relationships within them which act as seeds of their own decay. The fourth notion is that of crisis. Contradictions within a given totality reach a point at which they can no longer be contained. The resulting political and economic crises indicate the point of transformation from one totality to another, in which one set of structures is replaced by another of a fundamentally different nature.

To survive and reproduce themselves, human beings transform reality, where material reality is the most important. This transformation takes place through the social division of labor. This division implies that social groups enter into relations with each other to produce, while they use means of production, that is, they enter into production relations. These groups, formed in terms of production relations, are called social classes. A complete definition of a social class encompasses economic, political, and ideological elements, with dialectical relationships. Production relations, under capitalism, are antagonistic, since they unite two antagonistic poles, defined as owner and non-owner. Therefore, social classes, who are the carriers of contradictory aspects of social relations, are antagonistic too.

Transforming material requires knowledge of doing it. Gaining knowledge of doing it requires dealing with it, i.e., transforming it. This is the materialist basis of epistemology, i.e., science has a materialist nature. Therefore, only classes, identifiable in terms of production relations, have the objective possibility of an independent knowledge of reality. Furthermore, the class which deals with a larger portion of reality, has the greater objective possibility of gaining a correct knowledge of it. Under capitalism, the proletariat,⁷ which deals with an increasing portion of social reality, has the objective possibility of knowing it correctly. In the context of the constant attempt that classes make to dominate each other, it can only realize itself through ideological class struggle. Knowledge is, thus, in the most fundamental sense, ideological, since it formulates views of reality and solves problems from a class point of view.

⁷ The proletariat is defined as all the individuals who participate in the transformation of material, i.e., in the transformation of the social product, while not owning the means necessary for this transformation.

Radical structuralist research in academic finance is non-existent. The literature in this area has been, historically, quite extensive, although there has been no mention of its existence in academic finance. Some examples of radical structuralist research are: Gill (1999), Magdoff and Sweezy (1987), Sweezy (1964, 1994, 1997), and Sweezy and Magdoff (1972).

Radical structuralist paradigm's views with respect to the nature and role of technology are presented next.⁸

In order to live, people must have food, clothing, footwear, shelter, fuel, etc. In order to have these materials, people must produce them. In order to produce these materials, people must have the instruments of production. People must be able to produce and use these instruments of production. These embody the technology.

The instruments of production and the people who operate them, together with their experience and skill, constitute the *forces of production* of society.

The forces of production are only one aspect of production. Another aspect of production is the *relations of production*, i.e., the relation of men to each other in the process of production. In the production of materials men enter into mutual relations of one kind or another, called relations of production. The relations of production may be free from exploitation, they may be based on domination and subordination, or they may be transitional from one form of relations of production to another.

The relations of production show who owns the *means of production* (the land, forests, waters, mineral resources, raw materials, instruments of production, production premises, means of transportation and communication, etc.), who has command over the means of production, whether the whole of society, or individual persons, or groups, or classes which utilize them for the exploitation of other persons, groups, or classes?

The *mode of production* consists of both the forces of production and the relations of production.

Over time, forces of production develop, most prominently due to the development in technology. At different stages of development of forces of production, societies utilize different modes of production. For instance, different modes of production prevail in the primitive commune, in slavery, in feudalism, in capitalism, or in socialism. A change in the mode of production leads to changes in the whole social system: social ideas, theories, political views, and political.

This means that the history of development of society is above all the history of the development of technology, the history of the development of forces of production, the history of the change in modes of production, which succeed each other in the course of centuries.

The development of instruments of production since the ancient times briefly has been as follows. The development from crude stone tools to the bow and arrow, from the life of hunters to the domestication of animals and primitive pasturage; the development from stone tools to metal tools (the iron axe, the wooden plow fitted with an iron coulter, etc.), and the life of tillage and agriculture; further development in metal tools for the working up of materials, the blacksmith's bellows, the pottery, handicrafts, the separated lines of handicrafts from agriculture, handicraft industry and manufacturing industry; the development from handicraft tools to

⁸ For this literature see Croce (2000), Engles (1979), Marx (1969), Plekhanov (1969), Schmitt (1987), and Stalin (1940). This section is based on Stalin (1940).

machines, handicraft machine industry and manufacturing machine industry; the development to the machine system, modern large-scale machine industry.

In conformity with the improvement and development of the technology and the forces of production of society in the course of history, men's relations of production also has improved and developed. The five main types of relations of production are primitive communal, slave, feudal, capitalist and socialist.

Development in technology is the most mobile and revolutionary element in production, which determines the development of society. The development and improvement of the instruments of production has been effected by men who were involved in the process of production. Consequently, the improvement and development of the instruments of production has been accompanied by an improvement and development of men. This has taken effect through their production experience, improvement in their labor skill, and improvement in their ability to handle the instruments of production.

Society's development always begins with the development in technology embodied in the instruments of production. This, in turn, leads to the development in the forces of production. Then, in conformity with them, relations of production change. Note should be taken that the relations of production influence the development of the forces of production. That is, relations of production might accelerate or retard the development of the forces of production. The relations of production cannot fall behind and be in a state of contradiction to the growth of the forces of production. Forces of production can develop only when the relations of production correspond to their character. The relations of production must come, and actually do come, into correspondence with the level of development of the forces of production. Otherwise there would be a fundamental violation of the unity of the forces of production and the relations of production within the system of production. This would mean a disruption of production as a whole, a crisis of production, and a destruction of the forces of production.

For instance, in capitalist countries, the relations of production do not correspond to the character of the forces of production. This is because private capitalist ownership of the means of production does not correspond to the social character of the process of production, i.e., with the character of the forces of production. This results in economic crises, which lead to the destruction of productive forces. Furthermore, this incongruity constitutes the economic basis of social revolution, the purpose of which is to destroy the existing relations of production and to create new relations of production which correspond to the social character of the forces of production.

In contrast, in socialism, the relations of production completely correspond to the character of the forces of production. That is, the social ownership of the means of production fully corresponds to the social character of the process of production. Therefore, in socialism, economic crises and the destruction of forces of production are nonexistent.

VI. CONCLUSION

This paper briefly discussed four views expressed with respect to the nature and role of technology. The functionalist paradigm views technology as a factor of production and therefore views technological progress as having corresponding effect on economy's output and growth. The interpretive paradigm views technology as a social construction which should be analyzed

within the larger social process. The radical humanist paradigm views technology as ideology and being used for domination over the majority of people in society. The radical structuralist paradigm views technology as the most revolutionary among the forces of production, whose growth has taken human society from primitive commune, to slavery, to feudalism, to capitalism, and towards socialism.

This paper noted that scientists often approach their subject from a frame of reference based upon assumptions that are taken-for-granted. Since these assumptions are continually affirmed and reinforced, they remain not only unquestioned, but also beyond conscious awareness. In this way, most researchers in academic finance tend to favor the functionalist paradigm and its views with respect to the nature and role of technology.

The partial nature of this view only becomes apparent when the researcher exposes basic assumptions to the challenge of alternative ways of seeing, and starts to appreciate these alternatives in their own terms. To do this, one has to explore other paradigms from within, since the concepts in one paradigm cannot easily be interpreted in terms of those of another. Once each view of technology is seen from within the respective paradigm, all four views of technology are seen to be equally scientific and informative; they look at the nature and role of technology from a certain paradigmatic viewpoint.

The diversity of finance research possibilities referred to in this paper is vast. While each paradigm advocates a research strategy that is logically coherent, in terms of underlying assumptions, these vary from paradigm to paradigm. The phenomenon to be researched can be conceptualized and studied in many different ways, each generating distinctive kinds of insight and understanding. There are many different ways of studying the same social phenomenon, and given that the insights generated by any one approach are at best partial and incomplete, the social researcher can gain much by reflecting on the nature and merits of different approaches. It is clear that social scientists, like other generators of knowledge, deal with the realization of possible types of knowledge, which are connected with the particular paradigm adopted.

The paper, therefore, recommends a serious conscious thinking about the social philosophy upon which finance, in general, and technology research, in particular, is based and of the alternative avenues for development. The knowledge of the four paradigms is of paramount importance to any scientist, because the process of learning about a favored paradigm is also the process of learning what that paradigm is not. The knowledge of paradigms makes scientists aware of the boundaries within which they approach their subject. Each of the four paradigms implies a different way of social theorizing in general, and finance and technology, in particular.

Academic finance, in general, and technology researchers, in particular, can gain much by exploiting the new perspectives coming from other paradigms. An understanding of different paradigms leads to a better understanding of the multi-faceted nature of finance and technology. Although a researcher may decide to conduct research from the point of view of a certain paradigm, an understanding of the nature of other paradigms leads to a better understanding of what one is doing.

Knowledge of finance and technology is ultimately a product of the researcher's paradigmatic approach to this multifaceted phenomenon. Viewed from this angle, the pursuit of financial and technological knowledge is seen as much an ethical, moral, ideological, and political activity, as it is a technical one.

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A Critique of A Marxist Critique Of Thorstein Veblen

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ABSTRACT:

Over his career, Thorstein Veblen provided the economics profession with a magnificent economic theory which later proved superior to other economic theories. His principle theory concerns the microeconomic foundations of reserve productive capacity and mark-up pricing. He also examines macroeconomic theory dealing with inflation, unemployment, the business cycle, productivity and income distribution, and economic development. His entire economic theory is ultimately critical of imperialism, militarism, and patriotism, as well as the higher plane capitalism in its zenith of large corporations and financial magnates. Given all these contributions, Marxist economists such as Sweezy, Baran, Dowd, and Hunt have criticized Veblen's work as being grounded in Say's Law. They criticize Veblen for having no adequate theory of investment and employment, a weak theory of imperialism, an incomplete theory of the business cycle, a tendency to racism, weak materialism, and so on. This paper aims at providing a condensed review of Veblen's economic theory within his evolutionary framework, and criticizes the Marxist critique of Veblen's work. It is hoped that this paper will convince Veblen's critics of the significant value of his work.

JEL CLASSIFICATION CODES: B31

KEY WORDS: *Paul Sweezy; Paul Baran; Douglas Dowd; E. K. Hunt*

1. INTRODUCTION

Thorstein Veblen, the greatest American economist of all time, critically analyzes American capitalism as it is reflected in its aspects of large corporations, financial magnates, crises, imperialism, militarism, and patriotism. To provide a convincing economic theory explaining American capitalism and its features, Veblen builds a cultural evolutionary framework demonstrating the rise of capitalism as we know it. This goes back to the emergence of the private ownership, the leisure class, and the underlying population. The leisure class is parasitical and conservative with an instinct to exploit others, while the underlying population is progressive and characterized by an instinct of workmanship which tends to reject the business principles and to help others. This social conflict existed in numerous civilizations and has taken several forms depending on whether a particular system is slavery, feudalistic, or capitalist.

Based on this historical and antagonistic division, Veblen develops an economic theory which contains microeconomic and macroeconomic dimensions to explain capitalism, particularly American capitalism. The first dimension of his theory consists of the reserve (unused) productive capacity and the mark-up pricing. The second dimension contains theories of aggregate demand, employment, inflation, the business cycle, productivity, development, and imperialism and patriotism. In both dimensions finance and financiers, which are represented by the Federal Reserve Bank, play a crucial role in controlling the whole economy for their own pecuniary advantages at the expense of the underlying population.

Marxist scholars, particularly Paul Sweezy and Paul Baran, whose economic analyses are similar to Veblen's analysis, have frequently criticized Veblen. Their critiques need to be revisited, because they contain many incorrect readings of Veblen's work. Reading their critiques carefully suggests that Baran and Sweezy did not accurately read Veblen's intellectual work. This proposition can be substantiated by the facts that they did not back their critical points with quotations from Veblen's writings, and that Sweezy depended heavily on Joseph Dorfman's summaries of Veblen's work rather than reading Veblen's writings directly. These facts have caused a clear misunderstanding of Veblen's intellectual system. Dowd, who understands Veblen better than Baran and Sweezy, has unwittingly echoed most of their critiques in his work on Veblen. Lastly, E. K. Hunt has provided an excellent evaluation of Veblen's contributions, with minor errors compared to Baran, Sweezy, and Dowd. Hunt even recognizes Veblen's influence on Marxism.

This paper aims at analyzing these Marxist critiques and demonstrates that they are not only misleading but inaccurate. Section 2 of this paper will provide a condensed summary of Veblen's economic theory. This section is highly significant for an objective evaluation of the Marxist critique of Veblen's work, which will be analyzed in sections 3, 4, and 5. These sections will explain Sweezy's, Baran's, Dowd's, and Hunt's critiques of Veblen's intellectual system, respectively. The last section is devoted to a summary and conclusions. It is hoped that this paper will clear away most of the obfuscation and misinterpretations of Veblen's greatest work, and will put his economic theory in a deserving place.

2. A CONDENSED REVIEW OF VEBLLEN'S ECONOMIC THEORY

Like other great scholars, Veblen (1899, 1914, 1923) starts with a cultural evolutionary theory explaining the history of human civilization, which he divides into four stages of savagery, barbarism, capitalism, and the new industrial republic: socialism. The savage period ended in the early half of the Neolithic period and was characterized by peace among people, as ownership was communal. Technology was primitive and its development depended on the community's talents. It collapsed as a result of the emergence of private ownership and wars.

The barbarian stage emerged from the savage stage. It depended on private ownership whose sources were the seizure and exploitation of helpless people: looting (Veblen 1914: 157). The most important looted treasure was women and children who became trophies of the powerful victorious chiefs. Economic surplus was generated due not only to looting and exploitation but also to the technological knowledge which was developed during productive activities. Clearly, those who controlled the economic surplus and the looted items (or the unearned income) became the wealthiest. These were the ones who constituted the most powerful leisure conservative class which made its living at the expense of the entire community: "The loot ...may become (private) property and be accumulated in sufficient mass to make a difference between rich and poor" (Veblen 1914: 157).

The barbarian stage included both the slavery and feudalistic systems. Veblen thinks that both slaves and then land became objects of ownership during these historical periods of civilization (1908b: 526). He also points out, "The effect of slavery in its best day, and of landed wealth in medieval and early modern times, was to make the community's industrial efficiency serve the needs of slave-owners in the one case and of the land-owners in the other" (Veblen 1908b: 528).

Veblen does not provide exact dates for the emergence of these periods, because it is impossible to do so, as historical periods overlap. However, he was able to describe the antagonistic classes of these periods and gave an approximated demarcation for each historical stage.

Usually, the upper leisure class controls occupations of honor: “the upper classes are by custom exempt or excluded from industrial occupations, and are reserved for certain employment [such as] warfare, government, politics, religious observances, sports, and priestly services” (Veblen 1899: 1). The other social groups are lumped according to Veblen (1899: 2) to form the inferior class which includes slaves, other dependents, and women that perform all “Manual labor, industry, whatever has to do directly with everyday work of getting a livelihood”. Therefore, Veblen (1899: 12) argues that the society is indeed divided into two great classes “which would in modern phrase be called exploit and industry”. Industry, or industrial employment, means the creation of new things; whereas, exploit means the seizure of another agent’s energetic work. Seizure by force justified the killing of competitors, and labor became irksome. Arms were honorable, and wars became the dominant institution. Wealth and power, which they confer honor, became the marks for comparing individuals, and both indicators characterized the leisure class which was helped by its servant whose life was “spent in maintaining the honor of the gentleman of leisure” (Veblen 1899: 61). In Marxian’s terms the savage stage corresponds to the primitive mode of production, while Veblen’s barbarism corresponds to the Marxist’s slavery and feudalistic modes of production.

Eventually, barbarism shaped the society clearly and divided it into three classes after the rise of the business groups due to the evolution of exchange and commerce. The aristocratic leisure class possesses wealth without working for it, the middle class which holds commercial businesses, and the lower class consists of the working people living on their workmanship. Veblen (1914: 185) describes the class division as, “It is a gradation of (a) predation, (b) business, (c) industry; the former being disserviceable and gainful, and the second gainful, and the third serviceable”. Once commercialization developed further a transition took place from the basic predatory coercive scheme into the business competitive system whose pecuniary gain became the incentive to industry. Technology improved in urban areas under the business system, and the oppressed people and peasants rejected feudalism and its exploitive system. Hence, the system was transformed into capitalism.

The evolution of capitalism is divided by Veblen into four eras. The first era was the era of handicraft which emerged at the end of the Middle Ages, and which was the outcome of peaceful conditions in Northern Europe, especially England. The fundamental factor in the development of the handicraft was the Masterless Man, the drifters who earned their livelihood through the use of their skills in the production process. These drifters were widely scattered geographically and were able to develop industrial towns, which gave rise to contracts, the wage system, and credits. Funds were required to initiate business transactions and to build plants. The wealthy leisure class was able to provide the necessary finances, and the industrial drifters had the technical knowledge to run the plants. Both controlled these plants, but “the owners of the plant became employers of their impecunious fellow craftsmen” (Veblen 1914: 279). That is, the control of the industrial plants and ownership had transformed from the working craftsmen to the owner who according to Veblen (1914: 281) became in effect “the owner of the community’s technological knowledge and workmanlike skill, and thereby the owner of the workman’s productive capacity”. This condition provided the ground for the emergence of the absentee

ownership and business enterprises with its basic components of the captains of industry, of the financial houses that used their funds to provide credits and to own some of these enterprises, and of the hired labor. For example, in lending the use of an article went to the borrower, but the usufruct stayed with the creditor (owner), and in employment, the hired labor received wages from an employer to produce a commodity that was owned by an owner that was not engaged in the business enterprise. Hence, because of credits and hired labor, the institution of “absentee ownership chiefly found its way into the industrial system of recent times” (Veblen 1923: 50).

The second era of capitalist development was the era of the Machine Industry, which started in England around 1770. It emerged at that time because of peace, availability of funds and skilled labor, innovative technology, freedom, cultural integration, property rights, and competition. Some of the industrial drifters became business men who used industry for private gains. As more and more business men emerged, credits and money became the necessary means for the system to function properly. Consequently, investments and absentee ownership were further developed, and the financiers became the most powerful social group in the country since they controlled the funds and the credits societies needed. On the one hand, industrial plants became business concern heavily dependent on net profits and capitalization, and the more net profits generated from the community, the more valuable the plants and the businessmen became. On the other hand, the working people and the rest of the industrial drifters became wage earners or proletariat in Marxian terms. That is to say, the social division between industry (workmanship) and business (exploit) became the norm. The first represented the underlying population (or the common man), while the second represented the vested interests: those who obtain something for nothing.

The third era of capitalist development was the era of perfect competition (1800-1850), where the captains of industry controlled substantial parts of industrial equipment and machines and invested their funds for profits. Technology was improved and the productive capacity of industrial firms was lower than the market capacity. As a result of technological progress, increased population, and free international trade; production increased, so did the productive capacity of firms. A business decision to restrict output was a logical outcome, and no longer was perfect competition used in order to increase profits: “substitution of salesmanship in the place of workmanship” (Veblen 1923: 78). This means the captains of industry had to be replaced by the captains of finance who used capitalist sabotage such as restriction of output, financial manipulation, and other dishonest business means for increasing profits.

The fourth era of capitalist development was the era of large corporations: “means of making money, not of making goods” (Veblen 1923: 83 and 249). Under this corporate economy sabotage of unemployment and restriction of output became the indispensable strategy for making money. In America, Veblen contends, big business dominated the production and distribution of coal, oil, and transportation, which resulted from merger and collusion. Absentee owners changed competition from competition between firms to competition between firms as one entity and the rest of the community as another. Veblen (1923: 127-28) explains:

Instead of competing against one another to their mutual defeat, the absentee owners now turn their undivided competition efforts against the consumers. It became a competition not within the business but between the business as a whole and the rest of the community.

These new characteristics of mergers, collusion, salesmanship, capitalist sabotage or deliberate unemployment of physical and human means of production, bigness, capitalization and finance, and making money, not goods, helped Veblen conclude that a shift from perfect competitive firms to oligopolistic and monopolistic firms had been established, and both firms, large and small, formed a dualistic economy: “Technological situation does not admit a complete monopolization of the community’s technological expedients....There is still current a large body of industrial processes to which the large-scale methods do not apply” (Veblen 1908b: 539).

Concretely, Veblen, in contrast to Marx, makes the large corporation (not the small perfect competitive firm) the fundamental unit of his economic analysis.

During this era of large corporations the problem of racism and sexism emerged. Both could be used to reduce wages and free more workers to work for large corporations. Killing of Native Americans and importation of slaves became new institutions, as labor and natural resources were needed for more profits. Big businesses could employ a small segment of the labor force and physical means of production in order to increase profits. This means high inequality in income distribution, as the few obtained more compared to the many. Large financial businesses were able to establish their economic power by merger, holding companies, interlocking directors, and trusts, and were able to control any business enterprise that was in need for funds for investment. Big financial groups or the financiers became the most powerful institution, and large corporations controlled the whole economy by spending on advertising and salesmanship in order to deceive the community and to spread emulative conspicuous consumption.

Big businesses also controlled governments and legislatures and provoked imperialist wars to obtain economic resources such as oil from helpless nations. Imperialism, for Veblen (1923: 442), is a national graft: “the national pursuit of warlike and political ends has come to be fairly single-minded chase after unearned income to be procured by intimidation and intrigue.” Clearly, Veblen (1934: 432) realizes that business interests become national interests: “unbalanced budget and an increased armament by use of which to “safeguard American Interests”—that is to say, negotiate profitable concessions for American oil companies--”. And for attracting and intensifying the public support for those imperialist adventures, the leisure class and governments customarily resort to the effective use of patriotism (Veblen 1917). In other words, if a citizen does not support an imperialist war, the person is considered unpatriotic.

The fourth stage of cultural evolution of humanity is the industrial republic or socialism. For Veblen, the various problems created by capitalism such as unemployment, insecurity, erosion of freedom, alienation, wars for enriching the wealthy at the expense of the community, exploitation of the underlying population, and the like will force people to transform the higher plane capitalism into socialism for better or worse. Veblen does not provide a detailed analysis for this period, but it is supposed to create a society where waste, private ownership, alienation, sabotage, vested interests, and the dictatorship of the leisure class and financiers are eradicated (See Veblen 1961 on Private Ownership).

How do people arrive at such a stage? Veblen (1921) thinks that the underlying population will make a general strike by which they can establish the free society. Veblen (1894) also suggests an evolutionary method of transformation. Assume the business principles have become unacceptable by few people, and if the few people decide to advocate the ideas of full employment and security for people, then this mental attitude may grow into public sentiment,

spreading in the society to become a dominant trend and a new habit of mind. That is, the community becomes supportive to the ideas of full employment and security for its members, because these ideas serve and advance the common good. If this general acceptance, which reflects the class-social conscious and workmanship, becomes an effective institution, then the system of absentee ownership is replaced without a revolutionary overturn. As Veblen (1894: 458) explains:

If the new habit of mind should spread so far as to become the dominant attitude of an effective majority of the American people, [then it] is tremendous. It means the difference between the civil republic of the nineteenth century and the industrial republic of the socialists, with the gradual submergence of private initiative under the rising claims of industrial solidarity....In order to [continue the] growth of the sentiment it is necessary that experience should prove the feasibility of ...socialism on a scale that is not borne out by the experience of the past.

Finally, Veblen feels that a third method is available to change the system. Here, a group of the underlying population will forget business-as-usual and will revolt against the system, establishing a new system of socialism.

Based on this cultural evolution, which is grounded in social conflict between the vested interests and the underlying population, Veblen's economic theory can be used to explain the higher plane capitalism. His economic theory consists of the following fundamental elements. The first element is the reserve productive capacity. This concept is used to describe the available productive capacity that is not utilized by the corporate economy. This represents a large part of machines and equipment that is idle, which is matched by idle (reserve) workers who are able and willing to work but cannot find employment. Such behavior is explained by the profitability principle. Once capacity is idle and production is restricted, prices and profits can increase, assuming cost is constant. This has two economic implications. Entry of new firms becomes very difficult, because the cost of the incumbent firms is lower than that of the newcomers. In other words, this implies that economic liberty of everyone, including capitalists, is restricted under the corporate economy. Second, an increase in demand does not lead immediately to a rise in induced investments, as the reserve capacity is utilized to meet the new demand. That is, the accelerator does not function under this condition.

The second element is the mark-up pricing. Given the reserve productive capacity and the restricted volume of production, large corporations are able to determine their prices according to per unit cost of production plus a profit rate. The more market power a corporation has, the higher the prices will be. For example, a large corporation whose commodities are insulated by protective tariffs will have more economic power in setting higher prices than other firms. Once supply is manipulated downward, the mark-up prices will rise. Similarly, if the production cost of labor and materials rise, large corporations can increase their prices in order to defend their profit margins.

Veblen uses markup prices because he rejects Marx's theory of labor value, which is based on the equilibrium condition: value of labor power must equal wages. But for him, workers produce the output, and in their hands "the capital goods owned by the capitalists become a means of

production....Without them [these] goods...would be simply raw materials” (Veblen 1908I: 537). For their productive contribution workers receive wages determined by bargaining between them and the employers, a bargaining that always favors the latter. Normally, workers produce output worth more than the value of their labor power, which is called surplus value by Marx. Veblen rejects the idea of the surplus value and replaces it with the concept of surplus product, or economic surplus. Veblen does this because he feels that under the corporate economy (oligopoly and monopoly) prices of commodities are higher than the prices determined by the perfect competitive market that Marx used in his analysis of capitalism. He feels that these markup prices are inflated by various elements of sabotage and market power such as cutting production, tariffs, trade protection, patents, trade monopolies, and other business privileges, or sabotage. Therefore, these high markup prices generate higher monetary surplus value compared to its money value determined by the free (un-sabotaged) competitive market prices. Imperialist adventures which Marx did not include in his analysis also provide free resources and income to the vested interests. In other words, Veblen’s unearned (or free) income which is obtained by the capitalists is larger than Marx’s surplus value; consequently, Veblen uses the concept of surplus product which is on the rise under the higher plane capitalism: “The output of this industrial system yields a wider margin of net product over cost than has ever been obtainable by any other or earlier known method of work” (Veblen 1919: 51).

The third element is the aggregate demand. This variable has four sources: wasteful government spending on military, offices, security, embassies, some public works, and so on. The second source is consumption spending which consists of expenditures for serviceable goods, services, and conspicuous consumption, and income and credits are significant variables for determining this type of spending. The third source is investment spending which increases the productive capacity of the higher plane capitalism. Banks can indirectly affect this capacity by increasing and decreasing interest rates. Expectations of high demand also increase investments. The fourth source is related to all foreign transactions, including imperialism. Financiers’ extra funds have to find investment opportunities in foreign countries in order to increase rates of returns. This is because as domestic investments become very crowded, their rates of return decline. The country can also receive cheaper goods and raw materials from abroad as well as national savings. In addition, exports of commodities to foreign countries increase the market share of capitals. In short, imperialism is “to get anything in the way of dominion by seizure, threat, or chicanery” (Veblen 1917: 235), and “The imperial aim is not a passing act of pillage, but a perpetual usufruct” (Veblen 1917: 152). Imperialism also creates independence for powerful countries or “a self-contained economic whole” (Veblen 1917: 264).

As the aggregate demand increases, prices of commodities will rise, and business enterprises will extend their production by using their reserve productive capacity. As capacity utilization increases, firms will have to invest to expand their operations. For Veblen, the aggregate demand reflects all sources of the world market: “[the market] is the value of effective demand for things to be bought at the current level of prices, and it may be taken to mean the national or international market” (Veblen 1923: 392n). Also, “Increased demand and enhanced prices...increase the prospective earnings of the several concerns engaged....The expectations ...lead the business men to bid high for equipment and supplies” (Veblen 1904: 197).

The contention of the aggregate demand and mark-up pricing suggests that employment is related to economic power and the aggregate demand. As the aggregate demand rises,

employment increases. The opposite of this is also true. As sabotage practices, which reflect economic power, are used, unemployment continues to be the central feature of the corporate economy. Similarly, inflation is related to the growth rate of money supply, the degree of output restriction by all corporations, and the corporate power of setting high mark-up prices. If output is restricted, corporations can determine higher mark-up prices which will increase the general price level in the economy. If the cost of materials and wages rise, capitalists can increase prices, which in turn augment the general price level. Protective tariffs generate higher prices and inflation as well. If the money supply increases compared to the growth rate of output, inflation will rise. If the use of technology augments output, and the supply of money decreases, then deflation will occur.

The theory of the business cycle is connected to prices, earnings, and the aggregate demand. If the aggregate demand and prices increase, firms make high profit margins. They use their net profits to obtain loans and sell shares to expand their operations: capitalization. They can manipulate their profitability and obtain more funds and sell more shares. On the one hand, as prices and demand rise, investments will increase, after the reserve productive capacity declines. Demand for labor will rise, and wages will have to increase to attract labor to the expanding industries. At the same time, demand for money increases, and interest rates will rise. On the other hand, as corporate demands rise on materials, prices of these materials will rise, and so will the cost of production. In case of new labor-saving technological innovations, production will rise further, putting pressure on the prices to decline. When prices cannot increase, and cost of labor and materials rises, the profit margins decrease. Some companies will go bankrupt as they cannot secure sufficient liquidity (or cash) to continue their operations. Others will have to pay their debts whose real value increases when prices decline. Usually, at this phase of the business cycle, interest rates will rise further in order to defend the interest of the financiers. (For more analysis of the effects of increased interest rates, see Veblen 1915: 341-43). Thus, rising labor cost and financial cost as well as fragility of many firms will create emotional panic and will reduce firms' capitalization and force the economy into a crisis.

Veblen has a very advanced theory of economic growth and development. His starting point was the industrial system, which is a cohesive whole of interdependent parts and sectors. All economic sectors interact, and technology and productive disciplined labor including technicians are the most essential forces necessary to increase production and generate net economic surplus. This system requires investments to operate, which have to start with funds and interests. Natural resources are also needed to be processed by the industrial system in order to convert them into intermediate and final commodities. Besides these supply-side factors, all sources of the aggregate demand are used to keep the industrial system operating to create the net economic surplus necessary for further expansion and accumulation.

The process of growth and development generates benefits that are not equally distributed among people. Absentee owners receive the largest share of the income, while working people receive the lowest. Given racism and discrimination, business sabotage and other factors including religious codes and regulations will generate inequality in income distribution. For Veblen, inequality is a very complex issue which cannot be explained by productivity differentials.

Veblen analyzes the hindrance of the process of development, and thinks it is hindered by the capitalist sabotage, when the capitalists decide to cut production and employment. Protective

tariffs cripple the industrial system for the benefits of business interests: “A protective tariff is only one means of crippling the country’s industrial forces for the good of business” (Veblen 1919: 135-36). It is a way of preventing foreign competition in order to increase prices and profits. Market structure such as monopoly and oligopoly do create a lower volume of production compared to the potential productive capacity of these firms which “have ability to restrain trade, limit the output of goods or services, and so maintain prices” (Veblen 1919: 73).

Restriction of the diffusion of technologies and national frontiers do not allow other countries to grow or to make rapid structural changes. Large corporations prevent the flow of technologies, not only to keep other countries backward but to reduce competition. These corporations know that the free export of technology to these countries, whose workers are educated and inexpensive, would weaken their international economic power and comparative advantages. This implies that technological restrictions will create uneven economic development among countries: developed (the center) and underdeveloped countries (the peripheries), a dualistic condition that is compatible with Veblen’s intellectual system. Underdevelopment generates disintegrated and divided countries, which make them easy targets for imperialist expansion. Colonies, mostly from underdeveloped nations, are needed, because “it is reasonably believed that traders and investors in foreign parts are able to derive a large profit from their business when they have the backing of a powerful and aggressive national government; particularly in their dealings with helpless and backward peoples” (Veblen 1919: 131).

3. AN ANALYSIS OF SWEEZY’S CRITIQUE OF VEBLEN

Sweezy (1952, 1953, 1957, 1958a, and 1958b) provides various critical points on Veblen’s work, some which are fruitful and others are misleading. Sweezy (1952: 473) summarizes the similar points between Veblen and Marx such as the interpretation of history, the abolition of private property, the inevitability of the transformation of capitalism, and the class conflict. He thinks that Veblen emphasizes conspicuous consumption, but Marx stresses the process of capital accumulation. Sweezy also thinks that Veblen does not mention the theory of surplus value and the theory of industrial reserve army. For Veblen’s honesty and commitment to socialist ideas over his entire career, Huberman and Sweezy (1957: 75) point out, “[Veblen] never wavered from the path of the truth and principle, even when it led...farther and farther to the left. Those of us who are trying to rebuild a viable American socialist movement ...can ask no better than that it be given to us to follow in his footsteps along that honorable path.”

On the weaknesses of Veblen’s work, Sweezy (1953: 299) argues, “It must be said that his economic analysis is usually weak and often misleading.” For example, “In Veblen’s view, the capitalist operates purely in the realm of finance, and his only relation to production is one of sabotage and obstruction; his object is to mulct the underlying population to the maximum possible degree and to waste the proceeds in ostentatious display” (Sweezy 1953: 299). Because Veblen “ignored the accumulation process he was debarred from developing an adequate theory of employment and of business fluctuations in general” (Sweezy 1953: 301).

Sweezy (1953: 301) contends that Veblen “was a great man, and he attracted followers because of it. But he was greater than his own theories; and unfortunately greatness cannot be passed, while theories can.” Sweezy (1957: 107) thinks that Veblen “thought monopoly would indeed provide a cure of sorts for chronic depression, and there are other passages which appear

to lend support to this interpretation.” Sweezy (1958a: 28) argues that Veblen took it “for granted that the phenomenon of chronic depression would disappear along with free competition.” Also, Sweezy (1958a: 27 and 1958b:197) thinks that Veblen “habitually and naively assumed the operation of Say’s Law in the extreme form in which total income is automatically spent and remains constant over time.” In addition, both Huberman and Sweezy (1957: 72) contend that Veblen suffered from “Strong elements of racism and technocracy, a specially fervent hostility to finance capital—these and other characteristic petty bourgeois ideas and attitudes can certainly be found in Veblen.”

A logical response to Sweezy’s critique has to start after providing a clear understanding of his explanation of the process of capital accumulation. Sweezy thinks that the process of capital accumulation explains the whole dynamic of the capitalist system. This process starts from the capitalist production of the output to its realization, or from M to C, and then to M’, where M, C, and M’ are money, commodities, and money that includes the surplus value, respectively (Sweezy 1942: 57-74). Capitalists who own the means of production convert the owned and borrowed money capital into machines, equipment, tools, and materials, and hire labor who only own labor power to produce products during what is called the production and the labor processes. Labor receives wages equal to the value of labor power but generates absolute and relative surplus value for the capitalists. Once the output is sold, the capitalists convert the output, including the surplus value, into money larger than the amount of money they started the production process with: M’. Usually, the capitalists use their profits for consumption (necessary and luxurious) and investments. As the capitalists earn profits they will expand the production process by investing in order to make more profits, or surplus value, and the capitalists who use more efficient technology will generate higher surplus value relative to the other capitalists (Sweezy 1942: 80). As capital becomes bigger, the production of the product will be concentrated in a few large firms that become even bigger through merger and acquisition of smaller firms. That is, the centralization of capital creates very powerful firms that are able to set high rates of profits and prices. As Sweezy (1994: 3-4) points out, “In tense process of concentration and centralization of capital stronger companies gobbled up weaker ones and joined together in various forms of combination (cartels, trusts, holding companies, giant corporations) aimed at eliminating cut-throat competition and getting control of their prices and output policies”.

Naturally, the process of concentration and centralization enables capital to penetrate further for expanding the reproduction process. During this process the capitalists will become wealthier and powerful, and the labor force will become poorer as their wages and benefits are squeezed by the process of capital accumulation. Poverty and misery will come into existence domestically, and so will the reserve army of the unemployed, created by the labor-saving technical innovations introduced by the capitalists. Hence, stagnation, domestic polarization, and uneven development are always inevitable outcomes of the capitalist development. Crises, which interrupt the process of capital accumulation, are generated by the decline in the rate of profit due to higher wages: “It seems quite clear that it was this process of declining reserve army, rising wages, and reduced profitability as a cause of crises which Marx had in mind” (Sweezy 1942: 150). After a crisis is transformed into prosperity, the expansionary process of capital accumulation continues and becomes global by colonizing small countries and by enlarging investments. This has to happen because the huge surplus of capital has to be invested globally

for countering the decline in the rate of profit, which has made markets for the products of the capitalist industries. Colonizing nations require a strong army and huge military spending as well as nationalism (Sweezy 1942: 307-328). In addition, and after the collapse of the colonial system, imperialism was evolved to create investment opportunities for the capitalists to invest their money capital for more profits, a way that will ensure reasonable increases in the rate of profit and the aggregate demand in order to continue the accumulation process. Sweezy (1994: 4) explains, "The capitalist of the core countries, eagerly seeking new markets and cheaper resources of raw materials, reached out to colonize or otherwise gain control of the weaker countries of Africa, Asia, and Latin America" This global expansion will create development for some countries and underdevelopment for others. The underdevelopment is created because the capitalists generate economic surpluses in these countries, but they will be reinvested elsewhere. Indeed, the process of development and underdevelopment is an image to the domestic polarization process of capital accumulation.

In explaining the process of capital accumulation, Sweezy believes that he and Baran have overlooked the role of finance and the financiers, and made the process one sided and incomplete (Foster 2006: 5). Sweezy thinks that the powerful financiers need to invest their profits in financial, not productive, assets, particularly when the capitalist economy is stagnating. "Financiers were therefore looking for new business. Capital migrated out of the real economy was happily received in the financial sector. Thus began the process which during the next two decades resulted in the triumph of financial capital" (Sweezy 1994: 9). It follows that the process of capital accumulation has two-sides, the real and financial sides, and the theory should incorporate the two sides. In fact, Sweezy even thinks that the financial capital is stronger than democracy. As can be readily realized from Sweezy's own writings when he criticizes Veblen because he does not have a theory of capital accumulation, and later he admits that he had a one-sided theory of capital accumulation. But the fact is that Veblen, a long time before Sweezy, has presented a two-sided theory of capital accumulation in which he emphasizes the real capital and the role of corporate finance and the financiers in the development of the higher plane capitalism (Veblen 1908:134). Veblen (1921: 91) also states that under the higher plane capitalism, there is "the industrial dictatorship of the captain of finance".

On Sweezy's critique of Veblen, Tilman (1992: 209-212) and Simich and Tilman (1982) have already provided a critical evaluation, contending that among the basic issues of Sweezy's dissatisfaction with Veblen's work are Veblen's theory of chronic depression and Veblen's underestimation of war and imperialism. For the purpose of this paper, it is unclear whether Sweezy has really read Veblen's work or has heavily depended on Dr. Dorfman's summaries: "The gist of his thought on this whole question [of the transformation of capitalism] can best be indicated by quoting short passages from Dorfman's entirely reliable summaries of *The Theory of Business Enterprise* (1904) and *Absentee Ownership* (1923)" (Sweezy 1952: 475). This dependence led Sweezy to an incorrect understanding of Veblen's theory of the business cycle.

As shown previously, the core of Veblen's business cycle is grounded in the continued decline of profit margins which result in a lower capitalization leading to liquidation and a financial collapse. This theory has not been mastered by any contemporary economists, because it incorporates both rising labor cost and financial fragility. Sweezy is unable to understand it, and thinks that the causative factor of depression was "the progressive lowering of costs, and hence undermining of capital values through technological advance" (1958a: 22 and 28). In

addition, Veblen does provide various remedial measures to prolong prosperity, but he concludes that the crisis is inevitable no matter what types of remedy the vested interests use. That is to say, Veblen does not try to provide cures to eliminate business cycles, as Sweezy argues; rather, Veblen demonstrates the various remedies capitalists utilize to prolong recoveries.

Another important error is Sweezy's assertion that Veblen assumes the operations of Say's Law. There is no indication in Veblen's writings that he believes in Say's Law. If he had believed in Say's Law, he would not have written entire books (Veblen 1904, 1915, 1917, 1919, 1921, and 1923) to analyze sabotage and the business cycle which is incompatible with Say's Law: if supply creates its own demand, there is no problem of insufficient effective demand and overproduction; hence, no crisis. Veblen has stated several statements emphasizing the importance of effective demand, prices, and investments, which make clear his total rejection of the Say's Law, and here are some of these statements. Veblen (1904: 195) points out, "In part by actual increase of demand and in part through a lively anticipation of an advanced demand, aggressive business enterprise extends its venture". He (1904: 216-17) states, "There is an excess of goods, or of the means of producing them above what is expedient on pecuniary grounds—above what there is an effective demand for at prices that will repay the cost of production of the goods and leave something appreciable over as a profit." He (1905: 470-71) argues that the creation of a new volume of credit by a banker such as in making a loan on collateral "adds to the borrower's funds available for purchase, and therefore increases the effective demand for goods, and by so doing helps to enhance prices." He (1919: 153) contends, "Wasteful consumption must be provided for, on pain of a falling market. And all this may as well be taken care of by use of a princely court, an otiose church, a picturesque army, a well-fed diplomatic and consular service, and a customs frontier." He (1919: 55) writes, "The actual production...will then be determined ...in greater part by market conditions which decide how large a product it will be profitable for the business men to turn out." He (1921: 42-43) suggests, "Overproduction means production in excess of what the market will carry off a sufficiently profitable price....In no such a community can the industrial system be allowed to work at full capacity for any appreciable interval of time, on pain of business stagnation and consequent privation for all classes and conditions of men."

Veblen (1904: 199-200) does indeed have a theory of investment, but it is stated in a different way. He explains how a price increase due to a change in effective demand can bring on an expansion and more productive capacity to the production process after the unused (reserve) capacity approaches its limit. In other words, a price increase brings investments and stimulates productive capacity, which in turn increases the demand for labor and wages. Regarding this issue an irony can be found in Sweezy's critique of Veblen, because Veblen's approach to investment (through a price change) is suggested by Sweezy (1958a: 28) as a way to fix Veblen's income-expenditure theory.

For the entire process of capital accumulation, whose methods of acquiring wealth are force, fraud, inheritance, looting, and bargaining (Veblen 1908a: 534), it is not true to argue that Veblen does not explain surplus value. Veblen does explain how capitalists make profits (surplus or free income) by restricting output in order to increase prices and profit margins by the means of sabotage (Veblen 1908b: 107). By the same token, in the hiring of workers Veblen (1908a: 536-38) thinks that wages are determined by bargaining. If workers are not fully needed by the capitalists and if latter's assets are consolidated by business management, then wages are

“reduced to the most economical footing” (Veblen 1908a: 538). Accordingly, more economic surplus or free income is obtained by the capitalists.

In addition, Veblen contends that economic growth and technological progress have a significant impact on increasing profits: “The unearned increment...is produced by the growth of the community in numbers and in the industrial arts” (1908a:530). Within this environment, the landlords and the owners of capital goods, the capitalists, obtain unearned increment due to their legal property rights (Veblen 1908a: 530). Moreover, Veblen (1908b:108-114) suggests various means by which the vested interests generate higher prices and profits such as tariffs, freezing-out rival concerns, trade protection, patent, trade monopolies, manipulation, imperialism, and other business privileges. Without these means prices would decline, as would the money value of the economic surplus. Furthermore, the vested interests obtain economic resources such as farm land freely from capitalist governments, and then sell it to farmers at higher prices, as happened to new immigrants in America after 1800. Once profits and other forms of free income are obtained, they are partly used for necessary and conspicuous consumption and partly for investments.

Accumulation in Veblen’s economic theory takes other forms such as merger, which Marx calls centralization of capital, and an expansion of firms through concentration of production. Without the concentration and centralization processes of capital, Veblen would not have started his economic analysis by emphasizing large corporations. In addition, merger, holding companies, cartels, and trusts allow the banking community to control the strategic regulations of leading industries. The financial community invariably attempts to buy firms from leading industries or to establish more control through credits (debts) by using groups of investment bankers, the custodian of absentee owners, who control a country’s credits. Veblen (1908b:130 and 134-36) calls the financiers “financial magnates” and calls their business system the “business enterprise on the higher plane” or “a new phase of business enterprises.” Veblen (1908b: 134) states, “This inchoate new phase of capitalism, this business enterprise on the higher plane, is in fact viewed with the most lively apprehension.” Usually, capitalists gain profits at the expense of the community, and consequently their business enterprises generate higher aggregate capitalization (equities and debts) without corresponding increase of the community’s material wealth. This higher value is distributed as gains or extra wealth to the great financiers, and these gains are considered by Veblen (1908b: 131-132) a tax on the business enterprise.

In fact, Veblen extends the accumulation process of capital to the rest of the world through the institution of imperialism. For him, “Imperialism is dynastic politics...carried on for the benefits of absentee owners....It is the foremost aim of the imperialistic statesmen to extend and enlarge the advantages of such of the nation’s business men as are interested in gainful traffic in foreign parts; that is to say, it is designed to extend and enlarge the dominion of the nation’s absentee owners beyond the national frontiers” (1923: 35). These global goals require military power and wars, because the vested interests of other nations have different goals. Of course, these imperialist schemes are “masked as schemes for the aggrandizement of the nation” (Veblen 1923: 35), and must be supported by the loyal citizens. Veblen (1923: 36) explains, “And by a curious twist of patriotic emotion the loyal citizens are enabled to believe that these extra territorial gains of the country’s business men will somehow benefit the community at large.” Accordingly, it is very difficult to state, as Sweezy does, that Veblen does not understand the

economic reasoning of imperialism. Hunt (1979b:132) correctly concludes, “Veblen’s treatment of imperialism is in most respects as insightful as that of John Hobson, Rosa Luxemburg, and Lenin....In one respect, however, Veblen’s treatment is decidedly superior—he clearly saw the socializing influence of imperialism.”

As far as the issue of racism is concerned, Sweezy’s critique is baseless and misleading. Veblen thinks that racism, which is related to the process of capital accumulation, started with the slaughter of Native Americans and the importation of African slaves. The destruction of Native Americans was aimed at controlling natural resources, including fur-bearing animals. He (1923: 168-69) points out, “Bound up with the enterprise there is also a written chapter on the debauchery and manslaughter entailed on the Indian population of the country by the same businesslike Fur trade.” Similarly, when the slave trade as a profitable enterprise declined in the North, this trade emerged as an embedded institution in the South. The South needed slaves to work the soil for private gain. He (1923: 170) points out, “In the South the private usufruct of the soil injected into American life the ‘peculiar institution’ of Negro slavery,” and he (1934: 433) clearly states, “The Ku-Klux-Klan has been reanimated and reorganized for extra-intimidation of citizens.” Hubert Harrison, a great black scholar and activist, was quoted in Perry (2001: 325) to have written the following about Veblen:

No preliminary study of sociology and economics can be said to be complete without the work of Veblen. Besides these two books his work on *The Instinct of Workmanship*, *The Theory of Business Enterprise* and *The Higher Learning in America* are especially to be recommended. And we feel sure that whoever may get acquainted with any of Prof. Veblen’s books through our recommendation will live to thank us for it.

In short, this evidence discredits Huberman’s and Sweezy’s misleading and depressing contention that Veblen has strong elements of racism.

4. AN ANALYSIS OF BARAN’S CRITIQUE OF VEBLEN

Baran provides a very harsh critique of Veblen’s *Leisure Class* without taking into consideration Veblen’s entire intellectual system. However, most of the elements of Baran’s critique are misleading, and they demonstrate Baran’s ignorance of Veblen’s writings. Baran (1969: 212) states:

Veblen remains actually a stranger to the historical method, never truly committed to placing a thorough morphology of the historical process at the center of his analytical effort....Veblen... ignores the far-reaching changes and transformations that set a part century from century. For this failing he had to pay with a vengeance: it not only prevented him from adequately comprehending the mechanism of historical development, it robbed him even of the chance to visualize clearly some of the most important real similarities of consecutive historical periods.

It is true that Veblen does not use the historical method because he thinks it did not generate economic theories; consequently, he employs the sequence of cumulative causation, an evolutionary method demonstrating how and why a phenomenon has genetically developed. That is to say, Veblen was not a stranger to the historical method, he simply rejects it.

Veblen never ignores the basic changes in his work. As shown previously, he divides the history of humanity into savage, barbarism, capitalism, and socialism, and then divides capitalism into four historical eras. He differentiates between the savage and barbarian stages according to ownership. The first stage had no private property, but the second stage did, and he thereupon explains the phenomena of exploitation, warlike attitudes, emulation, status, and the power of money and ownership. These phenomena have been associated with humanity ever since. Ownership was the dividing line. However, it was not a principle of periodization, because Veblen was not a chronologist. Veblen does provide an excellent genetic analysis (1915, 1914, 1917, 1919, 1921, and 1923) of these evolutionary stages whether in terms of characters, essence, or forms. In fact, this explains why he understands the era of large corporations better than Marx, who uses competitive small firms in his analysis of capitalism.

Baran (1969: 213) accuses Veblen of being similar to an idealist historian but one who possesses a “crudely conceived historical materialism”. This is an unfair attack on Veblen, who is a historic materialist using the method of the sequence of cumulative change. Veblen thinks that production forces, ownership, and the superstructure are all coherent parts affecting each other. That is to say, all these parts (the superstructure in Marx’s terminologies) together do indeed affect the economic base and the productive forces. Similarly, Marx’s revolutionary idea and consciousness do create changes and transformations as well.

Baran (1969: 213-14) thinks that Veblen’s “concept of institutions ...turns out upon examination to be a slippery psychological notion of ‘habits of thought’ no more profound than Weber’s attitude of ‘rationality and calculation’ and Sombart’s ‘spirit of capitalism’”. Still, and according to Marx, these institutions are part of the superstructure, and they do affect the entire system. For Veblen, institutions are reactionary and impeding the development of the forces of development and technology, but for Weber the idea of protestant ethics was the force of transformation from early to modern capitalism; hence, the spirit was a very progressive institution. Sombart’s spirit of capitalism was the Jew’s fundamental force in the emergence of capitalism. It follows that Baran’s comparison of Veblen’s view of institutions as reactionary, with Weber’s and Sombart’s views of institutions as progressive, is misplaced and confused. In addition, Veblen never believes that people are rational calculators of benefits and cost–no hedonism.

Baran (1969: 214) continues his attack on Veblen as follows: “Like other bourgeois theorists who are unable to comprehend aspects of reality in their concrete interdependence with all the other components of the continually changing socioeconomic reality, Veblen has recourse to invoke *dei ex machina* as ultimate means of interpretation”. Veblen was not a bourgeois theorist, nor does he support and defend bourgeois ideology. He believes in revolution and the transformation of capitalism by abolishing private property. He takes seriously the interdependence of all aspects of reality: economic, sociology, politics, and psychology, and he does consider the serious effects of ancient institutions (parts of the superstructure) on the current social system. This view was even valid for Marx who thought that some old institutions would exist in modern systems. Most Marxists, including Baran (1969), introduced psychology into

their Marxian analysis only after Veblen's pioneer work. The utilization of psychology in scientific analysis does not make the scientist a bourgeoisie.

Baran (1969: 213) accuses Veblen of being "still untouched by the pervasive mechanism of alienation that was to dominate all of the subsequent capitalist development". It is amazing that Veblen's theory of *The Leisure Class* contains many discussions about alienation such as conspicuous consumption and emulation. The origin of these phenomena was related to private ownership. Veblen's work on *Dementia Praecox* is a splendid analysis of alienation. In it Veblen demonstrates how people fall sick under capitalism, thinking that evil people are somehow going to get them. In his book on the *Theory of the Business Enterprise* Veblen demonstrates how people hurt each other for private gain. All of these are illustrations of alienation. Baran's critical point provides proof that he was not aware of Veblen's writings.

When Veblen uses the concepts of productivity and frugality, Baran (1969: 216) accuses him of making "a means of asserting the preponderance of a social class whose rise to affluence and power was inseparably bound up with austerity and hard work—at first of itself and its hired help, before too long of the hired help alone" This critical point is not accurate, because Veblen never believes that capitalists established capitalism. He thinks that the Masterless Men, the intelligent workers, established the system, and the capitalists bought with their money what the Masterless Men accomplished. In other words, Veblen never thinks that the capitalists were productive and knowledgeable in technologies. Instead, he regards the financiers as individuals who seized the achievements of the community and used them for their own pecuniary goals. Veblen has respected the captains of industry (the entrepreneurs), not the captain of finance, but he does not think that industrial capitalists are morally superior to financiers. He thinks that the latter exploit the former, when they charge them interest and control their finance. That is to say, Veblen believes that the financiers, the few, exploit the underlying population and the industrial capitalists.

Regarding conspicuous consumption Baran (1969: 219) thinks "What matters ...is not the conspicuousness of consumption but the kind of society in which it takes place." Baran seems to think that conspicuous consumption is accepted behavior for some societies. Veblen disagrees, because conspicuous consumption under any type of society is used to create emulation of those who have power and status. Hence, it perpetuates their imbecile institutions. Conspicuous consumption is also wasteful and creates alienation. Veblen is against power and status and consequently thinks that capitalism and the leisure class can be weakened by transforming these capitalist features.

Baran (1969: 221) states, "[Veblen] was incapable nevertheless of grasping the totality of the social order that he so profoundly and uncompromisingly abhorred. Like a member of social critics..., he saw the exiting misery without fully realizing at the same time that it is that very misery that carries itself the objective chance of its abolition". This is another error. In fact, Veblen analyzes the misery of the underlying population in many different aspects: economic problems such as unemployment and exploitation; social problems such as gambling and sports; and psychological problem such as the sickness of people under capitalism. Veblen suggests three methods for transforming the system of private ownership. So, human misery for Veblen does create its own causes to change itself cumulatively.

Baran (1969: 221-22) sums up his critique of Veblen by stating: "Although he did not manage to attain a full understanding of the process of historical change, he frequently came close to it.

Had he gone further, he would have transcended himself and taken the decisive step to materialism and to dialectic.” The words ‘full’ and ‘close to’ are ambiguous, because even Marx did not achieve a full understanding of the capitalist development. For example, he uses small firms for his analysis of capitalism instead of large corporations. Baran seems to use these words as a safeguard to make an attack on Veblen. As a matter of fact, Veblen does show his understanding of historical changes when he divides the evolution of capitalism into various stages.

Regarding the dialectic, Veblen would agree with the law of unity of opposites. Opposites coexist but do not negate each other, as is the case in Marx’s analysis. Moreover, opposites can dominate each other. For example, at a certain period of time the instinct (or tendency) of exploit dominates the instinct of workmanship, and at another period the latter instinct dominates the former. Similarly, monopolies do not always swallow up small firms, which means that both can coexist. Another problem with this dialectical law is that at some point the opposites are at rest, and equilibrium occurs. Veblen never truly believes in equilibrium. For this point, Marx in *Capital* does emphasize the tendency toward a certain point rather than equilibrium. Given these problems with the dialectic, Veblen (1898, 1906, and 1907) rejects it and instead employs the sequence of cumulative causation, a method that is similar to the dialectical method but does not include equilibrium and a complete negation.

With respect to materialism, Veblen (1898 and 1906) was indeed a materialist but never was a dialectical materialist. His theory of the *Leisure Class* provides many examples of his materialist viewpoint. His entire work demonstrates that he was a materialist rather a historical idealist. Some Marxists in Veblen’s time such as Kautsky ignored the role of consciousness in transforming capitalism, and concentrated on the objective factors. In contrast, Veblen does incorporate human action for changing material conditions. This is not idealism; rather, it is the spirit of Marx’s materialism. Indeed, Marx’s teaching was overlooked, because it emphasized the fact that when the productive forces and relations of production change, parts of the superstructure may lag behind for a long time: a cultural lag. Veblen uses this line of thinking when he contends that institutions are reactionary and lag behind, and do impede progress and technological changes.

5. AN ANALYSIS OF DOWD’S AND HUNT’S CRITIQUES OF VEBLEN

Dowd (1966) provides an analysis of Veblen’s writings, starting from the man himself to his critique of the higher education in America. In defense of Veblen, Dowd explains the historical movement from competitive firms to large corporations through merger and collusion, arguing that when corporations became the principle institutions, corporation finance became important. Another crucial element Dowd (1966: 43) examines is the fact that “prices were set by corporations, not established in an impersonal, competitive market,” and these prices are based on restriction of production and collusion among large firms. More importantly, Dowd (1966: 46) emphasizes the idea that there is a relationship between overproduction and unreasonable prices due to inadequate effective demand, but he does not provide an analysis of the determination of prices and effective demand. Dowd does credit Veblen for bringing clarity to the ideas of profit expectations and of the integration of the business system (microeconomics)

and the cyclical and growth performance of the economy (macroeconomics).

Similar to Sweezy's critique of Veblen, Dowd (1966: 47) criticizes Veblen by arguing that he does not furnish an adequate theory of consumption and investment, which is an essential part of the theory of employment. Dowd (1966: 48) also thinks that Veblen develops an incomplete theory of depression or economic crisis. Moreover, regarding Veblen's economic theory, Dowd (1966: 31) states:

Veblen's contribution suffers both because of Veblen's personality and temperament, and because of factors outside and beyond him. Pessimism and caution interacted to deprive Veblen of both the morale and the courage required to develop a forthright, systematic body of theory.

Contrary to this misleading view whose foundation has already been discredited, it has been shown that Veblen does have a complete theory of the business cycle and that he develops a systematic economic theory explaining many economic problems of the higher plane capitalism, problems such as consumption, investment, inflation, unemployment, crisis and depression, income distribution, and development.

There is no doubt that one of the best studies of Veblen's work is that of E. K. Hunt (1979a and 1979b). This study was very penetrating and provided an honest presentation and analysis of many issues explored by Veblen, including social evolutionary philosophy, human nature and culture, the critique of the neoclassical economics, the conflict between workmanship (industry) and exploit (business), the sources of private property, and the conflict between the vested interests and the common man. Using nationalism as a pretext for the domination of other countries, Hunt (1979a) provides an honest analysis of Veblen's theory of imperialism, and correctly argues that the true justification for imperialism is capitalist profits, seizure of economic resources of poor countries, and markets for the output of the capitalist industrial system.

Hunt analyzes Veblen's basic contention that workers promote capitalist's interests, as they embraced capitalists' socializing influences such as patriotic fervor and emulative consumption: "[Veblen's] analysis of the emotional and intellectual effects of patriotic fervor and of emulative consumption remain, to this day, the most powerful and accurate explanations of why workers not only endure exploitation and alienation, but also frequently and repeatedly support the very institutions, laws, governments, and general social mores that create and perpetuate their own exploitation and degradation" (Hunt:1979b: 132). Consequently, "Many Marxists...continue to lack an understanding of why workers' class consciousness remains so undeveloped. It is for Veblen's discussion of this socialization process ...that Marxists can learn the most" (Hunt 1979b: 132).

Hunt criticizes Veblen on the same issues raised by Sweezy and Dowd. He contends that Veblen has no theory of value and consequently cannot explain the determination of wages and profits (or surplus value), as Marx did: "Marx's notion of surplus value is much more general and conceptually richer than Veblen's notion of the 'free income' of capitalist, which is for Marx is deleterious to the general social welfare" (Hunt 1979b:117). As analyzed previously, wages depend on the bargaining power between capitalists and workers, and generally the capitalists obtain the best deal of the bargaining process, as they determine low wages to workers. Veblen's

analysis of the unearned income also turns out to be more general than Marx's surplus value, because it brings into account external factors such as protective tariffs, sabotage, patents, government regulations, and imperialism. All these factors contribute significantly for the generation of free income, factors that Marx does not take into consideration, because he uses a small competitive firm as the basic unit of his analysis.

Moreover, Hunt (1979a: 326 and 1979b: 129) thinks, "Marx's theory of crises and depressions was somewhat more comprehensive than Veblen's." This proposition is actually incorrect, because Veblen's theory of the business cycle is more general than Marx's theory, because it emphasizes the rising cost of labor, financial fragility and debts, technology, and other psychological causes that create panic in businessmen's minds. Marx also does not have a unique theory of crisis as Veblen does, but instead has several explanations such as the rising labor cost, sectoral proportionalities, and the tendency of the rate of profit to fall. These explanations reflect short and long run incomplete and fragmented theories of crises without including financial variables and psychology. In common with Sweezy and Dowd, Hunt does not use Veblen's critique of Marx's work to develop Veblen's economic theory. Nor does he demonstrate Veblen's alternative to the materialistic dialectic and its relationship to economic theory.

In addition, Hunt (1979a: 449-451) explains Baran's and Sweezy's view of American capitalism on the issues of rising economic surplus, stagnation, overcapacity of resources, and chronic depression including its counteracting forces of sales effort and wasteful expenditures on militarism and imperialism. Hunt also stresses their view that imperialism will become more costly and less profitable chapter in human history, and yet he never acknowledges that these views were clearly developed and analyzed by Veblen (1904, 1915, 1917, 1919, 1921, and 1923) rather than Baran and Sweezy.

6. SUMMARY AND CONCLUSIONS

The most vital economic theory developed by Veblen to explain the higher plane capitalism was criticized and downgraded by Sweezy, Baran, and Dowd. They accused Veblen of having an incomplete economic theory and charged that he had no theory of the business cycle, nor did he have a theory of imperialism. Furthermore, they criticized him for being bourgeois and passing elements of racism. That is to say, they destroyed Veblen's personality and his intellectual integrity.

This paper has examined these Marxist critiques and has clearly shown that they are unfruitful and misleading, as they reflect unawareness of Veblen's writings. In addition, this paper establishes the conclusion that Baran and Sweezy have extensively used significant elements of Veblen's economic theory in their works without acknowledgment. For example, their essential ideas of monopoly capitalism, rising economic surplus, the process of capital accumulation, stagnation, unused productive capacity, mark-up pricing, credits and finance, imperialism and patriotism, and the capitalist government's response to a crisis by using military and other wasteful expenditures are all ideas originated in Veblen's work.

Another significant conclusion is that Baran and Sweezy have borrowed some of Veblen's ideas that they initially criticize. For example, in explaining the process of capital accumulation, Sweezy criticizes Veblen's emphasis on finance and the financiers in the evolution of large corporations, but then incorporates the same idea in his later work on the process of capital

accumulation. Sweezy also criticizes Veblen of not having a theory of surplus value, but he and Baran borrow and use Veblen's idea of rising economic surplus in their work on monopoly capitalism. Sweezy criticizes Veblen's work on the chronic depression of capitalism, and yet he and Baran emphasize the idea of stagnation (the margin of unemployed workers and unused productive capacity) as the essential characteristic of monopoly capitalism. Lastly, Sweezy criticizes Veblen as a believer in Say's Law, and yet he and Baran use Veblen's idea of the wasteful expenditures on militarism and salesmanship (advertising) as a source of effective demand required for the operation of monopoly capitalism.

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The Employment –Wage Relationship: Was Keynes right after all?*

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ABSTRACT:

This paper investigates the existence and direction of a relationship between real wages and employment. Using a panel from ten different OECD countries, from 1950 to 2005, it applies panel cointegration and causality methodology. This study finds statistical evidence for a long run relationship between these two variables. However, it firmly rejects the hypothesis that wages cause employment in the short-run. Thus the results support Keynes's view namely, real wages fall because employment increases, presumably via an increase in demand. The results imply that real wage reduction is not sufficient to induce an expansion of output and employment.

JEL CLASSIFICATION CODES: E24

KEY WORDS: Real wages; employment; panel cointegration; panel causality

1. INTRODUCTION

Classical and neoclassical economists, taking their point of departure from microeconomic developments, suggest that wage variations should be the mechanism for maintaining the right level of employment. They view the economy as a self-propelled and self-correcting mechanism and that flexibility of wages ensures a rapid process towards full employment. Say's law effectively rules out the possibility of unemployment. Hence in classical and neo-classical theory, there is a clear causal relationship from real wages to employment or unemployment level with wages to take the lead in the adjustment process towards full employment. By employing panel estimation techniques and international data, this study investigates the wage - employment relationship and evaluates the direction of the causation.

2. CLASSICAL & KEYNESIAN VIEWS ON WAGE-EMPLOYMENT RELATIONSHIP

Classical and neo-classical economic theory has evolved around the idea that competition very quickly adjusts wages so as to eliminate excess demand or supply in the labor market. Pigou argued¹ that “with perfectly free competition . . . there will always be at work a strong tendency for wage-rates to be so related to demand that everybody is employed . . . The implication is that such unemployment as exists at any time is due wholly to the fact that changes in demand conditions are continually taking place and that frictional resistances prevent the appropriate wage adjustments from being made instantaneously”². Thus, any given state of demand, is as

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¹ A discussion of these issues appears in Hansen (1953).

² Pigou (1933), p. 252.

good as any other state³ and a completely flexible wage policy would “abolish fluctuations of employment”⁴ as “...an all-round reduction in the rate of money wages might be expected to increase, and an all-round enhancement to diminish, the volume of employment”⁵. This view prevails almost unchanged in all versions of the Classical Theory. It suggests that there is an unambiguous and close relationship between real wages and employment level and that a decline in real wages should be expected to lead to an increase of the employment level. A corollary of this view is that if unemployment is persistent, this is the result of downward wage inflexibility, which prevents the unobstructed functioning of the self-correcting mechanisms in the labor market. Hence, persistent unemployment is caused by real wages been set “too high”. Therefore, the recommended policy prescription for any reduction of unemployment level is the reduction in wages. This wage reduction makes labor relatively cheaper and this is expected to induce employers to hire more labor.

In contrast, Keynes denied the existence of self-correcting market mechanisms that are capable of clearing the labor market in a competitive economy and asserted competition is not able to adjust the price of labor and thus eliminate excess supplies, or demands in the labor market. In his view there are circumstances in which reduction of money wage rates would not succeed in increasing aggregate demand for goods and services. Keynes argued production and employment would remain unchanged after the cut in wages⁶. Changes in wages have both income and cost effects. A reduction in real wages reduces the cost component in the profit calculations of employers. However, it also reduces income and real demand for workers since the money income of wage earners determines the total demand for consumers' goods. Therefore a reduction in real wages will increase employers' real income but, at the same time will influence workers' expenditures and thus, effective demand for output. If a firm cuts wages, the employer is able to expand output since variable costs are now lower but if money wage rates (under the pressure of competition in the labor market) fall all round, the money-demand function for goods (and therefore the demand function for labor) will also fall.⁷ Further, Kalecki (1939 and 1966) suggested uncertain future demand conditions following a reduction in a real wages should be expected to result in lack of incentives for employers to increase employment.

Given the level of employment, the marginal product, and therefore the real wage, is indeed uniquely determined, *ceteris paribus*. However, demand determines employment and employment determines that marginal product (i.e., the real wage), not the other way round. Under conditions of increasing marginal cost, if money wage rates are stable, employment could be raised, and as a result real wage rates would fall to a level consistent with the increased level of employment. Employment is not raised by a reduction of real wages but the process is the other way round namely, real wage rates fall because employment has been increased via an increase in demand. Thus, employment is not determined by the course of wages but by what happens in the goods market (Vercelli, 1991). Keynes as well as the Keynesians accepted the presence of an inverse relationship between real wages and employment, which was primarily

³ Pigou (1933), p. 252.

⁴ Pigou, (1927), p. 284

⁵ Pigou (1937), p.405. Pigou did discuss several institutional factors which prevented the labour market from functioning according to the classical competitive model (Pigou, 1945, p.48).

⁶ An exposition of Keynes view can be found in Tobin (1984).

⁷ Interestingly, Clower (1970) indicates that if all firms follow suit, the problem of unemployment may still remain.

due to the presence of diminishing returns to labor over the short-run (Minsky, 1975). In addition, certain studies argue that wage-taking firms have to operate under an infinitely elastic labor supply curve resulting in a rejection of the argument that wage adjustments can render an effect on employment adjustments (see Hamermesh and Pfann, 1996, for an extensive review of the literature). In general, there is no accepted consensus about the impact of wages changes on employment. The lack of this consensus is primarily due to the fact that wages are considered not only as a cost factor for firms but also as a substantial component of aggregate income as well as of aggregate demand, although this view is not generally accepted in modern macroeconomics. Certain approaches, however, give emphasis on the demand side repercussions of wage increases (Appelbaum and Schettkat, 1999; Jerger and Michaelis, 2003). According to these approaches, wage changes seem to have a significant impact on employment.

Studies find conflicting evidence for the employment-real wages relationship for different countries. For example, Arestis and Mariscal (1994), Carruth and Schnabel (1993), Smith and Hagan (1993), and Suedekum and Blien (2004) find a significantly negative relationship between wages and employment for the UK, West Germany and Australia, respectively. On the other hand, no consistent relation is found between the variables in Darby and Wren-Lewis (1993) and Bender and Theodossiou (1999), for the UK, in Nymoen (1989) and Nymoen (1994) for Norway and Finland, respectively. Finally, Danthine and Kurmann (2004), propose a Fair Wage model and also provide evidence in favor of a near-zero correlation between employment and wages.

By applying panel cointegration methodology, this study intends to contribute to the empirical knowledge by investigating the direction of the relationship between real wages and employment. Various economists (Blanchard and Katz, 1992; Decressin and Fatas, 1995; Martin and Tyler, 2000) have argued time series analysis, in addition to the low number of available observations problem, is not capable of capturing great wage differences associated with certain individual countries.

3. THE DATA

The data used in this study to explore the employment-real wages relationship for different countries comes from various sources. The time period under examination is from 1950 to 2005 for the following countries: Canada, Denmark, France, Germany, Italy, the Netherlands, Norway, Sweden, the United Kingdom and the United States. Annual data on the following variables were obtained: Wages are proxied by the manufacturing hourly compensation index based on the country's national currency. Data come from the US Department of Labor, Bureau of Labor Statistics (BLS). The index was set in real terms by dividing it by the GDP deflator, which is considered as a more appropriate index than the consumer price index (CPI) since it includes prices of investment goods as well as prices of consumer goods including indirect taxes; therefore, it is able to capture the main developments in domestic price behavior. Moreover, it is able to accommodate the relevant comparisons for the supply decisions of domestic industrial firms between the prices of output and variable cost, i.e. wages.⁸ The data come from the IMF International Financial Statistics. In addition, since the wage variable measures manufacturing

⁸ Kalecki (1966, p.60) points out "... it is generally known that the prices of raw materials fluctuate more strongly than wages and the prices of manufactured goods. But it is also clear that the ratio of wages of the British worker to the prices of Brazilian coffee is rather irrelevant to the conditions of industrial production in Great Britain."

wages, an index of manufacturing employment is used. The data also come from the US Department of Labor, Bureau of Labor Statistics (BLS).

Finally, as the goal of this study is to net out the effects of increased productivity on wages, the manufacturing value added per hour index in the national currency of the country is also used.⁹ The data also come from the US Department of Labor, Bureau of Labor Statistics (BLS). Once the variable is in nominal terms, it was deflated in the same way as the wage measure. Once again, for the deflation process the GDP deflator was used because the CPI does not contain the change in prices of imported goods, which are not part of the output used in measuring value added. By contrast, the GDP deflator measures price changes of domestically produced goods. Throughout the paper, small letters indicate variables in logs (Mehra, 1991; Darrat, 1994), i.e. real wages (*rw*), manufacturing employment (*memp*), and manufacturing value added per hour (*rvam*).¹⁰

4. EMPIRICAL ANALYSIS

4.1 *Dynamic Heterogeneity*

An issue that is of concern is the heterogeneity of the countries included in this dataset. In particular, the effects on the wage – employment relationship of different macroeconomic policies implemented across countries through time, as well as the effects of the institutional frameworks of each country such as the relative generosity in the unemployment compensation and in welfare or unemployment insurance programs, the trade union bargaining power, the employment frameworks and employment contracts and the evolution and variation of all the above through time for each of the countries under consideration. Because of this, the coefficients in the estimated relationships will be biased due to a heterogeneity bias. In the statistical framework of this study, these issues can be resolved by first testing for heterogeneity and then by controlling for it through appropriate techniques.

The dynamic heterogeneity, i.e. variation of the intercept over countries and time, across a cross-section of the relevant variables can be assessed in a number of ways. In the first step, an Augmented Dickey-Fuller (ADF) equation for each relationship in the panel is estimated; then the hypothesis of whether regression parameters are equal across these equations is tested. Next, a similar test of parameter equality is performed by estimating an *n*-order autoregressive model for each relationship under study. Standard Chow-type F tests under the null of parameter equality across all relationships are performed. If the results reject the null, this indicates heterogeneity in cross-sectional parameters. Finally, homogeneity error variance across groups is examined as another measure of dynamic heterogeneity. White's tests for group-wise heteroscedasticity are employed to serve this objective. Results are reported in Table 1 for the relationships between wages and employment as well as between wages, employment and value added, given the fact that there may be productivity factors affecting wages, value added should be controlled for in the wages-employment relationship. The results indicate the relationships under investigation are characterized by heterogeneity of dynamics and error variance across groups.

⁹ As in Bender and Theodosiou (1999) and see also, Kalecki (1966) for a theoretical discussion.

¹⁰ RATS, Version 4.2 software was used in the empirical analysis.

Table 1. Tests of Dynamic Heterogeneity Across Groups

	ADF(3)	AR(4)	WHITE'S TEST
Wages-Employment	18.73*	14.39*	39.37*
Wages-Employment-Value Added	16.61*	13.44*	35.63*

* Significant at 1%.

Notes: The ADF(3) column reports the parameter equality test (F test) across all relationships in the panel. The AR(3) column reports the F test of parameter equality conducted in a fourth-order autoregressive model of the relationships under study. Finally, the White's test reports White's test of equality of variances across the investigated relationships in the panel. The White's test was computed by regressing the squared residual of the ADF(3) regression on the original regressor(s) and its (their) square(s). The test statistic is $(NT) \times R^2$, which is χ^2 distributed with the number of regressors in the second regression as the degrees of freedom.

4.2 Panel Integration Analysis

Table 2. Panel Unit Root Tests

Variables	Without Trend	With Trend
rw	-1.21(4)	-1.37(5)
Δ rw	-4.52(3)*	-5.19(4)*
memp	-1.22(3)	-1.41(4)
Δ memp	-5.11(3)*	-5.48(3)*
rvam	-1.19(4)	-1.36(5)
Δ rvam	-4.11(3)*	-4.59(3)*

* Significant at 1%.

Notes: Figures in brackets denote the number of lags in the augmented term that ensures white-noise residuals. As in Darrat (1994), the optimal lag length was determined through the Akaike information Criterion (AIC) and the Schwarz-Bayes Information Criterion (SBIC).

The null hypothesis of non-stationarity versus the alternative that the variable is stationary is tested using the group mean panel unit root test (or “t-bar” test) of Im, *et al.* (1995, 1997). This test is based on the ADF statistic for each country (Dickey and Fuller, 1981) and allows each member of the cross section to have a different autoregressive root and different autocorrelation structures under the alternative hypothesis. The results are reported without and with a trend and are presented in Table 2. The hypothesis that variables rw, memp, and rvam (in levels) contain a unit root cannot be rejected at the 1% significant level. When first differences are used, unit root non-stationarity is rejected at the 1% significant level, suggesting that the variables under study

are I(1) variables. These results open the possibility of cointegration among certain variables commensurate on the testable hypothesis.

4.3 Panel Cointegration Analysis

Once the order of stationarity has been established, we can move to a panel cointegration approach, developed by Pedroni (1999). The panel cointegration technique makes use of a residual-based ADF test. The specific cointegrating relationships estimated are:

Panel 1. Wages and employment relationship

$$rw_{it} = \beta_{1i} \text{memp}_{it} + \varepsilon_{1it} \quad (1)$$

Panel 2. Wages, employment and value added relationship

$$rw_{it} = \beta_{2i} \text{memp}_{it} + \beta_{3i} \text{rvam}_{it} + \varepsilon_{2it} \quad (2)$$

where i runs from 1 to N countries and t runs from 1 to T observations. The terms ε_{1it} and ε_{2it} estimate the deviation from the modelled long-run relationship. If the series are cointegrated, this term will be a stationary variable. In other words, stationarity can be achieved by establishing whether ρ_{is} in:

$$\varepsilon_{1it} = \rho_i \varepsilon_{1i(t-1)} + \xi_{1it} \quad (3)$$

and

$$\varepsilon_{2it} = \rho_i \varepsilon_{2i(t-1)} + \xi_{2it} \quad (4)$$

are unity. The null hypothesis, associated with Pedroni's test procedure is that $\rho_{is} = 1$. In other words, the null hypothesis associated with Pedroni's test procedure is equivalent to testing the null of non-stationarity (no cointegration) for all i . Pedroni (1997, 1999) developed four panel cointegration statistics and three group mean panel cointegration statistics. The Pedroni cointegration results are reported in Table 3. The results reject the null hypothesis of no cointegration, confirming that in both testable relationships the panel is stationary. In other words, the results indicate that commensurate on the hypothesis tested the variables share a long-run cointegrating relationship. Conclusively, these findings provide considerable support to a strong long-run relationship between wages and employment¹¹.

¹¹ This finding contradicts Bender and Theodossiou (1999). It should be borne in mind that the panel methodology used in this paper is more sensitive in identifying cointegrating vectors. This is fortunate since it offers the opportunity to examine the issue of causation.

Table 3. Panel Cointegration Tests

Panel 1. Wages - employment relationship	
Panel v-stat	3.10756*
Panel rho-stat	-3.24212*
Panel pp-stat	-2.82747*
Panel adf-stat	-2.37493*
Group rho-stat	-3.08129*
Group pp-stat	-3.34468*
Group adf-stat	-2.21111*
Panel 2. Wages - employment - value added relationship	
Panel v-stat	2.90022*
Panel rho-stat	-2.36925*
Panel pp-stat	-2.48437*
Panel adf-stat	-3.64246*
Group rho-stat	-3.37872*
Group pp-stat	-3.53898*
Group adf-stat	-3.91826*

Notes: * Rejection of the null hypothesis of no cointegration at 1%.

4.4 Panel Causality

As cointegration is confirmed, we proceed to estimate causality using the Pooled Mean Group (PMG) estimator of Pesaran, Shin and Smith (1999) to account for the panel data causal relationships. This estimator is suitable when variables are cointegrated. This provides justification for examining the direction of the causal links among the variables under consideration through an error correction VAR (ECVAR) model. The model includes the leads of the regressor.

Panel 1. Wages and employment

Considering that the cointegrating equation is:

$$rw_{it} = \theta_{0i} + \theta_{1i} memp_{it} + u_{it} \quad (5)$$

and the associated augmented-by-leads autoregressive distributed lag (ARDL) equations are described by a (1,1,1) model:

$$rw_{it} = \mu_i + \delta_{10i} memp_{it} + \delta_{11i} memp_{i,t-1} + \delta_{12i} rw_{i,t-1} + v_{1it} \quad (6)$$

and

$$\text{memp}_{it} = \mu_i + \delta_{20i} \text{rw}_{it} + \delta_{21i} \text{rw}_{i,t-1} + \delta_{22i} \text{memp}_{i,t-1} + v_{2it} \quad (7)$$

the error correction equations yield:

$$\Delta \text{rw}_{it} = \varphi_1 (\text{rw}_{i,t} - \theta_{0i} - \theta_{1i} \text{memp}_{it}) - \delta_{30i} \Delta \text{memp}_{it} + \eta_{1it} \quad (8)$$

and

$$\Delta \text{memp}_{it} = \varphi_2 (\text{memp}_{i,t} - \theta_{0i} - \theta_{1i} \text{rw}_{it}) - \delta_{40i} \Delta \text{rw}_{it} + \eta_{2it} \quad (9)$$

memp → rw φ_1 coefficient = - 0.047, asymptotic t-statistic: -3.59[p-value=0.00]
LM = 1.237[p-value=0.17] RESET = 0.783[p-value=0.25] HE = 0.826[p-value=0.21]

rw → memp φ_2 coefficient = - 0.012, asymptotic t-statistic: -0.67[p-value=0.54]
LM = 1.058[p-value=0.15] RESET = 0.639[p-value=0.28] HE = 0.592[p-value=0.33]

where LM is a serial correlation test, RESET is a misspecification test, and HE is a heteroskedasticity test. The diagnostic figures indicate a satisfactory estimated model.

The error-correction coefficients (φ s) are negative and statistically significant, indicating that real wages do not cause employment while employment does cause real wages, i.e. there are no feedback effects between real wages and employment.

Panel 2. Wages, employment, and real value-added

Having established that real wages are cointegrated with employment, and real value-added, it is also appropriate to examine the associated multivariate causality relationship (only the real wages and employment equations are reported, while the remaining equations are available upon request). Considering that the cointegrating equation is:

$$\text{rw}_{it} = \theta_{0i} + \theta_{1i} \text{memp}_{it} + \theta_{2i} \text{rvam}_{it} + u_{it} \quad (10)$$

and the associated ARDL equations are also described by a (1,1,1) model:

$$\text{rw}_{it} = \mu_i + \delta_{10i} \text{memp}_{it} + \delta_{11i} \text{memp}_{i,t-1} + \delta_{12i} \text{rvam}_{it} + \delta_{13i} \text{rvam}_{i,t-1} + \delta_{14i} \text{rw}_{i,t-1} + \varepsilon_{1it} \quad (11)$$

and

$$\text{memp}_{it} = \mu_i + \delta_{20i} \text{rw}_{it} + \delta_{21i} \text{rw}_{i,t-1} + \delta_{22i} \text{rvam}_{it} + \delta_{23i} \text{rvam}_{i,t-1} + \delta_{24i} \text{memp}_{i,t-1} + \varepsilon_{2it} \quad (12)$$

the error correction equations yield:

$$\Delta rw_{it} = \varphi (rw_{i,t} - \theta_{0i} - \theta_{1i} mem_{it} - \theta_{2i} rvam_{it}) - \delta_{30i} \Delta mem_{it} - \delta_{40i} \Delta rvam_{it} + \varepsilon_{3it} \quad (13)$$

and

$$\Delta mem_{it} = \varphi (mem_{i,t} - \theta_{0i} - \theta_{1i} rw_{it} - \theta_{2i} rvam_{it}) - \delta_{50i} \Delta rw_{it} - \delta_{60i} \Delta rvam_{it} + \varepsilon_{4it} \quad (14)$$

mem \rightarrow rw φ coefficient = - 0.039, asymptotic t-statistic: -7.11[p-value=0.00]
LM = 1.487[p-value=0.14] RESET = 1.096[p-value=0.19] HE = 0.448[p-value=0.32]

rw \rightarrow mem φ coefficient = - 0.015, asymptotic t-statistic: -1.21[p-value=0.36]
LM = 0.577[p-value=0.26] RESET = 0.469[p-value=0.33] HE = 0.651[p-value=0.23]

The error-correction coefficients (φ s) are again negative but not both statistically significant, indicating that only employment causes real wages, while the vice versa is not true.

5. CONCLUSIONS

This paper investigates the existence and direction of a relationship between real wages and employment. Using a panel from ten different OECD countries, from 1950 to 2005, it applies panel cointegration methodologies. In contrast to earlier studies, this paper finds statistical evidence for a relationship between these real wages and employment variables. However, it firmly rejects the hypothesis that wages cause employment. Thus, employment is not raised by cutting real wages. Rather, it is the other way round: real wage rates fall because employment has been increased via an increase in demand. The results seem to be consistent with the view that demand-side interventions are far more appropriate for fighting unemployment (Phelps, 1994). Moreover, the results are quite similar to those reached by Topel (1986), Belzil (2000) and Buchinsky *et al.* (2003) in which wages respond to labor demand and consequently to aggregate demand shocks. By contrast, the empirical findings are in contrast with those reached by Russell and Tease (1988). Real wage rates are not determined by the wage bargain; only the money wage is so determined. On the evidence presented in this study it appears that Keynes was right after all.

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Fire in the Firehouse?

Preference Falsification and Informal Economic Activity in Peru

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ABSTRACT:

Since Peru's independence from Spain in 1821, and more recently, beginning with the revolutionary doctrine of APRA's founder, Haya de la Torre in 1920, there have been multiple attempts to transform socio-political institutions opposed to mass inclusion of persons working within the 'informal sector'. Paradoxically, Peru has had a history of extremely poor social reform despite the long-term presence of considerable reformist sentiment. In fact, not until the Velasco-led military coup of 1968 did the country become ripe for authentic institutional change. This paper develops a method of studying institutional continuity and change based upon the existence of preference falsification, which until now has been used almost exclusively to model mass revolutionary efforts of a violent nature. The argument is made that to gain a better understanding of why there has never been a mass revolutionary effort in Peru, at least as it is commonly defined, it is necessary to investigate how individual private and public preferences are influenced by the share of society expected to participate.

JEL CLASSIFICATION CODES: E26, O17, P48, Z13

KEY WORDS: Public preferences; institutional continuity; informalization

1. INTRODUCTION

A former elected official of Peru's American Popular Revolutionary Alliance (APRA) party once wrote, "Una sociedad revolucionaria es una sociedad que reclama rápidos y radicales cambios en sus estructuras económicas, políticas, sociales, administrativas y jurídicas, con la finalidad de obtener un orden mas justo" [Quiroz 1986, 85]. Translated into English, this says, "A revolutionary society is a society that demands rapid and radical changes in its economic, political, social, administrative, and juridical structures, for the purpose of reaching a just order."

This best captures what has been demanded and obtained by those known as 'informals' over the past two decades. In every important socio-institutional domain, creatively and persistently, these entrepreneurs and workers of popular origin have altered the rules of economic and political life in Peru. Thus, even though violent mass revolution, the traditional way that people think of revolutionary societies, has not been successful in Peru since the Revolution of 1895, we can think of Peru as a revolutionary society. Using the word *revolution* to describe changes occurring during this time may seem inappropriate and rather ambiguous, since no single anti-regime movement was attempted by the mass of Peruvian citizens. Its use is surprising, moreover, if we agree revolutions are typically characterized by relatively short and violent conflict between a state and its governed, who oppose it. However, the term "revolution" has a secondary meaning that typifies a radical change in the institutional environment. Thus Mike Harris' government in

Ontario instituted a “common sense revolution”, Chairman Mao in China had the “Cultural Revolution,” the environmental movement in the US instituted a “green revolution.” Yet none of these really convey the concept of revolution from the disenfranchised.

On the other hand, although gradual and admittedly different from other Latin American revolutionary movements (Bolivia, Cuba, Guatemala and Mexico may come to mind), Peru's 'Otro Sendero' has been no less revolutionary, albeit unique in its evolution and more bureaucratic in nature. Although nominally instituted by the government, the changes were often demanded by the populace writ large. Revolutionary movements seeking to change the status quo through violence have existed in Peru and governments have been toppled by *coup d'état*, but no such movement in the 20th or 21st centuries has resulted in mass revolution, such as has been seen during this time in countries like Iran, Nicaragua, Haiti, and Paraguay. Indeed, the fact such movements (such as Shining Path) have existed but yet been so unsuccessful in generating popular support for their causes is a major paradox to be explained and our answer is the system has generated a method by which revolutionary change can occur without violent revolution. The concept of revolution we employ in this paper is institutional change arising from the bottom, rather than the top, regardless of whether that change is violent or peaceful in nature.

What has distinguished institutional flux and rigidity in Peru from other Latin American countries is the role played by the informal sector. Unlike in most cases, where direct and spontaneous mass revolutionary intervention has been required to bring anachronistic traditional systems of power to their proverbial knees, in Peru these changes are a continuation of struggles begun centuries ago, when mercantilist or oligarchic powers began to yield to more informal or popular interests [Julio Cotler in Lowenthal, 1975, 44-78]. That presented in 'El Otro Sendero', de Soto's [1989] term for Peru's 'invisible revolution' or 'other path', comes to mind. Regardless of what one wishes to label them, there have been countless conflicts between 'peddlers', 'stallholders', 'vendors', or 'informals' and all Peruvian regimes since the end of the 16th century. It was not until the 1980s, however, after the replacement of the Revolutionary Government of the Armed Forces (RGAF, 1975-1980), that informals won for themselves formal institutional respect.

What changed in Peru that permitted political and economic inclusion of those ostracized from the formal politico-economic system for almost 400 years? This paper seeks to explain, using the model of collective choice presented by Kuran [1987], the paradox of why Peru has had a history of extremely slow and poor social reform, despite the long term presence of considerable reformist and revolutionary sentiment. The paradox remains intractable by the Olsonian argument [Olson 1982], which focuses on a lack of organization on the part of the dissatisfied, or by Hirschman's options of exit or voice [Hirschman 1970]. The former cannot explain how groups or even parties such as Sendero and the MRTA or APRA and AP (Accion popular), which have been extremely well organized at times, have failed to alter Peru's institutions in a way that fosters mass participation. The latter theory fails to account for those who oppose the system yet remain with voices muted. The method applied in this paper is complementary to, albeit less complex than, either of these explanations and has the advantage of making sense of Peru's 'ambiguous revolution' [Lowenthal, 3-43]. It can be best understood if we assume supporters of the 1968 Velasco coup, and those involved in informality, falsified their preferences. What changed were circumstances encouraging individuals to misrepresent their private preferences, and perhaps their underlying beliefs.

The structure of this paper is straightforward. The first section provides a brief history of the relations between the Peruvian state and those participating in informality. We argue a crucial

turning point was the 1968 military coup, which attempted to ameliorate tensions extant between poor migrants and persons connected to the dominant oligarchic system. One of the ironies and seeming paradoxes is democratic institutions in Peru have traditionally not served the masses and it is traditionally only when the military has taken power that Peru's great unwashed are given proper consideration, such as during the rules of General Odría from 1948 to 1956 and General Velasco from 1968 to 1975 (Levitsky 1999, 81). Section two presents the logic of preference falsification (PF). The third section explores the institutional changes occurring from the 1968 Velasco coup to 1980 (after which democratic elections were restored). It reveals how rejection of PF by military personnel was indispensable to the success of that coup, and was a springboard motivating informals to oppose the state. The fourth section exposes the role informal PF played throughout the Republic's history. Although threatening sectoral differences were seemingly nonexistent before the coup, these quickly became what promulgated increased conflict in Lima. For various reasons it is argued the coup drove deeply the social wedge which informals had been pounding for at least four decades. History, theory, and household survey data are drawn together in a way that brings new light to the rise of *informalidad* and the weakening of oligarchic institutional structures.

2. INFORMAL ECONOMIC ACTIVITY AND THE STATE: A BRIEF HISTORY

The informal sector is the engine of Peruvian growth. Up to 80% of all women in Lima participate in the informal sector [Lim 1996] and at least 25% of all Peruvian urban households run microenterprises out of their own homes [Field 2005]. There has been a continual rise in the sector's relative share of employment with a plurality of individuals who were employed working in the informal sector by 1991 and only 47.4% in the formal sector [Roberts 1998, 240].

Conflict between the state and those working informally began well before Peru's independence from Spain in 1821. In 1557, the government first instituted action against street vending, a policy repeated at least 20 different times prior to the revolution in 1821 [de Soto 1989, 76]. Yet, by and large, the first 100 years of the Republic saw state tolerance of urban area informality: "Formal society regarded informal trade as part of the city's more and cultural identity and did not feel that such trade might pose a threat to formal trade and transform the face of the city for at the time the number of street vendors was very small." [de Soto 1989, 76]

Different types of regulation began to be imposed by the beginning of the 20th century. This coincided with a general trend in many societies to regulate street vending through a policy of accommodation and formalization instead of outright banning. McGee [1973] discusses how states attempted to regulate the inform sector through licensing, education, or relocation to designated spaces as a means to try to formalize the informal. With the informal sector making up over half of many third world economies, modern states desire to tap this vast resource for economic gain.

Yet tolerance likely encouraged migration and increased informality. To this end, in 1915 street vending regulations were first promulgated and required those wish to hawk their wares in the streets of Lima to obtain a permit and abide by certain guidelines, such as not selling food and following health standards. One key provision was the requirement that vendors roam the streets instead of maintaining a stationary position. It was this latter provision that was widely violated due partly to the lack of fiscal penalties, which was rectified the following year [de Soto 1989, 77]

As the informal sector was seen as a source of tax revenue, the power of the informals grew. An excise tax imposed to limit informal activity and collect much needed revenue placed the

government in the precarious position of needing the informal sector more than the informal sector needed the government and increased the informals political power, granting them access to the coveted public spaces and gutting the roaming requirement entirely by 1959 [de Soto 1989, 78]

The informal sector succeeded because vendors linked their activity to not only other informal but also formal businesses. While nominally regulations existed that limited the value of goods and capital in the informal sector and allowed the formal sector to engage in direct competition, the formal sector was hampered by excessive regulation and the fleetness of the informal sector to such an extent that the government tried to organize street vendors into specified areas. The results backfired and vendors organized the Union of Small Traders and Street Vendors and defended themselves against the power of the state either through violence or by moving to parking lots and paying the private owners for the use of their space. The new union and its sister organization, FEVACEL (the Federation of Street Vendors in the Central Market and Adjacent Streets), with which it later joined forces, were the political expression of a group that no longer could be perceived as marginalized or strictly informal and the government began to take them more seriously and grant them established property rights [de Soto 1989, 80-82]

These politico-economic inclusionary processes were paralleled by demographic and military changes and perturbations. In terms of the former, the Peruvian population grew by almost ten-fold from about 650,000 in 1950 to nearly 6.5 million in 1990 [Villa and Rodriguez 1996]. With respect to the latter, by the early 1960s military officials and new recruits alike were questioning the system which had sporadically, yet incessantly, fought to 'keep at arms length' persons migrating from many of the same villages some of them had come.

The informal sector has continued to rise not only in Peru but all of Latin America owing to increased regulatory issues and rising taxes. As the formal sector is squeezed for more revenue, people turn to the informal sector for their sustenance and even formal enterprises often make use of informal ones in order to gain a competitive advantage on costs. Since 1968, when relations were first liberalized, the Peruvian government has alternated between assisting and cracking down on this sector but the ability to formalize the informal continues to evade it. Before turning to the Velasco military coup of October 3, 1968, where we will explore a pivotal moment in the history of Peruvian informal-state relations, the theory of *preference falsification* needs to be explicated.

3. A MODEL OF REVOLUTIONARY BENEFIT AND PARTICIPATION

Our approach uses the revolutionary participant's expected direct net benefit function, B_i , the formation of which owes much to the model of preference falsification given by Kuran [1987], who developed it in the context of violent revolution.

Overview

Picture a society or a segment thereof considering whether or not to commence an uncertain revolutionary process. For example, let's focus on those working in the 'informal sector', and assume there is consensus among participants regarding the unidimensional nature of the decision at hand. Each individual i will decide to support the status quo or to help in the effort to alter social institutions, although none is committed a priori to either position. In other words, regardless of what any individual informal privately prefers, he or she can be pressured into either supporting or

opposing the established institutional order and its regime. The share of society expected to oppose publicly the current institutional arrangement, s , directly influences the perception of the likelihood of revolutionary success, $P(s)$, or failure, $1 - P(s)$.

Of course, there are many other factors that will contribute to the outcome of any revolutionary effort. Military might and the level of revolutionary organization are two, which are obvious. This does not invalidate, however, the assumption that the number of persons publicly opposing an existing regime is extremely significant with respect to influencing an individual's decision to participate and to the outcome of the collective effort and *ceteris paribus*, directly impact the likelihood of success. Many of these things are, however, directly linked to the level of public support. If they contribute to the likelihood of success, they are linked through the model. If they are exogenously determined from our model, this can be thought of as impacting the level of probability of success through external factors. A more complete model could take these issues into account but the fact the level of popular support also likely influences them, making the separation of such influences rather problematic. Since this is predominantly a theoretical paper concerned with a single empirical case and a single important variable, we are choosing to concentrate only on this one important variable in describing this issue for Peru and are assuming that the decision to participate in the revolution is being undertaken by rational actors who have already determined the likelihood of success given these other factors. Since individual citizens have little or no means of influencing the success or failure of the revolution except by the decision to participate and since we are concentrating our analysis at the individual level, this is a perfectly innocuous assumption in the context of this model of human behavior.

The perceived probability of successful revolution as well as the perceived likelihood others will participate will be higher, the more amenable a country is to change. Democratic societies tend to evolve democratically precisely because they allow change from within. Vocal minorities can often alter a society, especially in areas that are of little concern to the mass populace. The fact informals identified neither with working interests nor business interests due to the dualistic nature of the sector, meant neither faction was likely to pay much attention to them and this can be a good thing because it also meant there was little to gain by opposing their desires: “[I]ssues of employment security, wage indexation, and public benefits that galvanize unions in the formal sector may have little salience to temporary or informal workers who do not receive legal protections or entitlements” [Roberts 1999, 66].

Totalitarian societies hold on much longer to the status quo because the probability of successful action is low unless a large segment of the population opposes the government. Similarly, if a country's government has a dispensation against the change, the probability of success will be lower than it if it is neutral or in favor of the change. Indeed, it is precisely because of sympathy within the military for the informals following the 1968 coup that allowed the informals to lobby in favor of reform. On the other hand, communist movements, such as the Shining Path, by their very nature, lend themselves more to violent revolution because the societies in which they operate tend to have governments that are philosophically opposed to communism and are likely to encounter more stiff opposition and support of the status quo among private sector participants.

Important for our purposes are the expectations of someone in the informal sector concerning decisions of others to participate in the revolution. These will influence an individual's decision whether to oppose the institutional regime publicly and his or her expected net gain. B^i will be a

function of that individual's expectation of others revolting, or the perceived probability of successful revolution, the net difference between operating informally and formally, \mathbf{N} , and the cost of joining a revolution, \mathbf{C} . The last factor is lost whether or not the revolution succeeds.

$$\mathbf{B}^i = \mathbf{P}(s)(\mathbf{N} - \mathbf{C}) + (1 - \mathbf{P}(s))(-\mathbf{C}) \quad [1]$$

\mathbf{B}^i rises with $\mathbf{P}(s)$ at an increasing rate (where $d\mathbf{B}/d\mathbf{P} > \mathbf{0}$ and $d^2\mathbf{B}/d\mathbf{P} > \mathbf{0}$) and the probability of gaining the difference of what is typically only attainable for those working within the formal sector, $\mathbf{P}(s)\mathbf{N}$, less the costs of revolution, must be equal to or exceed zero, as in equation [2], if an informal worker is going to consider revolution worthwhile.

$$\mathbf{P}(s)\mathbf{N} - \mathbf{C} \geq 0; \quad [2]$$

In other words, there will exist some level of revolutionary participation, s^* , which will satisfy [2], constrained by the net revenue disparity and the cost of the revolution. The movement appears beneficial, obviously, when $\mathbf{B}^i \geq \mathbf{0}$ or once the probability of successful revolution times the net revenue differential equals or exceeds the cost of revolting as in [3].

$$\mathbf{P}(s^*)\mathbf{N} \geq \mathbf{C}; \quad [3]$$

Dividing through by the differential we obtain [4], which reveals the probability threshold beyond which one will expect the revolution to succeed and to receive a positive net benefit.

$$\mathbf{P}(s^*) \geq \mathbf{C}/\mathbf{N}; \quad [4]$$

As we shall see momentarily, the latter expectation for those who do not join the revolution, as well as the decision itself, will be a function of the likelihood of being detected during or after the revolution and its adverse retribitional consequences.

Assuming an S-shaped relationship between the expected probability of successful revolution and the share of societal revolutionary participation,

$$s^* \geq \mathbf{P}^{-1}(\mathbf{C}/\mathbf{N}). \quad [5]$$

The justification for the functional form, \mathbf{P}^{-1} , is that as the number of persons joining the revolutionary effort increases, the probability of success does also, thereby augmenting an individual's expectation of receiving a positive \mathbf{B}^i as revolutionary forces mount. At first, as few participants will not be sufficient to generate a required level of collective action, the probability of success rises relatively slowly. Eventually, if enough people publicly support the revolution, π begins to rise quite rapidly. Soon thereafter a point is reached beyond which additional revolutionaries will contribute little to the probability of success. That given in [5] thus becomes

$$s^* \geq \left[\left(\frac{1}{\pi}\right)SIN^{-1}(2\mathbf{C}/\mathbf{N} - 1) + 1/2\right] \quad [6]$$

$$P(s) \geq \left[\left(\frac{1}{2} \right) \text{SIN} \left(s^2 \pi - \frac{1}{2\pi} \right) + 1/2 \right] \quad [6a]$$

Equation [6a] is graphed below in Figure 1.

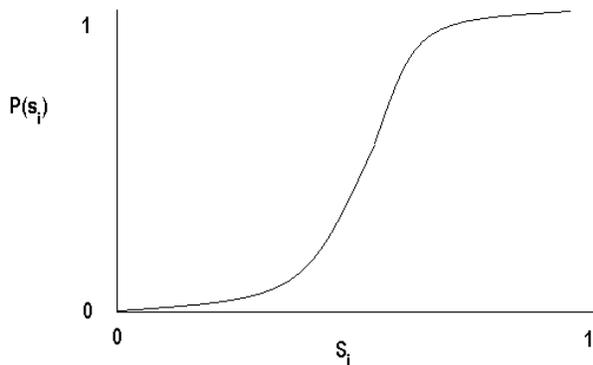


FIGURE 1: Probability of Successful Revolution

To solve this equation for the society share, s^* , needed to make [6a] true, and obtain [6] above, we must determine values for N and C . N is herein defined as the difference in expected pay between the formal and informal sectors, although there may also be psychological aspects that are not quantifiable.

The cost of revolting is, C , among other things, a function of expected future earnings, E , currently owned inventories, I , and capital, K . Hence, and $dC/dE > 0$, $dC/dI > 0$ and $dC/dK > 0$.

$$C = C(E, I, K); \quad [7]$$

The cost of a revolution is composed of other factors as well. Regardless of the outcome, one may lose a family member, friend, or co-worker in addition to his or her informal business investments. While some of these are economic and thus can be calculated, such as one's level of old-age security [Nugent 1985], others are psychological in nature and are not quantifiable.

The Choice of Individual Public Proclamation

We have seen how each individual member of the informal economy takes into account how many other people he expects to join the revolution or their anti-establishment publicized preferences, the net revenue differential between formal and informal sectors, and the estimated cost of revolution. However, we have only hinted at how an individual decides to participate in the revolution or not. B^i does not necessarily determine a particular individual's decision.

Obviously the smaller the group the less this holds true. In the present case, however, the legalization of informal economic activity a , resulting from struggle b and resulting in aggregate

benefit c , does not necessarily impede nonparticipants from feasting on the fruits of the revolutionaries' labor. The argument is made stronger the more difficult nonparticipation is to detect. Assuming the share of society anticipated to revolt is sufficiently high enough that the expectation of successful revolution is great, each informal may realize that his or her contribution is relatively insignificant. In short, at some point $\mathbf{P}(s)$ may become sufficiently large, encouraging some to free-ride. Not fighting for the cause, then, and not being detected, may combine to provide a considerable incentive for risk aversion during the revolution. Moreover, one does not automatically have to participate in the effort to receive the benefits resulting from a fortuitous outcome. Yet, the very success of the effort may also mean an informal who supported the status quo is left in a precarious position. If caught opposing the effort via passivity toward the state, or worse, anti-revolutionary activity, one risks the possibility of losing all the costs of revolution as presented above and more.

The additional loss can be split into two functions, the first incorporating an individual's reputation and the second, his integrity [Kuran 1987, 644-45]. The decrease in utility resulting from one's cart being confiscated by the authorities during a period of transition, but also be ostracized afterwards for not having aided fellow informal revolutionaries, is an example of the former. The latter is illustrated by the utility lost from one's desire to reveal his or her private preferences, yet falsifying them due to public pressure. For example, an informal may privately detest authorities for having taken a relative's capital, etc., but still not join the revolution for fear of the same happening to him. Similarly, one could decide to join a revolution even though one does not support change because of a fear of retribution after a successful revolution has occurred.

We shall represent what one loses upon being detected during or after a successful revolution by $V(\mathbf{x}^i, \mathbf{y}^i)$, which is a function of one's reputation ($\mathbf{R}(\mathbf{y}^i)$), and integrity ($\mathbf{G}(\mathbf{x}^i, \mathbf{y}^i)$).

$$R(\mathbf{y}^i) = \begin{cases} f_0(S_0) & \text{if } \mathbf{y}^i = 0, \\ 0 & \text{if } 0 < \mathbf{y}^i < 1, \\ f_1(S_1) & \text{if } \mathbf{y}^i = 1, \end{cases} \quad [8]$$

where S_0 and S_1 represent the share of society representing supporters of, and those opposing, the existing institutional regime, respectively, and \mathbf{x}^i and \mathbf{y}^i representing private and public preferences.

$$G(\mathbf{x}^i, \mathbf{y}^i) = G(1 - |\mathbf{x}^i - \mathbf{y}^i|), \quad [9]$$

where G is increasing in its argument (which is a measurement of the closeness between an individual's private and public preferences). We now can understand the second and third factors taken into consideration by the potential revolutionary participant. These are combined to give,

$$V(\mathbf{x}^i, \mathbf{y}^i) = T(\mathbf{y}^i) + G(\mathbf{x}^i, \mathbf{y}^i). \quad [10]$$

The absence of \mathbf{B}^i from the right hand side of [10] does not imply the individual does not place importance on it, rather each individual, seeing himself as a infinitesimally small part of the revolutionary effort, does not believe his contribution will alter the probability of successful revolution, and hence, \mathbf{B}^i . \mathbf{x}^i however, is reflected in $\mathbf{B}^i(s)$, since the latter is simply the preference ordering of that individual. This is the free-rider effect.

The decision whether or not to participate is shown by [11], where the left hand side is the expected positive net benefit of participating and the right hand side is the expected negative net benefit of having opposed the revolution in some manner and having been detected.

$$P(s)(N - C) \geq P(s)[-V(R(y^i), G(x^i, y^i))] \quad [11]$$

Although each informal is assumed to have the same reputational and integrity functions, their undisclosed private preferences may be different, and consequently, the values of x^i and s which make [11] true may be different for each individual.

To clarify the approach being developed, we will assume that no individual will choose a nonoptimal position. This means, as was assumed above, each person will avoid being indecisive publicly and select either to support or to oppose the currently dominating regime. Hence, the case we are interested in is where for all i ranging from 0 to 1,

$$\max (V_0^i, V_1^i) > V_*^i, \quad [12]$$

and the share supporting and opposing sum to 1. Under these conditions, the utilities gained from either public choice become

$$V_0^i = f_0(1-s_1) + G(1-x^i), \quad [13]$$

and,

$$V_1^i = f_1(s_1) + G(x^i). \quad [14]$$

Given f_0 and f_1 , and by equating [13] and [14], we can solve for each s_1 , the value that x^i must assume to make an informal indifferent between deciding to revolt or deciding not to revolt. In short, we can find the level of public support beyond which private preferences are inconsequential to the inevitability of revolution, and before which they make all the difference.

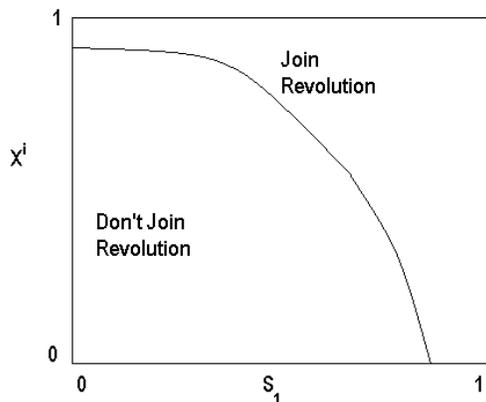


FIGURE 2: Private Preferences and Participatory Share
See Kuran [1987, 646]

In figure 2, those with a point (s_1, x^j) lying below the curve will support the status quo, and those with a point lying above it will support the revolutionary effort. Indeed, even though a government may be widely hated behind private closed doors, to the public eye its support is unwavering. This is simply because people are unwilling to oppose such a regime unless others are likewise willing to take up the cause. Yet, at the same time, change may occur rapidly and owing to the smallest and most seemingly insignificant action, as each individual's decision to join a revolutionary movement depends on their perception of whether others are similarly committed. In the case where only a small change in perceived public support for action can cause the mobilization of a large segment of society, the effect can be similar to that of a snowball, gathering momentum as it careens down the mountainside. Each person who joins the cause creates, as through a bandwagon effect, a sea change in public support that builds into a revolution [Kuran 1989, 42]. Indeed, when a revolution is all but certain to succeed, one might as well join the revolution because of the serious repercussions that may befall one if one does not join.

3. THE 1968 COUP: PREFERENCE REVELATION AND INSTITUTIONAL TAKEOVER

The coup of RGAF, led by Juan Velasco Alvarado and replacing the Accion Popular government on October 3, 1968, attempted to redress disparities separating Peru's formal elites from her informal poor. That Peruvian military leaders did it, so surprised Fidel Castro that he said it was as if "the fire had started at the firehouse" [Lowenthal, 21]. Yet, during the next twelve years the flames turned to smoke and informal-state relations remained, for all practical purposes, intact. Due to altered circumstances, the gap between society and state broadened, and pressures for institutional change surged. Contrasted with Mexico, where state and informal business has traditionally worked together, Peru's history of conflict resulted in institutional ossification and growing dissatisfaction [Cameron 1992, 209-220]. This led informals to believe they could capture some of the formal sector's rents if a different institutional arrangement existed.

We will explain how the military emerged as mediator between oligarchic and informal interests, and created circumstances conducive to informal preference revelation (PR), where refusing to falsify one's private preferences in public results in preference revelation.

World economic trading patterns that immediately followed World War II resulted in an attack on the traditional oligarchy and on the Peruvian *gamonal* system. Before this time the export oligarchy and semifeudal *haciendas* worked together so the former exported raw materials coming from the latter, and in return, received manufactured capital and luxury goods from abroad. Although these two sectors were deeply interconnected and dependent upon one another, their persistence was remarkable, and "the analyses of Peruvian society carried by Haya de la Torre and Mariátequi in the 1920s continued to pertain in the 1960s" [Cotler in Lowenthal, 1975, 47]. Local capitalists were controlled mainly by US capital, and this made possible the close economic and political relationship. However, this eventually led to modernization pressures that resulted in higher unemployment and placed greater absorption responsibility on the informal sector.

New forms of capital accumulation led to decreased importance of traditional modes of production without eliminating dependent oligarchic institutions. As migration quickened, so did the number of peasant revolts and strikes, alongside increased growth and investment diversification. Political and ideological divisions coincided with economic, and the army and the

church sided with the non-oligarchic interests. Whereas both institutions had always supported the ruling oligarchy, the former feared a rise in revolutionary, the latter in 'anti-Christian,' forces.

Consequently, a great concern for internal security developed and places like CAEM (el Centro de Altos Estudios Militares) began to increase their training of counterinsurgency techniques. Most relevant for our purposes, though, these techniques included the possibility of using reformist measures in place of violent repression. It can be reasonably argued, however, that the crisis between oligarchic and informal sectors during the 1960s, led to changes in military and religious postures toward state institutions, which resulted in the suppression of mass-based movements and an attempt to eliminate traditional institutional arrangements.

Nonetheless, on the eve of the Velasco coup, the military succeeded in toppling AP's control of the state. Unlike other anti-oligarchy movements, however, Peru's was more bureaucratic and excluded the political participation of the masses. This was possible only because of the weakened condition of the traditional or informal sector, and due to the failure of leftist or guerilla groups to seize power. In general, the ironic goal of the new administration (given its historic predisposition of rescuing the oligarchy) was to eradicate class differences by a homogenization of society. It was ironic given its historic predisposition to coming to the rescue of the oligarchy. For the purpose of this paper, the most interesting action taken by the military was to encourage PF by suppressing political disagreement within and outside of military circles.

For example, in addition to attitudes generated at CAEM, Cotler [in Lowenthal, 1975, 58] notes "the institution as a whole... was in charge of carrying out the transformation of the country," but "in 1968, the military 'institution' was, in fact, divided over the October 3 coup." Amazingly, the coup was planned by only eight military officers and it was not until it began that those who were previously content to let the oligarchy continue (having privately rejected its discriminatory nature toward the masses, but having a latent distrust toward the them) 'voiced' their dissatisfaction toward Balaunde's regime. Some of this discontent can be traced back to CAEM and the reformist attitudes transmitted there, but as Lowenthal [1975, 22] argues, not even this "can provide a sufficient explanation for the military's comprehensive reform program."

Whereas neither the organizational theory of Olson, the 'exit, voice, or loyalty' approach of Hirschman, nor simply appealing to the military's training adequately explains either the success of the coup or the reformist policies undertaken; and that individual officers and others in the military privately rejected Peru's institutional structures, only to reveal this when it was perceived safe to do so, lends credence to the role played by PF and its subsequent elimination. If it is to be believed, however, that PR explains the coup's success, then PF must be shown to have been the basis for earlier institutional inertia. This will be shown in the following section.

How did changes during the military's reign affect informality? First, the Velasco regime had three primary objectives - to move against the oligarchic orientations of governments ruling since 1930, to strengthen the state by giving it a more direct role economically, and to limit mass political participation [Lowenthal, 1975, 45]. Generally, these would be achieved by ruling corporatively over oligarchic interests and by depoliticizing the lower and middle classes. Second, although the military's rhetoric was nationalist or anti-sectoralist, it did little to shake the structure of economic relations, one reason why it is improper to call the coup a revolution. Specifically, the new government continued to subsidize the modern sector by encouraging private accumulation, and although fishing, banking and commerce, were nationalized, mining was reorganized, and a new nationalistic foreign policy adopted, only a very limited redistribution occurred. As Richard Webb

shows [1977], only within sectors did any significant redistribution occur and the overall transfer resulting from these policies was insignificant in relation to the national income. The moral of the story is this: reformist rhetoric did not lead to real changes for Peru's most poor.

A look at informality in Lima from 1968 illuminates this well. We previously saw that informals had come to be recognized formally. The impetus for this change lay in the violent conflict following the government's effort to move informal vendors to pre-chosen locations not initially acceptable to vendors. With Velasco's mayoral appointment of Eduardo Dibos Chappuis in 1970, the relocation of informals continued, but this time without using force. Street vending was seen as a long run issue to be combated bureaucratically. Dibos meet with vendor organization leaders and in return for a non-taxed right to occupancy, they extended their political support.

By 1976 areas occupied by street vendors came to be called 'free zones' and the second part of the RGAF (1975-1980) witnessed the creation of a multi-sectorial commission, where vendors and municipal authorities alike discussed informal ownership and activity issues. The commission gave informals the security they longed for and responsibility of informality was passed down from executive auspices to municipal authorities [de Soto, 85]. In April of 1978, in response to the large number of informal markets being created, things took a turn for the worse when the municipal authority abandoned its passive approach toward informality, and issued a violent offense against it.

Some believe this was an attempt to move against Marxist-led vendor organizations, which had secured considerable power in the formal governmental structure. Regardless of the reason, under 'Operacion Sombrilla' vendors were kicked out of certain areas they were occupying, and the police attempted to prevent them from returning for many hours. The persistence of the vendors proved too much, for as soon as the police would leave the vendors would take back their pitch spaces. In the end, it was clear vendor evacuation was impractical [de Soto 1989, 86].

It was not long before certain vendor leaders, and politicians sympathetic toward their concerns, gained mass political support and were elected into municipal and federal offices. More than pledging their political support, however, the vendors began to improve the appearances of their pitches under residential pressures and created, with the help of a team of experts, a vending bill which they wanted presented to congress. Three days later, on July 28, 1980, Balaunde was reelected president, thus ending twelve years of military rule.

The new administration, down to the municipal level, entered office with the knowledge of how much ground had been gained by informals, but also had to cope with the interests of the middle class and disdain for what was perceived to be one of the most deplorable social legacies remaining from military rule. In March of 1981 it was announced that street vendors would leave central Lima for good and relocate in places like Polvos Azules. Once again there was violence. For three months there were mass "meetings, marches and protest demonstrations, vehicles were stoned, and Molotov cocktails were thrown" [de Soto 1989, 88]. It seemed as though relations had come full circle, and little had changed. By 1985 all of the regulations existing before 1981 had been reintroduced and additional ones added. In general, vendors were given back their right to sell their wares under certain stipulations. The only difference was now informals had to join a vendors' organization. Circumstances once conducive to preference falsification had changed.

After the 1968 coup, informals won for themselves private ownership, however precarious, and they created markets for their goods when they could. It should be obvious, regardless of the coup's failures, that what occurred in 1968 gave formal and forceful credence to the relevancy of informal institutions and their rules. Whatever argument can be made for the gradualness of the informals'

struggle, it is clear that as a greater share of society came to accept or support informality in Lima, and as pressures against it grew, informal boldness was fortified and the number of those willing to reveal their private preferences swelled. As we shall see momentarily, not only can PF explain why the military coup did not occur until October 3, 1968, but it is also why informals refrained from mass violent action against the state, which incessantly constrained their activities.

4. THE ROLE OF INFORMAL PREFERENCE FALSIFICATION

Section one along with the previous section renders unacceptable the idea that the Velasco coup and the military's rule significantly altered the structure of informal-state relations. In short, we have seen how hostile feelings toward the state existed before the 1968 coup, and were extant even after the military's rule ended. Circumstances from 1968 to 1980 only served to further legitimate the need for informals to secure property rights and meaningful political participation.

What explains the sudden emergence of informal opposition forces if repression existed before the coup? Clearly, coercive action had been taken against informals by the republic since the start of the 20th century. We believe PF was the cause of institutional stability. Repressive forces existing before 1968 justifies this assumption. Moreover, though informals paid the state's unfair excise tax (greater for informals than those in the formal sector), while being uncertain of receiving public space, some must have quietly disapproved, and that PF existed after the coup as well.

As modernization forces gained strength, it became clear revolutionary statements made by the military would not lead to social reform. As Carol Graham [1990, 79] stresses, "reformist tactics can achieve revolutionary objectives if a reassuring atmosphere is provided." No such atmosphere was provided and many rural Peruvians felt compelled to migrate, become informal, and accept very uncertain conditions. It was during that time and continuing through the 1980s (since the Balaunde and Garcia regimes also demonstrated what APRA's Haya de la Torre called a "vieja democracia verbal" [Graham 1990, 76]) that informals were quickly becoming indifferent toward the benefits of PF and the expected rewards of PR.

Review

Our analysis began by showing how PF impeded any kind of mass informal revolution during the first century-and-a-half of the republic. We saw that similar repressive forces existed before, during, and after the Velasco coup, but that class differences became more obvious soon after October 3rd, 1968. We saw how eventually informals became convinced of the inadequacy of their PF to justify quiet compliance and political passivity. Moreover, we saw that oppressive forces, which are a motivation for falsifying antiregime preferences, began to wane.

Were public preferences simply internalized by informals before Velasco, and they, along with military personnel, happily decided to submit until then? Our answer is no. The hostility that greeted the migrants generated a rebellious spirit that was demonstrated time and time again. The Velasco regime, although not altering social relations nor economic distributional patterns, did create an environment in which informals could more safely oppose the state. Not only were the informals greater in number, but also many within the military were sympathetic to their cause. This did not mean repression would not ensue, however. It simply meant informals perceived

established institutions as inconsistent and irrelevant to their lives, a factor which led to the collapse of the leftist municipal governments that flourished at first in the 1980s (Schonwalder 2002).

Empirical Evidence

What has been presented is anecdotal or circumstantial, but the analytical methodology is consistent with what transpired between 1968 and 1980. Using the World Bank's 1990 LSMS household survey data, we can also obtain an estimate of an individual informal's B^i . Recall from section two that B^i is a function of s , the expected share of antiregime public preferences. With a sample of 756 individuals located in Lima, the data show that individuals participating in the formal sector had mean net revenue of 16,169,000 intis (or \$323.00) per month, while those in the informal sector had mean net revenue of 9,960 (or \$199.20). The difference between these two points represents N , the net expected benefit from revolution. The mean revolution costs, C , were found to be a mere 676,300 intis or \$13.53. Using these figures and the model presented above we find for there to be a positive expected net benefit from successful revolution, approximately 45 percent of the population would have to be seen opposing the status quo in 1990.

Figure 3 shows the expected share of society needed for an individual informal to perceive that there will be a positive direct net benefit of revolution.

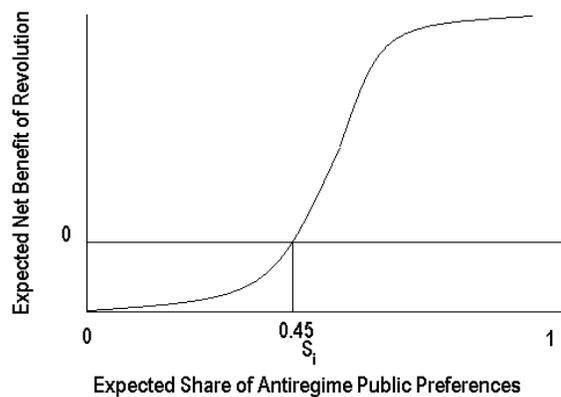


FIGURE 3: Expected Direct Net Benefit and Share of Anti-Regime Preferences

It is probable these results adequately reflect the amount of PF Peru's informals still exhibit. The 1980s, although returning to a more 'democratic' political process, were also characterized by anti-informal policies. By the beginning of this decade, de Soto's hope of a state supportive of informality was still absent. This is not surprising given the relatively high threshold of anti-regime public preferences needed to sway the expectations of informals. Despite increased violence against the state, and Fujimori's closing of the congress in April 1992, Peruvians in Lima, or at least those working informally, did not believe the probability of successful institutional change, via revolution, was very high. Fujimori's *autogolpe* (self-coup) and the resultant rise in unchecked power of the hated SIN, Fujimori's secret police, saw informals trapped between a revolutionary movement that did not espouse the values they held dear (Shining Path) and a democratically elected politician turned dictator (Fujimori). This further complicated the situation.

Not only were values espoused by the Shining Path not always congruous with those of the informals, many rural peasants also saw the revolutionary movement not as savior but enemy (Degregori 1998). Thus, initially, Fujimori's actions were seen in a positive light by the Peruvian people, at least in the public façade with nearly 80% backing the *autogolpe*, presumably because of the worries over hyperinflation, the increased guerilla activity of the rebels, and a perceived crisis of ungovernability (Levetsky 1999, 80). One critical error made by Shining Path, when it attempted to organize in the late 1980s in Lima, was in maintaining its patriarchal structure in light of the enormous impact that women had in the informal economy. By relegating women's roles to organizing neighborhoods instead of ensuring their voice in a functional manner, they denied themselves an opportunity to translate informal resentment into collective action (Cordoro 1998). It is for this reason that informals generally continued to work as they always had, disregarding when they could how the state felt about them, and tried to change institutions administratively instead of violently. As history has shown, however, if pressed too hard, informals will react violently. Ironically, while Fujimori's failure to deal decisively with the terrorist threat posed by Shining Path led precipitously to declines in his popularity as manifested by polls and the resultant MRTA hostage-taking crisis of December 1996 to April 1997 during which time the Japanese ambassador's residence was stormed caused a near doubling of his popularity when it was successfully resolved (Cameron 1998, 127-8), Fujimori's success in dealing with terrorism may have also led to his eventual ouster because the rationale behind his seizing of power would no longer hold once the threat was alleviated. Indeed, when Fujimori abruptly resigned and announced the dissolution of the SIN in September 2000, the National Intelligence Service that was Fujimori's secret police, demonstrators took to the streets as they realized that others would likely join as well.

5. CONCLUSION

Under Velasco, pressures against informals falsifying their preferences were augmented. The years immediately preceding Velasco's takeover were characterized by the desire for economic development apart from traditional oligarchic relations, which were dependent upon the *gamonal* system. As migration increased and modernization spread, both the church and the military came to oppose the state. The rejection of Balaunde's government by the Revolutionary Government of the Armed Forces did not strengthen oligarchic control of the nation, but nor did it significantly alter the institutional structure so as to foster greater economic and political participation by informals.

During the military's twelve year reign, the state was, if only rhetorically (or formally), sympathetic to informal concerns. Unfortunately, as regimes returned to violent repression, informal-state conflict became more flagrant. The seeds of increasing informal optimism, however, were sown during the military's rule, and informals in Lima began to see they could successfully deflect government attacks. The result, as we have seen, was not a glorious change in how the state confronted informality, rather a profound transformation in the way informals perceived their chances of changing or avoiding exclusionary institutions. Perhaps it was astonishing a handful of generals who historically sided with the ruling oligarchy planned a 'successful revolution', but the 'victory' would not have come without many military personnel deciding to stop falsifying their private preferences. Moreover, that which took place between informals and the state has become more evident. The impetus for informal PF became less severe as the military became more tolerant of informality, and as legal constraints continued to be irrelevant.

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On Sraffa's q -System*

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ABSTRACT:

We propose a novel interpretation of Piero Sraffa's (1960) *Standard commodity*: The solution price vector of his subsistence production system is invariant to an equivalence transformation of the constants of the problem only in the case of the Standard system.

JEL CLASSIFICATION CODES: B31, C62, E11

KEY WORDS: *Standard Commodity; tâtonnement*

1. INTRODUCTION

The opening salvo in one of the most deceptively terse assaults on received economic theory in our times is fired early in the preface of Sraffa's *Production of Commodities by Means of Commodities* (1960). "No changes in output ... are considered, so that no question arises as to the variation or constancy of returns" (Sraffa, 1960, p.v). Furthermore, the classical approach is contrasted with the "marginal" method which "requires attention to be focused on change" (Sraffa, 1960, p.v). Thereafter, Sraffa proceeds to construct input-output models in classical fashion. We present his model of "Production with Subsistence" in vector-matrix form in the next section. The literal translation is not to be found, expositors moving to the schemes of expanded reproduction of the following chapters. In a departure from Sraffa's procedure in the book, (and the general equilibrium next step anywhere), however, we do not pick a commodity as a numéraire. In addition, we traverse the second chapter with its variables and equations.

The theme of change is revisited in the opening lines of the chapter of interest, "The Standard commodity", in the form of price changes. They are price movements brought about by a change in distribution. Also, in the case of a price fluctuation, Sraffa's problem is to distinguish between a change brought about by a variation in the price of the commodity of interest and the measuring rod. Since we are concerned neither with standards of value nor distribution, our question is: How, otherwise, and if at all, might prices change? Our answer lies in the equivalence transformation of the constants of the problem. We show that the solution price vector changes *pari passu* only in the case of the Standard system. The theorem is proved in the following section. The relationship with the existing literature is surveyed in Section III. The implications for the critique of general equilibrium economics follow. A final section is a summary.

1. THE RESULTS

Sraffa's economy consists of commodities, ' a ', ' b ', ..., ' k ', each of which is produced by a separate industry. The quantity of ' a ' produced annually is A ; B the similar quantity of ' b ' and so

* Ajit Sinha was most generous with his gift of the idea

on. The quantities of 'a', 'b', ..., 'k' annually used by the industry that produces A is A_a, B_a, \dots, K_a ; and A_b, B_b, \dots, K_b the corresponding quantities used for producing B; etcetera. These numbers are known. The unknowns to be determined are p_a, p_b, \dots, p_k , the prices of the commodities 'a', 'b', ..., 'k' respectively.

$$\text{Let } A = \begin{pmatrix} A_a & A_b & \cdots & A_k \\ B_a & B_b & \cdots & B_k \\ \vdots & \vdots & \ddots & \vdots \\ K_a & K_b & \cdots & K_k \end{pmatrix} \quad p = \begin{pmatrix} p_a \\ p_b \\ \vdots \\ p_k \end{pmatrix} \quad Q = \begin{pmatrix} A & 0 & \cdots & 0 \\ 0 & B & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & K \end{pmatrix}$$

The conditions of production appear as follows, where A^T is the transpose matrix:

$$A^T p = Qp \quad (1)$$

Since the system is assumed to produce just enough to maintain itself, the following condition has to be met by the given matrices:

$$Ae = Qe \quad (2)$$

where e is a unit column vector with k elements.

Sraffa disciples, studying his unpublished work recently made available, claim that the Master did not regard the solution of his "first equations" as trivial (de Vivo, 2003; Garegnani, 2005; Kurz & Salvadori, 2005). In fact, his objective was the accomplishment of the task the classical economists could not complete in the absence of the required mathematical technology. The elaboration of a theory of value on the basis of production viewed as a circular flow could now be addressed with the tool of simultaneous equations. As early as November 1927, he notes that it is necessary to be aware of the properties of the solution set. He observes that the system admits of an infinite number of solutions all of which, however, are proportional to each other. These proportions he terms absolute values.

Our theorem then is

Proposition 1. *The absolute values of (1) and (2) are not invariant to an equivalence transformation of the coefficient matrices.*

Proof. We transform the 'old' basis into a 'new' basis, the vectors and matrices in the new basis being given by starred values. In terms of the new coordinates, then, equation (1) becomes

$$A^T * p^* = Q^* p^* \quad (3)$$

Now,

$$A^* = U^{-1}AU \text{ and } Q^* = U^{-1}QU \quad (4)$$

where U is the matrix transforming the old basis vectors into the new. Substituting this equation in (2), we get

$$UA^*U^{-1}e = UQ^*U^{-1}e \quad (5)$$

Denote $U^{-1}e$ by W . Note, as earlier, the column k -vector W is no more than the sum of the rows of U^{-1} . Now, multiply the above equation on the right by any arbitrary non-null row k -vector S . Thereby, WS , now, is a k -dimensional matrix. Denote it by V . Matrices A^* and Q^* are now equivalent. That is to say,

$$UA^*V = UQ^*V \quad (6)$$

However, the solution price vector associated with the transformed system (3) and (6) is indeterminate. Recall the arbitrary nature of the vector S .

The problem of constructing a Standard commodity is for us to find a set of k multipliers, q_1, q_2, \dots, q_k , to solve the following “ q -system” (Sraffa, 1960, p.24).

$$Aq = Qq \quad (7)$$

where the matrices A and Q are as before. This equation replaces equation (2). The corollary to our earlier result is

Proposition 2. *The solutions of the Standard system, equations (1) and (7), are invariant to an equivalence transformation of the coefficient matrices.*

Proof. The derivation of equation (3) goes through in the identical manner. In similar fashion we consider the linear operator A^* and the vector q^* in the new basis. The solution of (7) is now

$$A^*q^* = Q^*q^*$$

3. (DIS)CONNECTIONS WITH THE LITERATURE

Our reading of Sraffa diverges completely from the interpretation of his critics as well as some leading followers who propose that the Standard commodity is an expendable device.

Grounds for meeting can be found in the view that the Standard system was not constructed to validate the labour theory of value or anything in particular. Indeed, a distinction is sought between Marx’s intentions in this regard and that of Sraffa (Gilibert, 2003). Marx was concerned with the physical properties among industries which were essential for the smooth development of capitalist production. Sraffa, on the other hand, saw in Marx’s schemes of reproduction

important repercussions for the process of price determination. Continuing along this trajectory of sympathy, we end with the congruence of our result with the comment of Sraffa's literary executor that the Standard commodity is one expression of a system of coordinates in a space and serves the abstract task of clarifying the properties when changes in the coordinates are possible (Garegnani, 2000, p.58). Another account which maps, at most points, onto our discussion, except for the view that the Standard commodity is not a construct to be used for investigation, is the essay by Nisticò and Rodano (2005). According to them, the theory of prices is the "hard core" of Sraffa's analysis (Nisticò and Rodano, 2005, p.474). In a model with given quantities, prices must be the sole object of analysis. The prices of the first chapter of Sraffa's book are "necessary real costs" which are unavoidable if the economy is to be reproduced (Nisticò and Rodano, p.475). In an endorsement of the section to follow, they suggest that Sraffa's treatise strikes at the soft core of one of the foundations of the general equilibrium model, the (in)stability of the process of groping towards equilibrium.

4. "...A CRITIQUE OF ECONOMIC THEORY"

Defenders of the neoclassical canon like Hahn and Samuelson frequently protest that the economic theory against which Sraffa's contribution is a counterpoise is a straw man. A modern user of general equilibrium theory, goes the oft-repeated complaint, would find the terms and conditions of Sraffa's program incomprehensible. The paper suggests, on the other hand, that Sraffa's riposte can be given a contemporaneity and forward look that it allegedly lacks. Specifically, the charge against the general equilibrium model that endures is the instability of the tâtonnement process. Up until the present, the device of the auctioneer has been indispensable in the dynamics of the familiar model of decentralized exchange in which prices and quantities move towards market-clearing levels.

5. CONCLUSION

We proffer a 'minimally indecomposable' interpretation of Sraffa's classic. It turns out that the returns, all the same, are strictly increasing. The solution price vector in the case of a classical stationary system changes arbitrarily in response to an equivalence transformation of the givens of the problem. Only Sraffa's Standard system can deliver the required invariance. Since the 'higgling of the market' in neoclassical economics is, in general, unstable, absent the introduction of strong and unrealistic assumptions, the "critique of economic theory" can move, along these lines, beyond a "prelude". The future might lie in the extension of the device of the Standard system to capture the insights of Sraffa's book following the first chapter.

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BOOK REVIEWS

Fragile Finance - Debt, Speculation and Crisis in the Age of Global Credit

Anastasia Nesvetailova

Palgrave Macmillan pages xi+190, 2007

Every now and then we hear cries of financial crises that either do not arrive or just come and go. Anastasia Nesvetailova's new book *Fragile Finance* is one such cry which appears to be a false alarm, at least for the episodes she has covered in the book. Her apparent mentor, Hyman Minsky, gave a plausible hypothesis of financial instability in terms of continuous credit generation by financial institutions, complex credit instruments and *ponzi* financing. Nesvetailova links financial crises to the globalization of finance and the fragility of the structures of debt which is massive. According to her, deregulated credit produces financial innovation and deficit financing, and the need for progressive liquidity of financial structures makes them fragile. Whereas this analysis does not claim novelty, the examination of financial crises from time to time is worthwhile and Nesvetailova's book could not be timelier. It is to her credit that she places leverage at the center of analysis of crisis.

Any examination of financial crisis should clarify what constitutes a crisis, how a crisis manifests itself, and how financial crises spill over to the real economy. The author dedicates Chapters 2-5 to the analysis of the first and Chapters 6-8 to the second and the third is overlooked. In the first part the Keynesian, the Minskian, the Kindlebergerian and the Krugmanian hypotheses of financial crises are described without much synthesization. The author's own interpretations of fragile finance are rather limited and derive from globalization of finance and the complexity of debt structures. Such is the depth of scholarship in this book that the author cites the same source three times in the span of three pages (p34 - p36) and this source is a text book on international finance! Fragile finance is explained in terms of financial implosion which is not defined and has therefore remained as mysterious as fragile finance. On the contrary, Minsky's classic description of financial crisis was succinct and verifiable: a financial crisis involves "large-scale defaults by both financial and non-financial units, as well as sharply falling incomes and prices". Nesvetailova seems to read crisis from sharp declines in stock markets and currency exchange values without exploring how financial crises spill over to non-financial sector of the economy.

The empirical examination of financial crises in the second part of the book suffers from exaggeration. The Asian crisis of 1997, the Russian crisis of 1998 - are called crises as per the popular press of the time, but these episodes hardly meet Minsky's criteria of financial crises, namely, large-scale default and sharp declines in income and prices. The author mentions several other crises which are similar passing turmoil rather than crises in Minskian sense. Although there was significant economic contraction following stock market decline and exchange rate depreciation in these countries, the economies bounced back in a very short period of time. Besides, some economies tumbled as a contagion rather than due to their own fundamentals. This suggests the presence of systemic risks in global finance. Moreover, private sector companies in some economies left their positions un-hedged, effectively passing the cost of failure to their society. This suggests

that the risk of economic crises may be political economic. The analysis by Nesvetailova did not address such systemic risk or the political economy of finance.

Financial crises are facts of life, yet most analytical paradigms in finance cannot accommodate an analysis of financial crises. The present volume is another instance of unfulfilled expectation. There is a need for a theory of financial crisis but this volume has not advanced our understanding of what it is. Toward that end Kindleberger's panic and mania [2] and Minsky's ponzi financing [3] still remain better sources. A stunning omission in the book is a reference to the volume [1] by the National Bureau of Economic Research: *The Risk of Economic Crisis* that preceded Nesvetailova's work by 15 years! Nesvetailova's work is however timely and does well to place the level and structure of leverage as the main source of financial crisis.

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