

Heterodox Microfoundations: A Methodological Appraisal

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Abstract

This paper examines underlying methodological commitments in orthodox and heterodox approaches to micro and macro. Identifying methodological advantages and drawbacks of existing microfoundations, macrofoundations, and mesofoundations, I uphold the need for the heterodox microfoundations of macroeconomics which is centered on the casual mechanisms of an economic system. By this, we are capable of analyzing micro- and macro-reality which are recursively interrelated. In addition, the fallacy of macro-reductionism and central-reductionism can be avoided. One way of articulating the heterodox microfoundations is to utilize a circular production input-output matrix of a capitalist system combined with the price system. Such a framework is consistent with heterodox economics at the methodological and theoretical level.

Keywords: Microfoundation, Macrofoundation, Mesofoundation, Input-Output Matrix

1 Introduction

The theoretical development of Neoclassical macroeconomics has been undertaken in the process of seeking the microfoundations of macroeconomics. It was hoped that the microfoundations project would render the Neoclassical synthesis coherent and consistent. It, however, turns out to be a false hope. The micro-macro incompatibility can only be resolved by unrealistic assumptions such as the representative agent, rational expectations, the existence and stability of equilibrium, and ahistorical time. To make matters worse, the project has never obtained the relevance to the real world. Rather, it seems that it is going toward the dead end in which the economic theory wags the real world, rather than the reverse.

The present paper mainly investigates methodological commitments in orthodox and heterodox approaches to micro and macro. Such a methodological examination has three advantages. First, it reveals internal errors and pitfalls driven by *a priori* principles so that we may be able to transcend them (Lawson 2003: 159). Second, we can more clearly understand the origination, characteristics, and effects of any foundations project. Third, cross-communications or integrations between different research programs can be tested at the ontological level, and thereby emerging theories' logical and practical validity can be tested as well (Eichner 1985).

Given this position, the paper begins with the examination of methodological commitments underlying in the neoclassical microfoundations in order to reveal its shaky theoretical ground. In the following section it is argued that the Post Walrasian

macrofoundations project falls into the same fallacy as Neoclassical microfoundations have, although it adopts some realistic assumptions. By contrast contemporary heterodox approaches to the relation between micro and macro have different origins and methodological principles. Therefore it is necessary to examine three prominent origins of heterodoxy (Marx, Veblen, and Keynes) with regard to the link between micro and macro. Following the methodological arguments I argue the need for heterodox microfoundations which have not been developed within heterodox traditions. To see its technical and theoretical validity, I will examine the methodological compatibility between the input-output matrix and the heterodox microfoundations.

2 Orthodox Microfoundations and Macrofoundations

2.1 Neoclassical Microfoundations

The neoclassical (NC, hereafter) microfoundations project is merely the mechanical application of individual optimization at the aggregate level given scarce resources by assuming homogeneous agents or a representative agent. New additions to the Walrasian *tâtonnement* mechanism such as incomplete information by New Classical and the price rigidity by New Keynesians explain the short-run disequilibrium in the market mechanism. At any rate, the Walrasian mechanism is justified in the long-run. It thus gives a rationale for the neoclassical synthesis. However, the problem of axiomatic assumptions, micro-reductionism, and other associated problems are still omnipresent.

A serious problem in NC microfoundations is the assumption of representative agent. Conceptualizing agency as a passive and inert "lightning calculator of pleasures and pains" and a "self-contained globule of desire" (Veblen 1898: 389), neoclassicals are able to locate individuals at any place and time. It does not matter whether it is an individual or collective agents. Optimization applies to both micro and macro behaviors. Individual singularity, social relations, and interactions between individuals, and between agency and structure are ignored. Even the notion of society is useless. In this respect, neoclassical economic models represent an idealized *closed-system* in which perfect market exchange is a norm. The micro-macro dichotomy disappears in a logical sense, not in a practical sense.

The free transition between micro and macro via the representative agent assumption brings about another significant problem, that is, the fallacy of aggregation. When a choice theoretic micro model is taken in explaining macro events, it necessarily under-specifies the macro problem (Leontief 1983, Martel 1996: 129). Because the model treats collective agents in the same way as a rational individual, there is no room for emergent properties generated by various individual agents and historically generated social norms and institutions.

Such limitations of NC microfoundations are the natural consequence of philosophical orientation of neoclassical economics. Following methodological individualism (or micro-reductionism), neoclassical economists maintain that what solely matters in theorizing is the individual choice. Accordingly, NC theory begins with atomic agent's rational choice. Institutions or social structures are simply added as impediments

to achieving equilibrium. As such, "institutions cannot exhibit emergent properties" and "[a]ny conception of supra-individual entities transcending the scope of individual actions is a mistaken category" (Alexander and Giesen 1987: 19-20). Therefore this position justifies the exclusive priority of microfoundations. In other words, macroeconomics requires microfoundations which are based upon the well-behaved representative individual.

2.2 Post Walrasian Macrofoundations

Being aware of the practical hollowness of NC microfoundations, Post Walrasians ambitiously, if not new, propose a modified approach which is more leaning toward the reality. To do this, Post Walrasians argue that heterogeneity of individuals, conventions and institutional constraints on individual actions, bounded rationality, emergent properties, and path-dependency are to be incorporated (Colander 1996, Martel 1996). The resulting outcome is a 'complex macro model' which generates multiple equilibria, that is, "[a]lmost any result is possible, depending on where one begins" (Colander 1996: 60). Within this framework, individual choices, in the first place, are constrained by conventions and institutions existing in the society. Thus in order to analyze individual decision making process, it is necessary to have a certain understanding of institutions and conventions. Therefore Post Walrasians suggest the priority of macrofoundations over microfoundations such that the rational decision making process generating a disequilibrium outcome is sensible. Colander writes:

Post Walrasian perspective maintains that before there is any hope of undertaking meaningful micro analysis, *one must first*

determine the macro context within which that micro decision is made. It is that macro context that lets individuals choose among likely multiple equilibria and makes the choice theoretic foundation contextually relevant. In doing so, however, the macro context imposes institutional constraints on individual decision makers, and these constraints must be considered in deriving any microfoundations to macro. Thus establishing appropriate macrofoundations of micro must logically be done before one establishes any microfoundations of macro, and any micro analysis independent of a macrofoundations is irrelevant game-playing" (ibid: 61, original emphasis).

Obviously the Post Walrasian (PW, hereafter) macrofoundations project entails more realistic assumptions than NC microfoundations. Yet the PW model does not guarantee that it overcomes the fictitious Walrasian general equilibrium framework. All the more, the PW project is the mixture of neoclassical rational choice framework and some heterodox principles which contradict to each other at the ontological level.

Consider the notion of path-dependence in the PW context. It matters to the extent that an initial starting point determines one of many possible outcomes. However the true meaning of path-dependence can only be conceptualized in the historical time horizon. That is, the outcome of the today's decision has nothing to do with neither equilibrium nor disequilibrium. Although Post Walrasians maintain that a path-dependent outcome does not have to be an optimal one (Rosser 1996: 98), the (dis)equilibrium concept *per se* presumes a fixed set of choices and outcomes. Even disequilibrium can be defined only if the equilibrium position is known.

Furthermore, to justify disequilibrium or multiple equilibria approach under the path-dependent decision making process, Post

Walrasians adopt bounded rationality à la Herbert Simon.¹ Thus one of *a priori* outcomes are rationally chosen within the model. This implies that Post Walrasians presuppose the *stochastic closed-system* which is incompatible with the true path-dependency. The point is that path-dependency is indispensable aspects associated with historical time and fundamental uncertainty which cannot be formalized with the context of rationality, whether it is bounded or not (Dunn 2001: Ch.4). As a result, a PW complex macro model does not go beyond neoclassical multiple equilibria models.

Indeed, the PW macrofoundations project is a logical advancement of NC microfoundations to the extent that it restores the compatibility between rational choice and unintended macro-outcomes. The PW macrofoundations, however, does not provide us with a way out of the NC microfoundations, notwithstanding that Post Walrasians intended otherwise. Rather, the PW project justifies the rational choice *cum* equilibrium approach in a more complex context, as game theoretic models do. Therefore the addition of realistic features within the neoclassical framework presents itself futile. The problem of micro-macro inconsistency lies in the whole neoclassical framework which begins with limited methodology (the closed-system ontology, methodological individualism, reductionism, and formalism). Without escaping from it, PW economic theories are on the shaky foundations.

¹Simon defines bounded rationality as "rational choice that takes into account the cognitive limitations of the decision-maker – limitations of both knowledge and computational capacity" (1987: 266).

3 Heterodox Approaches to Micro and Macro

Contemporary heterodox economics differs from orthodox economics in various respects. One apparent difference is its methodological orientation which traces back to Marx, Veblen, and Keynes. Before going on the contemporary heterodox approaches, thus, I will sketch the original ideas and approaches of those precursors.

3.1 Legacy of Marx, Veblen, and Keynes

3.1.1 Marx's political economy

Given the fact that the distinction between micro and macro rests on the unit of analysis, it is not totally wrong to say that Marx's political economy is basically *macro* or *structural* analyses of the capitalist system. The labor theory of value, the mode of production, the laws of motion, and the internal contradiction are all macro issues, so to speak. According to Marx, individuals are the "personification of the economic relations", the "embodiments of particular class relations and class-interests", and "the ensemble of social relations" (Marx 1990[1867]: 179, 85, 10, Marx and Engels 1962[1845]). An individual is the representative of her class and thereby the micro-macro issues are integrated at the class level. The coordination among individuals can thus be analyzed at the class level (Dow 1985: 355). In this respect, one may say that Marx's political economy is anti-individual and anti-interactional (Alexander 1987: 292).

Indeed, Marx's political economy is by no means individualistic in the positivist sense. Yet, it does not mean that individual

motivation, consciousness, interpretation, characteristics, and actions are strictly passive, but that they are constrained by social structures in one way or another. The direction of influences goes either way. That is, as Marx's historical materialism manifests, "men are product of other circumstances...circumstances are changed by men" (Marx and Engels 1962[1845]). For example, alienation is, on the one hand, an individual experience in a concrete circumstance and is, on the other hand, a 'translation' of supra-individual conditions (Alexander and Giesen 1987: 6). That is to say, Marx's alienation is both micro (agency) and macro (structure) linked through class relations and material conditions. As a matter of fact, Marx's class consciousness is based upon specific micro data like industrial conditions in England (Dow 1985: 353).

Consequently, I argue that understanding Marx's political economy in terms of the positivistic micro-macro dichotomy is misguided and irrelevant. The naive aggregation of individuals is not applicable and the fallacy of composition (the incompatibility between micro and macro) is not a problem. Imperative to Marx's methods, agency and structure should be conceived in a dialectical, social, and historical manner. It is further arguable that contemporary heterodox economics centered exclusively on macro and structural analyses without having a relevant consideration of micro-reality is unstable and incoherent.

3.1.2 Veblen's evolutionary institutionalism

The essential characteristics which distinguishes Veblen's approach from that of other Classical political economists (including Marx) is evolutionary principles; non-teleologic determinacy, emergentism (anti-reductionism), social embeddedness

(population perspective), cumulative causation, path-dependent changes, and evolutionary explanations (Veblen 1898, Hodgson 2004: 95-97, 246-247). Among other things, actions and environments are bridged through institutions which are conceived as emergent social structures co-existing with habits of thoughts in the society. Thus institutions are irreducible to individual instincts, sentiments, and choices. Moreover, institutions and individuals are interactive over time in a cumulative manner.

Veblen's approach aims at the delineation of the evolutionary process (origination, variation, retention, and selection) of the society as whole. It contains instincts of human conduct, the proclivity of existing institutions and structures, deliberate actions changing institutions, and institutional constraints on individual decision-making. In this regard, evolutionary-institutional economics is neither macro nor micro analysis. The canonical micro-macro dichotomy has no ground here.

Consider the business enterprise. In his book *Theory of Business Enterprise*, Veblen begins with the machine process which originates business enterprises and governs "scope and method of modern industry" (Veblen 1904: 1). The business enterprise, in turn, is described as the directing force over other social forces to the extent that the enterprise not only results in economic fluctuations and expansions, but also forms the institutional and cultural environment of the whole society. Meanwhile, Veblen incorporates behavioral, organizational, and managerial accounts (micro-relations) as well as the ensuing dynamics of business enterprise (macro-outcomes) with regard to other social structures—credit, legal, and political system, not to mention its cultural incidence.

Consequently, we can find one important implication regarding the relation between micro and macro from the Veblen's approach. That is, emergent properties linking micro and macro brings about the significance of rules, knowledge, and institution in the context social evolution (elaboration and transformation).

3.1.3 Keynes's macro and micro

It is conventionally assumed that Keynes is a macroeconomist who dichotomizes the micro (theory of individual firm and distribution) and the macro (theory of output and employment as a whole) instead of following the Classical dichotomy between monetary and real analysis (Keynes 1936: 293). This, however, is a truism when it only comes to his later works as of *A Treatise on Money* (1930). To understand Keynes's overall position on micro and macro, we need to consider his earlier writings as well.

In Keynes's macro-system, underemployment is a norm rather than an exception due to the lack of effective demand. The economy as whole is coordinated not by prices but by aggregate demand and aggregate supply. In this macro-context in which true uncertainty, historical time, and money play a significant role, the micro-aspects of the economy are not his primary analytical concern. Keynes simply assumes perfect competition and flexible prices in order to refute (neo)classical macro-results. However, it should be noted that Keynes was well aware of the fallacy of composition.² To avoid this

²In the preface to the French edition of *the General Theory*, Keynes puts it "I have called my theory a *general* theory. I mean by that I am chiefly concerned with the behaviour of the economic system as a whole...And I argue that important mistakes have been made through extending to the system as a whole conclusions which have been correctly arrived at in respect of a part of it taken in isolation (Keynes 1973: xxxii, original emphasis).

fallacy, Keynes analytically separate micro and macro, and paid exclusive attention to macro-issues in his *General Theory*.

Looking further back to Keynes's earlier writings circa 1920's (especially, "Am I a Liberal" (1925) and "The End of Laissez-faire" (1926)), we can find Keynes's microeconomic ideas. Among other things, by contrast to the putative neoclassical equilibrium theory, Keynes absorbed realistic facts in his arguments such as "the organic structure of the economy, economy of scale, the existence of time, ignorance, fundamental uncertainty, and the impact of monopoly elements" which do not lead to the ahistorical state of equilibrium (Crotty 1999: 559-560). Moreover, he had a clear view on competition and industrial policy such as the creation of trade associations in the competitive environment and, at the same time, regulating industries for the public purpose. Such microeconomic thoughts paved the way for macro policies like the socialization of investment (ibid: 569, 571).

In sum, Keynes's economics presents an analytical dualism between micro and macro which has not reached at a complete framework. This is mainly because of the underdevelopment of the micro-system resides in the Marshallian equilibrium framework (Targetti and Kinda-Hass 1982: 257, King 2002: 238, Harcourt 2006). This fact, on the one hand, lends itself to the neoclassical synthesis. On the other hand, the majority of Post Keynesians who oppose to the neoclassical synthesis are following Keynes's macro-approach without having a substantive body of microeconomics.

3.2 Contemporary heterodox approaches

Up until the present section we have seen that the origins of contemporary heterodox

traditions³ have little to do with the positivistic micro-macro dichotomy. Unlike this, seeing the reality through only micro- or macro-lens is a limited way. At its best this gives us a partial and superficial understanding of the reality. Therefore I contend that a more comprehensive way is linking micro and macro or actions and structures with an emphasis on either of them—Marx's emphasis on the laws of motion of the capitalist system, Veblen's emphasis on evolutionary process in the industrial society, and Keynes's emphasis on the determination of output and employment in the monetary production economy.

Complicated intellectual environment within heterodoxy can be looked at from the approach to micro and macro. In the light of *linking* micro and macro, contemporary heterodox economists have followed four pathways paved by Marx, Veblen, and Keynes. One is to find the macrofoundations of microeconomics inspired largely by Marx and/or Keynes. This path has been sought by many Post Keynesians (Weintraub 1979, Tarshis 1980, Crotty 1980, Harcourt 2006, Smithin 2004, King 2006). Their underlying conviction is that what the most relevant question in doing economics is to find overall macro structures constraining micro actions.

The second path is to synthesize micro and macro with starting from the analysis of pricing, investment, and distribution to the analysis of gross profits, effective demand, and macrodynamics. This approach is taken by Kaleckian (and Robinsonian) economists (Eichner 1976, 1987, Reynolds 1987, 1996, King 1996, Krisler 1996, 1997, Arestis 1996).

³In the present paper, I am mainly dealing with Post Keynesian and evolutionary-institutional economics. Austrians, Marxians, Feminists, and other heterodox schools are not considered here.

Thirdly, the notion of synthesizing micro and macro can also be found in Sraffian scholarship. Rejecting neoclassical theory of value and distribution, Sraffians strongly eschew the dichotomized approach to micro and macro. This position is attributed to Classical political economy. Following the Ricardian and Marxian tradition, Sraffians emphasize the persistent forces underlying the surplus production economic system in the long-period (the normal state of the system). Theories of value, distribution, and output are demonstrated in a consistent manner in order to explain the long-period position of the system (Eatwell and Milgate 1983: 6, Eatwell 1998: 599). The micro-macro incompatibility thus is not a problem in the Sraffian framework (Eatwell and Milgate 1983, Bortis 1997, 2006).⁴

The fourth path is to conceptualize the middle ground between micro and macro. That is the meso-domain which is composed of rules, knowledge, and institutions, and which not only links micro and macro, but also initiates and drives micro- and macro-changes. This path has been developing by some evolutionary-institutionalist economists (Dopfer, Foster, Potts 2004, Dopfer and Potts 2004, Brett and Mehier 2006).

In the following subsections I will examine each approach critically. Its methodological and theoretical characteristics are evaluated from a realistic and microscopic perspective. And then I will

⁴ One commonality between the Kaleckian and Sraffian paths, although they have different (sometimes incompatible) standpoints (Steedman 1992, Sawyer 1992, Krisler 1992), is that an economic system and its dynamics is to be seen as a totality where micro and macro elements are interactive in a theoretical and practical sense (Eatwell and Milgate 1983: 15, Krisler 1996, 1997). Such a commonality implies the possibility of constructing Post Keynesian economics as a coherent body of research program.

argue the need for heterodox microfoundations within the broad heterodox tradition.

3.3 Post Keynesian Economics

3.3.1 Post Keynesian macrofoundations

It is fair to say that Post Keynesian economics is macro-oriented. In *A Guide to Post-Keynesian Economics* (1979) and *A New Guide to Post Keynesian Economics* (2001), for instance, only few chapters are devoted to microeconomic issues. A more baffling scene is that at the 2006 International Post Keynesian Conference held in Kansas City, only one session⁵ out of 32 regular sessions is assigned to a micro issue. Most of sessions are filled with macro issues such as money, inflation, unemployment, financial instability, development, and so forth. Not to mention, we can hardly find micro-oriented articles in *Journal of Post Keynesian Economics*.

Evidently, the dominance of macro analysis in Post Keynesianism is driven by the strong intellectual legacy of Keynes (in particular, his *General Theory*). Thus, it is not surprising that some macro-oriented Post Keynesians assert ‘macrofoundations of microeconomics’. According to the macrofoundations argument, it is the structure of capitalist economy that generates unemployment and instability, and that confines individual behaviors embedded in the system. In other words, *homo economicus* is a consequence of the evolution of the capitalist system, not the other way around (Smithin 2004: 61). This is Marx’s question as well, although theoretical stress varies (Crotty 1980: 23, Harcourt 2006).⁶

⁵ The theme of this session is “Keynesian Micro, Cost Curves, Mark-ups, and Technical Progress”.

⁶ Marx’s theoretical concern is to “determine the size of the potential surplus created for the realization of

Another reason for the greater emphasis on macroeconomics in Post Keynesianism is the built-in antagonism against the dogmatic NC microfoundations—its reductionism, the fallacy of composition, strict formalism, and the status quo bias (Smithin 2004: 58). In rejecting *neoclassical* microfoundations, Post Keynesians have thrown *microfoundations* away as well with either assuming micro behavioral principles or assuming away the specificity of actions and relations (e.g., the degree of monopoly, pricing and investment decisions). Post Keynesians in turn legitimize *micro-reality* via their macrofoundations.

Consequently, one serious problem for PK macrofoundations is the lack of micro-reality which should be analyzed without aggregation. This claim holds true as long as macrofoundations begins with the aggregate of the reality, if not mere aggregation in the neoclassical sense. As a matter of fact, macrofoundations are likely to average out the time- and space-contingent actions. As a result, contemporary PK economics does not have a significant body of Post Keynesian microeconomics. Rather, it seems that they believe that macroeconomics itself is self-sustaining (King 2006).

Another arguable point is the inconsistency between macrofoundations and open-system ontology (or non-ergodicity). The latter means that social systems are ever-evolving over time owing to the recursive interaction between agency and structures. Based upon such social ontology, according to Post Keynesian economists (including Keynes himself),

profits and for the future accumulation", while Keynes's and Kalecki's concern is "the combination of the theory of investment and of the distribution of income determined by the expanded version of the theory of effective demand decides how much of the potential surplus if realized in actual profits and accumulation" (Harcourt 2006).

fundamental methodological features—historical time, fundamental uncertainty, path-dependence, and deliberate human actions—come into place and they are indispensable for economic theorization (Keynes 1971: 289, Davidson 1982-3, Lawson 2003: 171-173, Dunn 2004: 40, Dow 2005: 387). In this light, the significance of 'real and crucial choices' in the non-ergodic world cannot be disregarded (Davidson 1982-3, 1988, 1996). It, however, does not seem that PK macrofoundations pertain to the open-system ontology. This is so because the PK macrofoundations project *closes* the system by assuming micro behavioral principles or assuming away the specificity of actions and relations. As a matter of fact, it is human actions that render the system open. Structures do not act by themselves, although human actions are confined by structures.

Let me make the argument clearer. I do not object to the importance of structures, nor macro-analysis *per se*. But it would be more appropriate to ask following questions in constructing a theory: Who makes structures? How are the changes in structures and the reproduction of the system happening over time? Are development, the accumulation of capital, the increasing inequality and instability self-sustaining? How can these processes be theorized without having a concrete understanding of individual (or collective) actions? Given these questions and the current state of Post Keynesian economics, I contend that *it would be more fruitful if we direct economic analysis from structures to causal mechanisms*. This is because while the former does not include human agency, the latter contains not only structural factors but also deliberate actions and social relations which render the structure open and evolving (Lee 2002: 791). Further

arguments on this issue shall be presented in detail later.

3.3.2 Kaleckian microfoundations

In pursuing the practical explanations of income distribution, output determination, accumulation, and dynamics, it is imperative for Kalecki to integrate micro and macro. Having been aware of the fallacy of composition, Kalecki realized that micro analysis cannot be directly applied to macro analysis.⁷ To do so, Kalecki begins with the degree of monopoly which regulates (not determines) the pricing and investment mechanisms at the individual enterprise and industrial level in which capitalist's profits and worker's wages are determined based upon the relative power relation between capitalists and workers.

At the aggregate level, capitalists' investment and consumptions decisions generate gross profits via the aggregate mark-up, rather than the reverse (Kalecki 1954: 45-46, Arestis 1996: 12, Krisler 1997). Yet, workers' wage income is the residual in the sense that gross outputs and distribution are determined by capitalist's willingness to set the profit mark-up. Thus, it is clear in Kalecki's approach that micro analysis and macro outcomes located in a particular industrial structure and power relation have interactive characteristics. In other words, following the Kalecki's approach, the micro-macro dichotomy is irrelevant. In fact, it is not exactly the matter of *foundations*, but the matter of the *interactions* between micro and macro with having different implications at each level

⁷ In this respect Keynes, on the one hand, merely focused on macro aspects of the economy. Kalecki, on the other hand, attempted to link micro and macro. Kregel (1976) describes Keynes's method that "one may simply look at the actual world in a number of stages with different orderings of that actual world, as to analyse particular effects within it" (222).

(Krisler 1996, King 2002: 195). In this line of reasoning, "it is possible to construct a consistent approach to economic whereby market structure and aspects of the institutional organization of the economy enter explicitly into—and are a crucial part of—macroeconomics" (Reynolds 1987: 10).

Apart from such a methodological strength, some theoretical and technical deficiencies in the Kaleckian analysis have been presented and discussed. Steedman (1992), for example, raises the questions for Kaleckians regarding the partial analysis (one industry at a time), the vertical integration of industries without considering inter-industry transactions of intermediate goods, the absence of joint production, and the unclear conception of time in dynamic analysis. To make complete micro-macro synthesis these issues are to be resolved in one way or another.

3.3.3 Sraffian structural approach

Unlike Kaleckians, Sraffa and Sraffians are more oriented in the structural analysis of the system in the line of Classical political economy. Sraffa, in particular, relies on "*observable, measurable quantities alone, to the exclusion of all 'subjectivist' concepts.* Thus no reductionism is implied" (Marion 2005: 388, original italics). As such, neoclassical atomism and methodological individualism are avoided as well. Following Sraffa, Sraffians tend to theorize the reality in a way that isolating "the more persistent and systemic forces operating in the real world by abstracting from transitory, short lived phenomena" (Magnani 1983: 249).

Such a structural approach to economy lends itself to the long-period and multi-sector analysis in the context of the surplus production economy in which the price system and profits are determined at the same time given the amount of output. That

is to say, the theory of value, distribution, and output are constructed in a comprehensive manner. The micro-macro dichotomy, as a result, is not an issue at all (Eatwell and Milgate 1983: 15).

However the emphasis on permanent structural forces in conjunction with the long-period equilibrium position leads to the neglect of the role of deliberate actions and diverse institutional settings. For example, a small change in prices determined by business enterprises at a point in historical time disrupts a whole convergence process to the *a priori* long-period position. The logic of the motion of the capitalist system which Sraffians are concerned, therefore, does not have the correspondence to the real world (Lee 1996: 97-98). If we take historical time rather than logical time, the Sraffian equilibrium position, if not neoclassical-type equilibrium, or even the tendency toward an equilibrium cannot be justified (Henry 1984-5: 222).

3.4 Evolutionary Mesofoundations

From the evolutionary-institutional perspective, economics is the inquiry into the cumulative socio-economic changes. The changes, unlike hard sciences and hedonistic-deductivist neoclassical economics, are the result of the interaction between human agency and environment. The relationship between the two is path-dependent and cumulative causation that cannot be reduced one to the other (Veblen 1898).

The evolutionary framework, as such, provides a synthetic approach to agency and structure, or micro and macro. In this light, contemporary evolutionary economists mainly inspired by Schumpeter and Veblen have been developing a noble conception: the meso-domain. Meso is neither micro nor

macro. It rather is the link between micro and macro. Its components are ideas, rules, knowledge, habits (institutions, in Veblen's terminology) (Dopfer, Foster, and Potts 2004, Dopfer and Potts 2004, Brette and Mehier 2005).

In terms of meso, the socio-economic evolution is the process of origination, diffusion, and retention of the meso-trajectory. That is to say, a new knowledge created by an individual spread over others. Following the selection and rejection process, a 'ceremonially adequate' knowledge retained and shared as a new institution. The adoption of a new institution (a new habit of thought) generates innovation, elaboration, refinement, or transformation of the system with a varying degree (Dopfer, Foster, and Potts 2004, Brette and Mehier 2005).

Such a peculiar conceptualization of the unit of analysis is consonant with Veblen's evolutionary framework to the only extent that cumulative changes are explained by way of the changes in agency (more specifically, changes in one's insights and valuations, and hence habits of thought) (Veblen 1898: 387-8). For instance, Veblen's account of the dynamics of business enterprise and its social, economic, and cultural consequences can be looked at from the meso perspective (see, page 6). In a similar vein, Hodgson and Knudsen (2004) conceptualize the business enterprise as an 'interactor' between individuals and institutions. Thus the evolution process is occurring at multiple levels, that is, both micro and macro levels. While the meso-domain is not conceptualized, Hodgson and Knudsen (2004) link the micro actions and macro outcomes of the enterprise through habits and routines. The point is that, as I already argued before, the micro-macro dichotomy disappears in the evolutionary

framework, whether the meso-domain is conceptualized or not.

The evolutionary meso-project deserves credits since it attempts to resolve the problem of the micro-macro dichotomy and reductionism prevailing in economics. To be successful, however, it should be presumed that knowing is tantamount to doing. Then the growth of knowledge can be fully transformed into the evolution of the system, as Dopfer *et al.* (2004: 266) maintain. Yet, knowing is not equivalent to doing, although the former facilitates the latter. Even an action (doing) generates unintended consequences which cannot be known in the first place. Furthermore, the notion of meso implicitly postulates that the being (structure) is equal to the knowledge of it. That is to say, the structure is reduced to the memory trace, that is, central-reductionism. Then it is hard to differentiate between the structure itself from the interpretation of it. Consequently, it is hard to theorize the system as a whole in which agents and structures are not only coexist independently, but also constrain and facilitate each other over time. One way to overcome these problems is, as Veblen suggests, "[e]conomic *action* must be subject matter of the science if the science is to fall into the line as an evolutionary science" (Veblen 1898: 388, italics added).

4 Heterodox Microfoundations

4.1 Realism and microfoundations

Heterodox approaches described above reject the dominant NC microfoundations project and propose alternative ways of looking at how the economy works and evolves. However, the current state of heterodox economics is, I would argue, not totally free from macro-reductionism and

central-reductionism. Both Post Keynesian macrofoundationalists and Sraffians do not pay much attention to the micro-reality. Consequently, the fallacy of aggregation (macro-reductionism) remains unsolved. All the more, the open-system ontology taken by most Post Keynesians is incompatible with their macrofoundations. The Sraffian structural approach surmounts micro-reductionism but sacrifices deliberate actions and time- and space-specific institutional environments. Evolutionary mesofoundations, on the other hand, falls into the fallacy of central-reductionism (or central-conflation) in the sense that the supraindividual beings are reduced to the knowledge of it by assuming that they are two sides of the same thing. By this, unintended consequences of actions and unacknowledged structures cannot be conceptualized and analyzed (Ehrbar 1998, Archer 1995: Chs. 3 and 4).

Then do we, heterodox economists, have no way out of such fallacies? I would argue that realism that is partially built-in to heterodox traditions (i.e. Marx, Veblen, and Keynes) and that has been developing by critical realists is one way out.

One of essential characteristics which distances heterodoxy from orthodoxy is realist orientation. In all, Marx's historical materialism (Fine and Saad-Filho 2004: 5-8, Ehrbar 1998), Veblen's evolutionary institutionalism (Veblen 1898, Hodgson 2004: 179), and Keynes's non-ergodic economics (Lawson 2003) involve a sort of realism. That is to say, the realist orientation drives them to discover underlying causal mechanisms in the capitalist system (i.e. Marx's laws of motion, Veblen's evolutionary explanation of socio-economic change, Keynes's principle of effective demand) beyond superficial and quantitative events. Accordingly, the relation between micro (agency, actions, and relations) and

macro (structures, environment, and society as whole) is *analytically* separated but *practically* integrated. Moreover, the former is irreducible to the other, and *vice versa*, thereby reductionism, methodological individualism, and methodological collectivism are rejected.

Quite consistent with such realist orientation embedded in heterodox traditions, critical realism manifests that a society is an open-system which consists of multiple structures, culture, and agency. Those constituents are intertwined at the various social strata and hence historically generate emergent properties. These propositions lead us to the claim that it is imperative to examine each entity focusing on the interplay between them. By doing so, we would have a coherent and consistent body of economic theory.

According to such a realist perspective, for example, the business enterprise is located in macro environments confronted by micro social relations, while the macro structures of the system are either reproduced or transformed since emergent properties arise from the interactions of individual enterprises. Thus, in order to understand the roles of business enterprise in the capitalist system, it is necessary to capture not only its strategic activities (e.g. pricing, investment, and financing) conditioned by industrial structures, but also its outcomes (e.g. profits, savings, wage and profit rates, outputs, and effective demand) generated by such activities. In the meantime, we can also take into account emergent properties like joint production, the price coordination facilitated by trade associations and cartels which are not explicit in aggregate variables. Therefore, if we pay attention to the interplay between micro and macro, a theoretical argument is not merely about actions and structures, but also causal mechanisms which may or may

not result in intended aggregate outcomes. In fact, the realization of outcomes depends upon particular socio-economic conditions. Therefore, the theorization of the enterprise in this way would provide us with a substantive and realistic account of the enterprise itself and the economy as a whole. By the same token, we are capable of developing other microeconomic issues such as wage determination, technical change and innovation, market governance and regulation, industrial policy, and environment issues which have virtually been neglected by heterodox economics (Lee 1994: 304-3, Lee 2005: 26).

As a consequence, we can find some advantages of having the heterodox (HT) microfoundations delineated so far. First of all, the HT microfoundations would lend itself to the development of heterodox microeconomics as well as the elaboration of heterodox macroeconomics in a more realistic (micro-macro synthetic) fashion. Second, it allows us to avoid the fallacy of aggregation and central-reductionism. Third, it is consistent with Marx's, Veblen's, and Keynes's approaches, let alone Kaleckian microfoundations. Finally, the short-period analysis à la Keynes(ian) and Kalecki(an) and the Sraffian long-period approach may be integrated into a general Post Keynesian research program by means of the principle of effective demand (Eichner 1985, 1987, Lee 2005: 36).

At this stage, readers may question the technical and empirical validity of the realist microfoundations. I will elaborate this point in the following section.

4.2 The circular production input-output matrix and microfoundations

The methodological examination of heterodox economics has led to the claim

that heterodox economics needs its own microfoundations of macroeconomics. Such a HT microfoundations is realistic in the sense that it is based upon the open-system ontology which further implies historical time, uncertainty, path-dependency, non-equilibrium, emergent properties, and non-(dis)aggregation. Moreover, the HT microfoundations captures micro-reality of overall economic process (i.e. social provisioning process) and structures.

One way to articulate the HT microfoundations is utilizing a *circular production input-output matrix* of a capitalist economy combined with the price system, which appears in Sraffa (1960), Eichner (1987), and Lee (1998, 2007).

The input-output matrix (IOM, hereafter) originally developed by Wassily Leontief explicitly depicts the inter-industrial flows of intermediate goods, the generation of final demand, surplus (wage income and profits), and total outputs in value terms. In its nature, the indecomposable IOM represents the *circular production economy* in which all inputs are produced (or "production of commodity by means of commodity", in Sraffa's terminology), the *surplus production economy* in which the demand for final outputs (which is equal to the value of surplus) drives the whole system, and the *monetary production economy* in which the access to the money capital is essential for actors to engage in the social provisioning process.

The IOM, however, does not tell us how investments, prices, wages, and profits are actually and causally determined. As a matter of course, the IOM itself is not the *causal mechanism* but the *structure* of the economy which portrays the real world. For agency makes the system open, the IOM is not the open-system *per se*. To have the open-system of an economy, therefore, those

determination mechanisms carried out by actors must be incorporated. In this respect, as I argued earlier, the focal point of economic analysis should be causal mechanisms rather than structures.

When the IOM is combined with causal mechanisms, we are able to analyze how output, employment, distribution, and investment and prices are determined in the real world. For example, once business enterprise's investment mechanism is identified, the demand for final goods and services (effective demand) shown in the IOM can be explained. That is, it becomes clear that investment regulates the amount of total outputs and overall employment via the multiplier effect. This is the thrust of Keynes-Kalecki theory of effective demand.

Furthermore, when pricing mechanisms are identified, we can explain why prices do not adjust to the variation in actual production and demand. As is well documented by some Post Keynesians, prices are not only determined separately from the production process, but also administered by the business enterprise such that prices stay constant for a significant period of market transactions for price-setter's (capitalist's) own sake (Coutts, Godley and Nordhaus 1978, Sawyer 1983, Lee 1998, 2007)

Another implication is that causal mechanisms embody surrounding social relations and structures. For example, the investment mechanism reflects the social relation between actors (capitalists, workers, and the state) as well as a concrete industrial structure by means of pricing mechanisms. That is, the enterprise sets product prices via profit mark-ups over production costs so as to finance investment aiming at the reproduction of enterprise itself in the long-run. In turn, the determination of profit mark-ups depends upon the degree of monopoly and conventions in a particular

industry (Kalecki 1971: Ch.5, Eichner 1976: Ch.3, Lee 1998: Part III, Lee 2007).

In sum, the IOM illustrates irreducible and indecomposable micro- and macro-reality. Based upon the IOM, thus, the HT microfoundations is viable. All the more, as is hinted above, the IOM is compatible with the principle of effective demand, the mark-up pricing, the administered price thesis, the Classical-Sraffian surplus approach, and the Keynes's monetary production economy. In addition, the IOM is the picture of an open-system located in historical time when it is coupled with human actions and causal mechanisms. In this regard, following the Post Keynesian tradition, Alfred Eichner (1987) had developed macrodynamics which is grounded in the IOM in order to establish the microfoundations of Post Keynesian macroeconomics. And Lee (2007) has developed a micro-macro model of the monetary production economy based upon the IOM framework such that the model captures the essential features of the social provisioning process which is emerging from the interaction between actions (of workers, enterprises, and the state) and the economic structure.

5 Conclusion

Reviewing orthodox and heterodox approaches to the relation between micro and macro, I have mainly discussed following methodological arguments. First, orthodox microfoundations and macrofoundations projects are trapped into the methodological fallacies which render the orthodox economic theories unrealistic and incoherent. Second, the origins of contemporary heterodox economics contains the comprehensive and realistic approaches which cannot be counted as either microeconomics or macroeconomics. Third, within Post Keynesian economics, the macrofoundations project is a limited

approach in the sense that it does not take into account micro-reality which cannot be aggregated or disaggregated. Moreover, its open-system ontology is not compatible with macrofoundations. Kaleckian and Sraffian approaches present a micro-macro synthetic framework which needs to be elaborated in a realistic manner. Fourth, the evolutionary mesofoundations is a noble conceptualization but there emerges the fallacy of central-reductionism due to the extravagant emphasis on knowledge.

Given those methodological advantages and drawbacks, I argued the need for the heterodox microfoundations of macroeconomics which is centered on the casual mechanisms of economic system. By this, we are capable of analyzing micro- and macro-reality which are recursively interrelated. In addition, the fallacy of macro-reductionism and central-reductionism can be avoided. One way of articulating the heterodox microfoundations is to utilize a circular production input-output matrix of a capitalist system combined with the price system. Such a framework is consistent with heterodox economics at the methodological and theoretical level.

Further articulation of the heterodox microfoundations remains ahead. Eichner (1987) and Lee (2007) shed light on the possibility and validity of the heterodox microfoundations in a constructive way.

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