# The Contributions of Two Eminent Japanese Scholars on the Development of Economic Theories: Michio Morishima and Takashi Negishi

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# Michio Morishima and Takashi Negishi[*]

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Abstract:

There can be no doubt that Michio Morishima and Takashi Negishi are two of the most important historians of economic thought of the recent past. Both authors contributed numerous papers and books to the subject, dealing with the works of major economists from the very inception of systematic economic thought at the time of the classical economists up until modern times. And both authors combined a vivid interest in modern economic theory with an interest in what past masters had to say.

The paper assesses and compares the motivations of the two authors to engage in the history of economic theories, their similar, but different approaches to do historical research, and their achievements in this regard. Given the remarkable amount of work each one of them accomplished, the paper has to focus attention on a subset of the themes the two authors dealt with. The emphasis will be on (i) their treatment of the classical theories of value, distribution and capital accumulation, especially those of Adam Smith and David Ricardo, (ii) their discussion of the contributions of Karl Marx and some Marxists, (iii) their interpretation of some early and mature marginalist economists, especially Léon Walras, Eugen von Böhm-Bawerk and Knut Wicksell, and (iv) their views about the achievements of John Maynard Keynes. Given the intrinsic complexity of each of these themes, it goes without saying that the paper is bound to proceed largely in terms of synthetic statements.

## 1. Introduction

This paper scrutinises and compares the contributions of two eminent and internationally renown Japanese scholars to the history of economic thought, the late Michio Morishima and Takashi Negishi. Both are leading theorists, who, however, saw their own analytical work as firmly embedded in the flow of economic ideas during the past three centuries since the inception of systematic economic thought. They learned from past authors, benefitted from combining some of their ideas in order to create something new and rejected the view that the history of economic thought is a grave containing the dead ideas of dead people. They rather saw it as a treasure trove, rich with ideas and concepts that still have to be explored and

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developed and brought to fruition by cross-breeding them with other ideas and concepts.[1] The two also referred to each other's works and commented on the ideas contained therein. They even involved each other in debate and controversy on a number of issues.

Michio Morishima is especially known for his innovative work on the multi-sectoral theory of economic growth and income distribution, generalising John von Neumann's model (1945) in order to cover a number of phenomena not dealt with in its original formulation. These include, inter alia, a discussion of different savings propensities out of wages and profits, different forms of technical progress, the turnpike problem, and the role of money, credit and interest in the growth process (see Morishima, 1964, 1969, 1992). Morishima is concerned with developing 'a new formulation of general equilibrium', thus the subtitle of one of his books (Morishima, 1992), or, more precisely, an alternative formulation to the general equilibrium theory in the tradition of Arrow and Debreu. The new formulation is supposed to offer 'a more satisfactory model of general equilibrium' (1992, p. 2) that is not tied to Say's law and therefore may incorporate important ideas of Marx, Walras, Keynes and Schumpeter, in particular the problem of unemployment. Takashi Negishi is especially known for his innovative contributions to general equilibrium theory in the tradition of Arrow and Debreu. Among other things, he provided an alternative proof of the existence of a competitive general equilibrium by searching for a Pareto-optimal allocation of resources at which the budget constraints of all the consumers are satisfied at efficiency prices. The proof was first published in *Metroeconomica* (Negishi, 1960), a journal I have the privilege of editing together with Neri Salvadori since a few years. The method of the proof has since then been used especially in numerical computations of general equilibria.

In this paper special attention will be paid to the two authors' studies of the works of some of the most important economists ever, in particular Adam Smith, David Ricardo, Karl Marx, Léon Walras, Eugen von Böhm-Bawerk, Knut Wicksell and John Maynard Keynes. While Morishima's contributions are mostly in the form of books devoted to the works of major authors (see especially Morishima, 1973, 1977, 1989), Negishi's are mostly in the form of short articles that are conveniently collected in three volumes (Negishi, 1993d, 1994, 2000; but see also Negishi, 1989). How did the two scholars interpret the works of leading economists, which of their ideas did they find convincing and which not?

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[1]     The combinatoric metaphor as an abstract description of the process of how new knowledge is generated by reconfiguring and recombining old pieces of knowledge can be traced far back in the history of natural philosophy. It was used, amongst others, by Adam Smith and Joseph Alois Schumpeter; see, for example, Kurz (2006, 2008).

## 2. The Classical economists

Both Morishima and Negishi studied carefully the classical authors. Morishima's main interest appears to have been David Ricardo's *magnum opus*, the *Principles*, and the contributions of those who developed Ricardo's ideas, especially Piero Sraffa, Nicholas Kaldor (1955-56) and Luigi Pasinetti (1960). In addition to Ricardo, Negishi focused on Adam Smith and especially his 'magnificent dynamics', that is, Smith view of the process of capital accumulation, population growth and the growth of labour productivity entailed by a widening and deepening of the division of labour. Here we deal first and foremost with the two authors' disquisitions on Ricardo.

In the preface to his book *Ricardo's Economics. A General Equilibrium Theory of Distribution and Growth*, Morishima states that 'this volume is not primarily a book on history of economic analysis but a reappraisal of past great economists from the viewpoint of contemporary economic theory' (1989, p. vii). Together with *Marx's Economics* (1973) and *Walras's Economics* (1977), on which more below, it forms a trilogy. In terms of the conventional (but problematic) distinction between historical and rational reconstructions, all three works mentioned belong predominantly to the second class.

*Value and distribution*

The characteristic feature of Morishima's respective works is that he looks upon past authors through the lens of an extended version of John von Neumann's paper 'A Model of General Economic Equilibrium' (1945). It is this perspective that makes him maintain that the analyses of the three authors are much more similar than is generally held. He actually contends that they are characterised by a *unité de doctrine* (1989, p. 4).

One my wonder whether this contention can be sustained. One difference between the classical authors an Marx, on the one hand, and Walras and the marginalist authors, on the other, is too obvious to be overlooked. The former treated wages and property incomes (profits and rents) *asymmetrically*, and explained the latter in terms of the *surplus product* or *residual* that remains after all means of production used up and the means of subsistence in the support of workers have been subtracted from gross outputs levels. On the contrary, the latter treated all kinds of incomes alike, that is, *symmetrically*, with reference to the 'forces of demand and supply' interacting in the respective factor markets, and thus in terms of the *relative scarcities* of the different factors, or their *marginal productivities*. In the former, real

or commodity wages are taken to be a part and parcel of the inputs needed in production and are thus essentially reckoned as an element of the *capital* advanced at the beginning of the production period, whereas in the latter they are treated as a part of the *product* that emerges as the result of the co-operation of the different productive forces.[2]

Before we proceed, it is interesting to note that the von Neumann model, which forms the basis from which Morishima develops his argument, shares a similar outlook on economic phenomena as the classical economists (see Kurz and Salvadori, 1993). Von Neumann takes the real wage rate as given and paid *ante factum*. Technically, he explicitly subsumes the means of subsistence of workers under the coefficients of the input matrix **A** of his model, that is, employs what he called the 'augmented matrix' (Morishima, 1964 and 1969). At given levels of the operation of the different processes of production, profits (or interest, as von Neumann prefers to call them) consist physically of the *net* product, or *social surplus*. As Ricardo stressed: 'Profits come out of the surplus product' (Ricardo, *Works* II, pp. 130-1; similarly I, p. 95). When it comes to the determination of the rate of return on capital and relative prices, real wages are thus treated as a given magnitude both in the classical authors and in von Neumann. Also Marx adopted this approach from the classical authors and especially Ricardo and attempted to ascertain the general rate of profit as the ratio of the labour value of the surplus product, or *surplus value*, and the labour value of the social capital, consisting of a *constant* (means of production) and a *variable* (wage goods) capital. While Ricardo and Marx were able to expound and develop in some detail the classical surplus-based approach to the theory of value and distribution, they did not succeed in providing a logically coherent version of it. This was only achieved by John von Neumann, apparently without being aware of the classical features of his approach, because it can safely be assumed that he was not familiar with the writings of the classical authors[3], and then, in a more general analytical framework and with a thorough understanding of the classical authors, by Piero Sraffa (1960).

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[2]     For a counterposition of the analytical structures of the approaches to the theory of value and distribution of especially Ricardo and Walras, see Kurz and Salvadori (1995, chapter 1, and 2002). (As will become clear below, Negishi also appears to see the main difference between the two different schools of thought as consisting in different theories of income distribution.) As regards the classical authors' treatment of workers' participation in the sharing out of the surplus product, see below.

[3]     On a possible link between Ladislaus von Bortkiewicz, who was well read in the classical authors and Marx and had formalised some of their ideas, on the one hand, and von Neumann via Robert Remak, on the other, one of his mathematical colleagues, see Kurz and Salvadori (1993).

Morishima deals not only with Ricardo's theory of value and distribution, but also with other aspects of his analysis, including rent theory, durable instruments of production, the problem of the standard of value, the natural wage doctrine, the theory of comparative advantage and Say's law in connection with the problem of machinery. For a critical assessment of his respective discussions, see Kurz and Salvadori (1992). Here we comment only on the last three issues mentioned.

*Natural wages*

Ricardo distinguished not only with regard to commodities but also with regard to labour a 'natural' and a 'market' price. In some places, apparently focusing attention on a self-replacing state of the economic system, he defined the 'natural wage' as that wage that is just sufficient to allow for the reproduction of the labour force, without any increase or diminution. However, with the rate of profit falling as capital accumulates and population grows due to extensive and intensive diminishing returns in agriculture, and setting aside technical progress, Ricardo's doctrine has widely been interpreted as revolving around the concept of a given and constant long-run subsistence wage. While in an 'improving society' natural wages are typically higher than in a stagnant one because via the wage rate the growth of population is adjusted to the requirements of accumulation, in a stationary state they are down to the subsistence level. Yet this is too narrow a view of Ricardo's doctrine. While several of Morishima's statements on the issue I find problematic, I think he is right in pointing out that the concept of natural wage in Ricardo is a much more complex concept than is usually understood and that it is often defined in conjunction with the rate of capital accumulation: The two are attuned to one another in such a way that the natural level of the real wage rate, via the growth of hands, sustains the accumulation rate, and the accumulation rate, via its impact on the demand for hands, sustains the real wage. Hence Ricardo's position in this regard is not all that different from Adam Smith's.[4]

There is a point of contact here between Morishima's analysis and an argument put forward by Negishi in a paper on Adam Smith's theory of growth (Negishi, 1993c). As regards the population mechanism Smith sees at work, it anticipates an important element of Thomas Robert Malthus's analysis in that it also contemplates a positive relationship between the real

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[4]     For a different view, see Negishi (1988 and 1994, p. xiii), who credits exclusively Smith with considering the natural wage rate as interdependent with the growth rate.

wage rate and the growth rate of polulation.[5] We may express the idea in simple terms as involving a relationship of the following kind

$$w = (1 + g)w*$$

where $g$ is the rate of growth of the work force, $w*$ is the real wage rate in a stationary system and $w$ is the wage rate that attunes $g$ to the requirements of capital accumulation. One might incorporate a ratchet effect in this, reflecting Ricardo's conviction that with a higher level of the real wage rate workers will adjust to the new situation and develop needs and wants that render necessaries what previously were comforts or even luxuries.

The above ideas co-exist in Ricardo's writings and reflect the complexity of his thoughts and variability of the conditions contemplated. It should therefore come as no surprise that different interpreters, focusing attention on differents bits of his analysis, would come to different conclusions concerning his doctrine. The fact is that these elements are all there. What should be clear, though, is that the natural wage must not be mistaken for a purely physiological minimum of subsistence (Ricardo, *Works*, I, pp. 96-7). Ricardo, like other classical authors with their emphasis on the social and historical factors shaping economic behaviour, even anticipated what was to become a most important empirical fact, namely, that economic development and the emergence of new institutions endogenously eroded the Malthusian population mechanism. Thus Ricardo contemplated the possibility that 'population may be so little stimulated by ample wages as to increase at the slowest rate – or it may even go in a retrograde direction' (Ricardo, *Works*, VIII, p. 169).

Ricardo also discussed the case of workers participating in the sharing out of the surplus product.[6] In this case he felt the need to replace the concept of a given real (i.e. commodity) wage rate by a *share* concept, or 'proportional wages' (Sraffa, 1951, p. lii), that is, 'the proportion of the annual labour of the country ... devoted to the support of the labourers' (*Works*, I, p. 49). It was on the basis of the new wage concept (and on the premise that the social capital consisted only of, or could entirely be reduced to, wages) that Ricardo then

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5     Since Malthus contemplates also the case of unemployment, what matters for the rate of population growth is the real income of families, which depends not only on hourly wages paid, but also on the levels of employment of the different members of a family. This aspect need not concern us here.

6     According to Morishima 'Ricardo considered both capitalists and landowners as savers'. In fact he even contemplated also the possibility of workers saving. Ricardo may thus be said to have anticipated the basic idea underlying what became known as the Post-Keynesian theory of growth and distribution; see especially Kaldor (1955-56) and Pasinetti (1962).

asserted what was called his 'fundamental proposition on distribution': that the *rate* of profits depends on *proportional wages*, and on nothing else.

*Foreign trade*

I do not think that the criticism Morishima levels at Ricardo's trade theory, contained in Chapter VII, 'On Foreign Trade', of the *Principles*, can be sustained. According to Morishima the chapter 'begins on the wrong foot and results in confusion and incomprehensibility' (1989, p. 128). Ricardo is said to have been particularly wrong in rejecting Smith's view that the opening of trade increases the rate of profit. However, there appears to be a misunderstanding on Morishima's part here. On the assumption of a given *real* (or commodity) wage rate, the opening of trade, by rendering some wage goods less expensive, implies a reduction in the *nominal* wage rate. Ricardo concluded that profitability will increase for a given and constant real wage rate, if trade entails a lowering of the price of (some) wage goods, whereas a lowering of the price of luxuries would have no such effect. This is an important insight which carries a distinction encountered in Ricardo's discussion of different forms of technical progress over to the realm of international trade. In Ricardo's view trade and specialisation typically involve larger rates of profits of the countries involved and thus corroborate his conviction that foreign trade and improved machinery may have similar effects: 'If … by the extension of foreign trade, or by improvements in machinery, the food and necessaries of the labourer can be brought to the market at a reduced price, [the rate of] profits will rise' (Ricardo, *Works*, Vol. I, p. 132).

This view is neatly corroborated by Negishi in his paper 'The Labor Theory of Value in the Ricardian Theory of International Trade' (1982c) which focuses attention on Ricardo's famous numerical example of comparative costs.[7] He takes issue with the received marginalist (or neoclassical) interpretation of the example which contends that the latter is based on the assumption that there is only a single factor of production, labour. Negishi rightly insists that this is not so, because Ricardo's argument is naturally developed against the background of an economic system that involves the use of land, produced means of production (and means of subsistence, or capital) and labour. Interestingly, Negishi also rejects the view that Ricardo cannot determine the terms of trade without having recourse to considerations concerning the demand for commodities, as a long tradition of interpreting Ricardo taking off from John Stuart Mill contends. In this regard he elaborates on an

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[7]    Negishi (1996a and 1996b) are closely related papers. In each of them Negishi takes the contributions of K. Kojima to Ricardo's trade theory as one of his starting points; see below.

argument put forward by K. Kojima. Negishi stresses that Ricardo was aware of the fact that the opening of trade increases the domestic rate of profits for a given real wage rate (provided wage goods and not only luxuries are involved).[8]

Let us immediately turn to the gist of Negishi's argument. He assumes that the real wage per unit of labour employed is the same in both countries, Portugal ($P$) and England ($E$), and is given in terms of a fixed bundle of wage goods, consisting of $c_1$ units of cloth and $c_2$ units of wine. Both products are produced with constant returns to scale production processes that employ only wage capital. Hence in autarky the price equations in the two countries are given by

$$p_{1j} = (1 + r_j)\, l_{1j}\, (c_1 p_{1j} + c_2 p_{2j})$$

$$p_{2j} = (1 + r_j)\, l_{2j}\, (c_1 p_{1j} + c_2 p_{2j})$$

where $j = P, E$. From the two equations and Ricardo's numerical example [$(l_{1P} = 90;\, l_{2P} = 80)$, $(l_{1E} = 100;\, l_{2E} = 120)$], it can immediately be seen that

- in autarky the price ratio of the two commodities, $p_{1j}/p_{2j}$, equals the ratio of direct national labour inputs, $l_{1j}/l_{2j}$: cloth is relatively less expensive in England and wine is relatively less expensive in Portugal;

- the rate of profits in autarky is the higher the higher is labour productivity (the lower is the direct labour coefficient) in each domestic sector, given the real wage rate;

- in autarky the rate of profits is higer in Portugal than in England, because Portugal exhibits a higher productivity of labour than England in both industries.

After trade begins, the prices of cloth and wine are taken to become the same in the two countries, because transportation costs and the like are set aside. This means, as Negishi points out (1982c, p. 206), that with a given and uniform real wage rate money wages are equalized between the two countries. According to the principle of comparative advantage, Portugal will specialize in the production of wine and England in the production of cloth. Negishi shows that in the trade situation the three distributive variables $r_P$, $r_E$ and the (common) real wages rate ($c_1$, $c_2$) are related in the following way

$$R_P R_E - 100 c_1 R_P - 80 c_2 R_E = 0, \tag{*}$$

where $R_P = 1/(1 + r_P)$ and $R_E = 1/(1 + r_E)$.

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[8]    In Negishi's model we discuss below there are only two commodities both of which enter the real wage rate and are thus what the classical economists called 'necessaries' as opposed to luxuries. For a discussion of the latter, see Negishi (1989, pp. 136-8).

Obviously, the case in which $r_P = r_E$ (and thus $R_P = R_E$) is a very special constellation implying risk- and costless capital investment in both countries. Yet if that constellation prevails it is clear that relative prices are fully determined, because in this case Portugal and England have been replaced by a larger economy that produces the two commodities in two industries only instead of in four, where industry 1 uses the English method of production and industry 2 the Portuguese one.

Yet as Negishi rightly points out, this is not the most interesting case Ricardo contemplated in his chapter on trade. The reason is that capital movements may face difficulties and insecurities. Ricardo in fact stressed:

> Experience … shews, that the fancied or real insecurity of capital, when not under the immediate control of its owner, together with the natural disinclination which every man has to quit the country of his birth and connexions, and intrust himself with all his habits fixed, to a strange government and new laws, check the emigration of capital. These feelings, which I should be sorry to see weakened, induce most men of property to be satisfied with a low rate of profits in their own country, rather than seek a more advantageous employment for their wealth in foreign nations. (Ricardo, *Works* I, pp. 136-7)

In such cases capital mobility will be hampered and together with it from a certain point onwards a tendency towards a uniform rate of return on capital worldwide. In Ricardo's example, a higher rate of profits in Portugal can, in principle, be expected to attract English capital. Yet if English importers and exporters are satisified with a decent rate of profits at home rather than seek a higher rate abroad, there will be no full equalization of profitability. Negishi (1982c, p. 207) formulates the basic idea by defining a 'rate of conversion $a$ ($< 1$)' by which English capitalists 'discount' $r_P$ in case it is higher than $r_E$:

$$R_P = aR_E.$$

Then equation (*) becomes

$$R_E = 100c_1 + (80/a)c_2.$$

Clearly, a larger $a$ involves a smaller $R_E$ and thus a larger $r_E$: English capitalists benefit from their discounting profitability elsewhere. For a given conversion rate $a$, $r_E$ is determined and together with it $r_p$ and the price ratio of the two commodities in the 'world market' (consisting of Portugal and England). Negishi concludes: 'Ricardian theory can determine the terms of

trade on the basis of cost-price relations without having recourse to reciprocal demands' (1982c, p. 208). And in another paper he insists:

> Neoclassical theory of international trade cannot determine the terms of trade, without taking the reciprocal demand into consideration. Those who consider Ricardo's theory as a special case of the neoclassical one naturally regard the former as merely a partial theory of international trade, which by itself cannot determine the terms of trade, having no consideration of the reciprocal demand. *This interpretation of Ricardo is, however, clearly a misunderstanding of neoclassical economists.* (Negishi, 1996a, p. 234; emphasis added)

He adds:

> The lesson from [this] reinterpretation of Ricardo's magic numbers of comparative advantage is that *the study of the classical theory from the point of view of modern theory should not be a cutting or stretching of the former theory in a Procrustean bed of the latter.* It should be a mirror in which modern theory finds the importance of what it forgot to learn from the classical theory, in this case, the role of exporters and importers in international trade and investment. (Negishi, 1996a, p. 235; emphasis added)

Negishi's is an interesting reconstruction of a central element of Ricardo's theory of trade that for simplicity sets aside the problem of scarce land(s).

Seen from a higher standpoint, Negishi's reconstruction may be said to be covered by the so-called *Non-substitution Theorem*[9]. The Theorem applied to the present case states that relative prices and the rate of profits in the two countries are independent of the pattern of final demand provided (i) there are constant returns to scale throughout both economies, (ii) there is no joint production (and thus no fixed capital), (iii) there is only a single original factor of production (homogeneous labour), and (iv) the real wage rate and the ratio of the two domestic profit rates are given (from within a feasible range).[10] These conditions are met by Negishi's reconstruction of Ricardo's argument.[11]

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[9]    See Kurz and Salvadori (1995, pp. 26-8; on the application of the Non-substitution Theorem to Ricardo's trade argument, see p. 152).

[10]    The possible range of $a$ satisfying Ricardo's numerical example is $80/120 \le a \le 90/100$; see Negishi (1982c, p. 208).

[11]    It goes without saying that with nonconstant returns to scale in one or both industries, the argument would have to be adopted. Diminishing returns are typically associated with agriculture where the scarcity of land may make itself felt in increasing unit costs as output increases, whereas increasing returns to scale may result from an increase in the extent of the

*Machinery and Say's law*

As is well known, in the third edition of the *Principles* Ricardo recanted his previously held view that improved machinery cannot be injurious to the interests of the class of labourers. He had convinced himself that the mechanisation of production – the substitution of machine power for labour power – involves a destruction of the circulating capital and thus of necessity leads to a 'diminution in the demand for labour, population will become redundant, and the situation of the labouring classes will be that of distress and poverty' (*Works*, I, p. 390).

Morishima (1989, p. 11) contends that Ricardo's argument is fundamentally flawed and that Say's law does not admit of unemployment. Morishima therefore feels entitled to modify the famous numerical example Ricardo had elaborated in order to illustrate the case of technologically induced unemployment.

I see especially two problems with Morishima's argument. First, he interprets Say's law in the modern (marginalist) sense as involving the clearing of all markets, including a 'labour market'.[12] Yet, this is not the sense in which Ricardo or his contemporaries used it: They confined Say's law to markets, in which commodities are exchanged that have been produced in the hope and expectation of making profits, i.e. capitalistically. Labour (or, in Marx's terminology, labour power) does not belong to them: it is not capitalistically produced. Hence the law does not apply to it, and indeed we do not find in Ricardo a discussion of the 'labour market'. Ricardo rather stressed that 'M. Say … has most satisfactorily shewn, that *there is no amount of capital which may not be employed in a country*, because demand is only limited by production.' And, 'there is no limit to demand – no limit to the *employment of capital* while it yields any profit' (*Works*, I, pp. 290 and p. 296; emphases added). Ricardo's finding that the introduction of improved machinery may displace workers therefore does not contradict the then prevalent version of the 'law of markets'.

Secondly, Morishima's reworking of Ricardo's numerical example empties Ricardo's reasoning of its very content. As Negishi (2000, p. 103) stressed: 'Apparently, Morishima's problem is different from Ricardo's machinery problem.' Ricardo is interested in the problem of whether the production of a new machine, and then its productive use, changes the overall

market and the ensuing scope for a deeper social division of labour. These themes are, however, beyond the scope of Negishi's and also the present paper.

[12]    Morishima says so explicitly: 'we define the law in the same way that Keynes did' (1989, p. 54; see also p. 164). Now Keynes, as is well known, defined the law in the received marginalist full employment sense (which he, erroneoulsy, considered to be the 'classical' sense as well).

composition of the capital stock of the miniature system under consideration, away from criculating capital, which is (for the main part) used to employ workers, and towards fixed capital, which is not used to do so. Ricardo identifies this shift as the source of the trouble. Contrary to his claim, Morishima's alternative construction contains no discussion of the replacement of human labour by machinery, which was Ricardo's main concern. Interestingly, Negishi (1998a) in a critical comment rejected Morishima's argument on the ground that it did not contain a faithful interpretation of Ricardo's reasoning and therefore could not disprove the latter's opinion on the matter.

We may conclude by saying that while Morishima's interpretation of Ricardo contains some interesting observations on how to develop the argument and formalise certain parts of it, in important respects the interpretation is difficult to sustain. The view that Ricardo, Marx and Walras shared a similar approach to the problems they investigated is particularly dubious, as the following discussion will show.

## 3. Karl Marx and the Marxists

Karl Marx's contribution to political economy is dealt with in numerous works of Morishima and Negishi. Their attention focuses first and foremost on the theory of value and distribution and the theory of capital accumulation and economic dynamics, including Marx's explanation of a long-run tendency of the rate of profit to fall. Morishima's main works in this regard are two books: his *Marx's Economics: A Dual Theory of Value and Growth* (1973) and, together with George Catephores, *Value, Exploitation and Growth* (1978). Both books met with a considerable interest and in the aftermath of the controversies in the theory of capital contributed to a sometimes heated debate about the merits and demerits of Marx's economic analysis.[13]

Negishi published a number of papers on Marx and compared Marx's analysis especially with Eugen von Böhm-Bawerk's (see Negishi, 1980a). He is basically in agreement with Morishima in that also in his view the 'essence of the labor theory of value lies … not so much in the proportionality of relative values and quantities of labor embodied as in the explanation of the profit created not in the process of circulation but in the process of

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[13]     The capital controversies had been triggered by a paper by Joan Robinson (1953), but as time went by it gradually became clear that she had benefited from discussions with Piero Sraffa whose 1960 book rekindled and broadened the debate; see Robinson (1970).

production' (1982c, p. 199). This comes close to what Morishima dubbed the *Fundamental Marxian Theorem*.

*Value and distribution*

It does not come as a surprise that Morishima approaches also Marx from a von Neumann perspective. In his view the labour theory of value was used by Marx essentially as a device to aggregate microeconomic magnitudes and arrive at macroeconomic ones which are supposed to allow him to establish the 'laws of motion' of the economy as a whole (see, e.g., 1973, p. 3). I think this is a valid observation in the light of the fact that Marx appears to have been convinced that this method provided him with a correct expression of the *general* rate of profit – the key variable of a capitalist economy. Once this rate was known, prices of production could be ascertained in a second step by appropriately marking up costs of production.

However, Marx's two-step procedure, or what Ladislaus von Bortkiewicz called Marx's 'successivism', cannot generally be sustained. As von Neumann and then Sraffa showed, the general rate of profit and relative prices can be determined without any recourse to labour values. Yet this aspect will concern us here only incidentally. We rather focus attention on Morishima and Catephores's reconsideration of the labour theory of value in their 1978 book, because it is here that they themselves see a chief innovation in the discussion of Marx's economics. Whereas labour values are conventionally (and also in Morishima, 1973) determined in terms of systems of simultaneous *equations* of the sort

$$\mathbf{Bv} = \mathbf{Av} + \mathbf{l},$$

where **B** is the (square) output coefficient matrix, **A** the (square) matrix of input coefficients of means of production, **l** the vector of direct labour input coefficients and **v** the vector of labour values.[14] Provided the inverse of matrix (**B** – **A**) exists, one gets

$$\mathbf{v} = (\mathbf{B} - \mathbf{A})^{-1}\mathbf{l}$$

This approach the two authors reject and replace it with an approach that ascertains labour values in terms of a von Neumann linear programming approach. The 'true value' of a commodity *i* is said to be obtained as a solution

$$v_i^* = \mathbf{q}^*\mathbf{l}$$

to the following problem

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[14]     For a discussion of the determination of labour values in the presence of joint production, see Kurz and Salvadori (1995, chapter 8).

$$\text{Minimise} \quad \mathbf{ql}$$

$$\text{subject to} \quad \mathbf{qB} \geq \mathbf{qA} + \mathbf{e}_i, \quad \mathbf{q} \geq \mathbf{0},$$

where $\mathbf{q}$ is the vector of the operation of processes and $\mathbf{e}_i$ is the $i$-th unit vector (whose element $i$ is unity, all the other elements being zero). Hence Morishima and Catephores's 'true values' are those that minimize the amounts of labour needed directly and indirectly in the *net* production of one unit of the respective commodity.

What has motivated this reconsideration? In his 1960 book, Sraffa had pointed out that 'in the case of joint-products there is no obvious criterion for apportioning the labour among individual products, and indeed it seems doubtful whether it makes any sense to speak of a *separate* quantity of labour as having gone to produce one of a number of *jointly* produced commodities' (p. 56). He went on to argue that with joint production it cannot be excluded that a ceteris paribus increase in the net output of one commodity might request a change in the proportions in which the different processes of production are activated such that a reduction in the total amount of (direct) labour employed results. Hence, one would have to conclude that the commodity under consideration 'is in fact being produced by a *negative* quantity of labour' (1960, p. 60; emphases in the original). Taking up Sraffa's finding, Steedman (1975) then showed that there are cases in which positive profits may go together with a negative surplus value. This, however, flew in the face of Morishima's 1973 'Fundamental Marxian Theorem' (1973, pp. 53-54) that positive surplus value is a necessary and sufficient condition for positive profits. In order to save the Theorem, or some version of it, the concept of labour values had to be reconsidered with special regard to joint production: 'negative' labour values had to be avoided.

On the basis of their new definition Morishima and Catephores proved the following two propositions:

(i)     The surplus-to-necessary labour ratio, which the authors consider as the full measure of 'exploitation', is generally greater than the rate of surplus value, because of the non-additiveness of 'true values'.

(ii)     The capitalist system is profitable and capable of expansion if and only if workers are exploited. This finding the authors now dubb 'Generalized Fundamental Marxian Theorem' (1978, p. 45-53).

While the new concept of 'true value' manages to accomplish the pre-defined task, there are a number of features of this approach that are disquieting. First, some of the processes selected

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by the above labour minimization problem need not be chosen by cost-minimizing producers at the given real wage rate, as analysed by John von Neumann (1945) and Sraffa (1960). Hence the solution Catephores and Morishima propose in order to get rid of negative labour values may relate to an economic system that differs substantially from the one actually in use (according to the solution of the choice of technique problem). It may be asked: What is the relevance of methods of production that are not employed for the actual economy and its characterisation? Secondly, and closely related to what has just been said, Marx insisted that in case differently 'productive' methods are used side by side, what matters is not the most productive one, but an average of those actually employed. Hence, Marx insisted that what matters are the actually employed methods and not some other methods. Finally, in their treatment of the 'transformation problem' of labour values in prices of production (1978, ch. 6) the authors surprisingly do not start from 'true values' but from those conventional labour values that result from solving a system of simultaneous equations (see above). It remains thus somewhat unclear what labour values do mean and for what purpose they are needed.

*Falling tendency of the general rate of profit*

In two papers Negishi (1998b, 1999b) takes issue with the conventional interpretation of Marx's law of the falling tendency of the rate of profit and its criticism in terms of the Shibata-Okishio Theorem. The theorem states that a new (single product) method of production, which reduces the unit cost of a (basic) product[15], will be introduced by cost-minimizing producers and, for a given real wage rate, of necessity raises the general (or competitive) rate of profit. This may well go along with an increase in the organic composition of capital. Hence, Marx's respective argument in Volume III of *Capital* is seen to be flawed.

Negishi disagrees with this assessment. The formalisation, he insists, does not faithfully represent Marx's argument: 'the model of an economy used to prove the Shibata-Okishio theorem may be too restrictive for Marx' (1998, p. 253). The world that Marx had in mind, Negishi surmises, exhibits two crucial features not taken into account in the respective literature:

    (i)     diminishing unit costs due to economies of scale and

    (ii)    firms facing downward sloping demand curves.

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[15]    Using Sraffa's definition (in the case of single production): a *basic product* is a product that enters directly or indirectly into the production of every product, whereas *nonbasics* don't.

It is competition among capitalists vis-à-vis these two facts, which, in Negishi's interpretation, is responsible for Marx's law of a falling rate of profit. Marx's basic idea, Negishi maintains, can be rendered clear in terms of Cournot's model of oligopoly or Chamberlin's model of monopolistic competition.[16] These models, Negishi surmises, are appropriate for discussing the falling tendency of the rate of profit along Marx's lines, whereas the 'Walrasian assumptions of constant returns to scale and perfect competition' (1998b, p. 258) are not.[17]

It suffices to limit our discussion to Negishi's adaptation of Cournot's model. Negishi assumes that each of $n$ identical firms has a linear cost function

$$K_i = C + Dx_i, \quad i = 1, \ldots, n$$

Where $K$ is the total cost of a firm, $C$ and $D$ are positive constants and $x_i$ is the output of the firm. $D$ gives real wages per unit of output, where the real wage rate per unit of labour is assumed to be constant throughout the exercise. The demand function for the industry as a whole is given by

$$p = A - B(x_1 + x_2 + \ldots + x_n)$$

where $p$ is the price of the product and $A$ and $B$ are positive constants. Firms are taken to maximise profits, $P_i = px_i - K_i$. Negishi then calculates the Cournot-Nash solution of this simple model.

Next he assumes that a new method of production is available which exhibits higher fixed costs $C$, which Negishi identifies with Marx's 'constant capital' (or rather fixed capital), and lower variable costs (wages), which are said to largely correspond to Marx's 'variable capital'. The new method will be introduced by an innovating firm, provided it is profitable to do so, which is the case if a certain condition is met. The innovating firm will reap extra profits by exploiting the increasing returns, which, however, requires to increase the firm's output and, *a fortiori*, thus aggregate output. Other firms will follow in adopting the new method, which leads to a general expansion of output. This, however, reduces the price of the product along the given and unchanging demand function and depresses the profits of each single firm. Under well-specified conditions the rate of profits on fixed capital is bound to fall.

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[16]     Negishi (1999b, pp. 235-8) extends the analysis somewhat and employs also a version of Krugman's model of monopolistic competition and economies of scale.

[17]     I set aside the problem whether the discussion of the law in terms of linear models of production with free competition as they were used by Okishio, Morishima or Steedman are well characterised as 'Walrasian'.

Is this reconstruction convincing? Interestingly, Negishi himself has drawn the attention to a fact that raises doubts. He writes: 'we have to admit that our analysis … is limited to that of the partial equilibrium, while the Shibata-Okishio theorem is obtained in the general equilibrium analysis of the perfect competition' (1998b, p. 262). This is indeed the case. Put differently, while the technique used by the economic system under consideration changes, and economies could make themselves felt at an ever larger scale, they are prevented from doing so by a market demand function that stays put indefinitely. Hence, we get the peculiar result that despite technical advancement the real wage per unit of labour is constant and the general rate of profit falls. We might also say that the model tries to cross-breed a long-period (technical change) and a short period (given demand) perspective. I have doubts that it can successfully challenge the Shibata-Okishio theorem.[18]

*Unequal exchange and exploitation*

In a number papers Negishi (1991, 1993a, 1999a) enters into a discussion of the problem of unequal exchange and exploitation of workers as it was put forward in the 1970s. It is interesting to recall the motivation of these papers: Negishi stresses that the theory of the classical economists and Marx is fundamentally different from the neoclassical one and that it is therefore of interest to see what an alternative research programme has to offer. His attention focuses on the works of A. Emmanuel and then S. Amin and J.C. Saigal who argued inter alia that a country with a given low wage level is exploited by a country with a given higher wage level when the two trade with one another and capital is imported by the former. 'Being alerted by this Marxian attack on the neo-classical orthodoxy, Samuelson stood up quickly and tried to show the illogicality of neo-Marxian doctrine of unequal exchange.' Negishi adds: 'Samuelson seems, unfortunately, [to] misunderstand the main point of Emmanuel's argument' (1991, p. 37). Samuelson's demonstration within a neoclassical framework of the gains from trade is said to be beside the point, because Emmanuel's focus of attention is the possible deterioration of the terms of trade of the country with lower wages in comparison with the situation in which there are no wage differentials. It is an exogenously

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[18]  It should be noted that volumes II and III of *Das Kapital* were not yet ready for publication when Marx died in 1883. Frederick Engels prepared out of Marx's unfinished notes, manuscripts and preliminary drafts the two volumes and interpolated between bits and pieces of material whenever he felt the need for it. The material was written at different times, and there is no reason to presume that Marx would have sustained all the views expressed in it. Therefore it is not at all clear what would have been Marx's opinion on the various matters had he been given the time to prepare the two volumes for print. See on this Gehrke and Kurz (2006) with respect to Sraffa's doubts as to the conventional interpretation of Marx's law of the falling rate of profit.

given level of real wages for each country which constitutes the distinguishing feature of Emmanuel's approach. In his second paper on the theme Negishi stresses that 'even neoclassical economists may not be uninterested in classical and Marxist theories of international trade that are based on wage theories quite different than the neoclassical ones' (1993a, p. 353).

To begin with, it is interesting to emphasize that in Negishi's view the theory of income distribution constitutes the main difference between classical and marginalist (neoclassical) theory. I believe, this is a valid observation. While the neoclassical theory tries to ascertain the distributive variables, especially the rate of profit (or interest) and the wage rate, in a *symmetrical* way in terms of the marginal contributions of 'capital' and labour to the product, the classical theory takes the real wage rate as given (and determined in another part of the theory) and ascertains the rate of profit *residually*, i.e., *asymmetrically*. Therefore, Negishi insists, it is not possible, to assess Emmanuel's analysis strictly from a neoclassical perspective, as was done by Samuelson. Such a perspective of necessity involves putting the theory of unequal exchange into a Procrustean bed.

This does not mean that Negishi subscribes to the analyses of Emmanuel and his followers. He points out that specialisation of countries is driven by comparative costs and thus relative prices which generally differ from relative labour values.[19] This is due to the well known fact that relative prices depend not only on the technical conditions of production actually in use, but also on the division of the product between workers and capitalists. The impact of distribution on relative prices may be such that the pattern of specialisation, as one would expect it on the basis of labour values (which result in the special case in which the rate of profit is nil), is turned upside down: In terms of Ricardo's famous numerical example, one could construct cases of the time profile of labour employed in the production of the different commodities in which at the prevailing rate of profit Portugal would specialise on cloth and England on wine. Negishi admits, however, that a model with an equalised rate of profit worldwide and differential, country-specific wage rates 'does fit present-day reality much more than the orthodox neo-classical model, i.e., the so-called Heckscher-Ohlin model with international factor price equalisation' (1991, p. 38). Yet, properly formalised, such a model does not lend support to some of the views proposed by Emmanuel, Saigal etc. Negishi is therefore on the lookout for a condition that would save the argument and, interestingly

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[19]    In systems with single production as they are assumed by Emmanuel and then Negishi, prices can be reduced to dated quantities of labour (Sraffa, 1960), which express this fact in a straightforward manner.

enough, discerns it in Ricardo's assumption, discussed in the above, that the rate of profit need not be equalised even though capital can, in principle, move freely between countries. Negishi concludes: 'It is quite ironical that unequal exchange in the sense of Saigal is impossible … in a free capitalist world, while it may be possible in a socialists' world when an advanced country imposed a wrong pattern of specialisation to other countries' (1991, p. 47).

## 4. The Marginalist Economists

In their various papers and books Morishima and Negishi deal basically with all major early marginalist authors, especially William Stanley Jevons, Léon Walras, Eugen von Böhm-Bawerk, Alfred Marshall and Knut Wicksell. Due to space constraints, I focus attention on some of their comments on, and interpretations of, Walras, Böhm-Bawerk and Wicksell.

*Léon Walras*

The third book of Morishima's trilogy is devoted to *Walras's Economics. A Pure Theory of Capital and Money* (1977). According to a widespread view, Walras's concern was first and foremost the theory of exchange and allocation. This view is rejected by Morishima who insists that the theory of exchange and allocation was 'but an overture to his general equilibrium theory of capital formation and circulation' (pp. vii-viii). The amount of work devoted to rendering the ouverture mathematically rigorous Morishima considers excessive and culminating in a 'complete sterilization' of Walras's theory. This criticism is explicitly levelled at models developed by Hicks (1967), Arrow and Debreu (1954) and Arrow and Hahn (1971) (see, e.g., p. 207).

I think that some of Morishima's criticisms of received interpretations of Walras are sound, whereas others cannot be sustained. He is right that Walras was not merely concerned with static problems of allocation, but with a system in motion, in which capital accumulates, the population grows and technical knowledge increases over time. In the system contemplated money and credit play an important role. These dynamic aspects have typically been set aside in some interpretations, which therefore have distorted Walras's analysis. He is also right in stressing that as to the problems tackled there are several parallels between the analyses of Ricardo, Marx, Walras and Keynes: the ultimate aim of all four authors was to investigate 'how the capitalist system works' (Morishima, 1977, p. 4). Walras even arrived at somewhat similar results as Ricardo with respect to the long-term development of important variables of

the economic system, such as wages, rents and the rate of profit, in the case in which diminishing returns due to the scarcity of land are not fully counteracted by the effects of technical progress (see Walras, 1954, pp. 390-1). However, this does not mean, as Morishima is inclined to think, that the analyses of the authors under consideration are essentially cast from a single die. He is led to this opinion because he re-interprets both Ricardo, Marx and Walras in terms of the von Neumann or rather the 'Walras-von Neumann model' (1977, p. 199). It is this uniform garb he puts on all three of them that makes them look alike, although under the garb they differ in important respects from one another.

Fundamental objections can be raised against the view that there is a direct lineage and basic *unité de doctrine* leading from Ricardo and Marx to Walras and then Keynes (Morishima, 1977, pp. 5-7). First, Walras himself saw the relationship between his work and that of Ricardo not as one of continuity, but rather as one of discontinuity and incompatibility. It suffices to recall the title of part 7 of the *Elements of Pure Economics*, 'Exposition and Refutation of the English Theory'. In it Ricardo is accused of having committed 'fundamental errors' and of having failed to develop 'a unified general theory to determine the prices of all productive services in the same way' (Walras, 1954, p. 416). Secondly, such a unified general theory, Walras contended, has been elaborated by himself by generalising the principle of 'scarcity', which the classical economists had limited to natural resources, to *all* goods and factors of production alike. A careful investigation of the classical and the Walrasian analyses shows indeed the main differences between the two, in particular, the *surplus-based* approach to the explanation of profits and rents of the former as opposed to the *scarcity-based* approach to all shares of income of the latter. Scrutinising part 7 of the *Elements* is also interesting because it demonstrates vividly that Walras could not but try to understand the contributions of Ricardo and the classical economists from the point of view of his own intellectual style, that is, demand-and supply analysis. He was therefore bound to misinterpret their main message and accuse them of errors, logical and other, which are not there and simply reflect Walras's misapprehension of their doctrines; for a detailed exposition, see Kurz and Salvadori (2002). It is interesting to note that misinterpretations of Walras's kind, based as they are, on taking some type of approach or intellectual style as an absolute measure to assess all other approaches or intellectual styles, abound in the history of economic thought.[20]

*Eugen von Böhm-Bawerk and Knut Wicksell*

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[20] For example, recently Sraffa's reformulation and rectification of the classical approach to the problem of value and distribution has been discussed by some commentators as if it was a contribution to intertemproal general equilibrium theory (see Hahn, 1982).

Triggered by a paper by Bo Sandelin (1980), there has been a debate about Knut Wicksell's Austrian theory of value and distribution that is known as 'Wicksell's missing equation'. The emphasis is on Wicksell's treatment of the economy's endowment of capital at a given point in time in order to ascertain the rate of interest as a (relative) scarcity index of capital, reflecting marginal productivity of this factor of production. The issue under consideration is whether or not Wicksell had put forward a theory of capital and interest that is closed in the sense that the data, or independent variables, from which he started suffice to determine the unknowns, or dependent variables, especially the 'natural' rates of wages, rents and interest. The claim was put forward that there is one equation 'missing' in Wicksell's theory and that therefore his formal system of equations is underdetermined. The question then is how to close the system in a way that is faithful to Wicksell. The authors that contributed to the debate differ in terms of the closures they suggest.

It is interesting to note that the view was widespread that there was indeed an equation missing in Wicksell's construction. The authors that advocated this view also agreed that a consistent closure necessitated taking the overall 'quantity' and composition of social capital as *endogenously* determined. This in turn implied that the system had to be assumed to be in a stationary state in which there was neither accumulation nor decumulation of capital, because in such a state the capital stock is fully adjusted to the other data of the Wicksellian (or, more generally, marginalist) system, that is, (i) the preferences of agents, (ii) the technical alternatives from which cost-minimising producers can choose, and (iii) the given amounts of the other factors of production, labour(s) and land(s). In a stationary state all independent variables (including factor endowments) do not change any longer, nor do the dependent variables. With a zero rate of accumulation, incentives to invest and incentives to disinvest must obviously just balance each other. This means that the (overall) rate of interest equals the (overall) rate of time preference.

In a comment on Sandelin's paper, Negishi (1982a, p. 310) confirms Sandelin's claim as to the missing equation. In a related paper dealing with Eugen von Böhm-Bawer's famous 'Three Grounds' of interest he rightly stresses that closing the system via a given amount of capital in *value* terms, which is Wicksell's closure, deprives the analysis of much of its explanatory power (1982b, p. 164). He makes essentially the same point in chapter 9 of his *Economic Theories in a Non-Walrasian Tradition* (Negishi, 1985).

While Negishi sides with Sandelin, he is very clear that Wicksell actually closed the system by considering the available 'amount of *capital*' (Wicksell, 1934, p. 204) at the beginning of

the production period as given in value terms, representing a certain quantity of the *numeraire*. In equilibrium that sum of value – the 'supply of capital' – must then be equal to the value of capital employed – the 'demand for capital' –, which consists of 'labour power capital' and 'land power capital'. The different quantities of the latter, employed in different periods of time, have to be appropriately discounted forward. There is clear evidence that Wicksell did not like this closure and therefore vacillated a good deal in his analysis. To be forced to take the capital endowment in value terms destroyed the sought analogy between the different factors of production, with labour(s) and land(s) all given in terms of their natural physical measures, whereas heterogeneous capital goods had to be given in terms of an abstract standard in an attempt to determine the competitive rate of return on social capital. There can be no doubt that Wicksell thought that there was no equation missing. He actually insisted with reference to the equation just described: 'we shall then obtain the *necessary* [additional] *relation, and the problem will at last be completely determinate*' (Wicksell, 1934, pp. 204-5; emphasis added).

As Negishi appears to imply in his contributions, Wicksell's failure puts in sharp relief the fact that marginalist long-period analysis cannot generally be sustained. In the stationary state the forces it contemplates have seized to exert their influence, and the stationary state is at any rate rather uninteresting because no real economy, as Wicksell stressed, can ever be taken to come close to it or even be in it.[21] Negishi does not attempt to save long-period marginalist analysis, he rather points out that the closures mentioned in the literature do not exhaust the set of alternatives and suggests himself two further variants. In one he introduces explicitly the saving behaviour of the capitalist, which derives from intertemporal utility maximisation. This involves, he stresses, considering 'the value of capital as an endogenous variable' (1982a, p. 310). In his other contribution (Negishi, 1982b) he develops an overlapping generations model with a stationary population, where each agent lives for two periods, the first being the working period, the second the retirement period. In the former the income of the agent exceeds her consumption, that is, she saves, whereas in the latter things are the other way round, that is, she dissaves all the capital previously built up. Negishi demonstrates that even assuming away time preference, the rate of interest may be positive due to the individual

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[21]     Contrary to Wicksell, Robert Lucas (1988, p. 11) maintained that 'for *any* initial capital $K(0) > 0$, the optimal-capital consumption path $(K(t), c(t))$ will converge to the balanced path asymptotically.' He added: 'That is, the balanced path will be a good approximation to any actual path "most" of the time [and that] this is exactly the reason why the balanced part is interesting to us'. This is a bold statement that sounds rather weird especially at the time of a deep economic crisis worldwide.

agent's concern with better provision for wants in the second than in the first period and the superiority of more roundabout processes of production. Hence, Wicksell is said to have been right in his criticism of Böhm-Bawerk that time preference was not all that important in the theory of interest.

# 5. John Maynard Keynes[22]

Keynes, as is well known, singled out a few economists, including Thomas Robert Malthus, as anticipating, in one form or another, the *principle of effective demand*. This principle states that there is no reason to presume that investment demand can be expected to gravitate around levels that equal savings at full employment-cum-full capacity income. Keynes chastised as 'classical economics' those views that were based on Say's law, where he interpreted this law in the neoclassical sense as involving also the clearing of the labour market(s), i.e. full employment.

Keynes's view of Malthus and the classical economists is difficult to sustain. Negishi is right in arguing that Malthus was not a precursor of Keynes, but despite appearances to the contrary 'a supply-side economist who emphasized the motives to produce as a function of the rate of profit' (1993c, p. 116; see, in greater detail, Negishi, 1989, pp. 139 and 143-7). By assuming that every act of saving will swiftly be followed by an act of investment of the same magnitude, Malthus deprived himself of the possibility of arguing that there can be a general glut of commodities. In his criticism Ricardo mercilessly uncovered the logical inconstistencies of Malthus's argument (see on this Kalmbach and Kurz, 2008).

While Walrasian general equilibrium theory is said to be 'a paradigm of modern economics, Keynesian economics may perhaps be called another paradigm of modern economics' (Negishi, 1993b, p. 53). However, Negishi maintains, the so-called 'Keynesian revolution … was not a thoroughgoing revolution, since it could not penetrate micro-economics' (ibid.). Neoclassical economists responded to the challenge of Keynesianism in terms of developing

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[22]    In this section I comment only on a few issues discussed by the two authors in regard of Keynes's contribution to economics. Especially Morishima's huge project of incorporating ideas of Keynes (and other non-orthodox economists) in a new formulation of general equilibrium theory, which culminated in Morishima (1992), can only be mentioned in passing.

models based on theories of expectations, uncertainty, adjustment cost and disequilibrium, which were able to explain unemployment due to rigidities etc. In Negishi's view, these models have not pre-empted the need for some alternative theory: 'we still need Keynesian economics to explain persistent large-scale depression and unemployment' (ibid., p. 54). This assessment Negishi put forward in 1993, after he had himself, in the 1970s, developed some non-Walrasian general disequilibrium models based on sticky or rigid prices; see especially his book *Microeconomic Foundation of Keynesian Macroeconomics* (Negishi, 1979). Yet these models, whatever their merits, were not fully satisfactory to him. First, they did not faithfully represent Keynes's argument, which was not based on sticky prices, but rather contended that with flexible prices the situation might get worse due to the destabilising effects of deflationary tendencies, and secondly they left in the dark why prices were what they are and under what circumstances they would change. In short, Keynes's analysis could not be reduced to the economic effects of rigidities.

In Negishi's view, as I interpret it, the Keynesian revolution is still to be accomplished. As regards explaining persistent unemployment, Negishi singles out Azariadis's theory of implicit contracts between firms and workers and the difference between the two parties as to risk aversion as one of the most promising alternatives; see, especially, Negishi (1979, pp. 227-35).

Morishima originally had the plan to write also a book on 'Keynes's Economics', but then changed his mind. One of the reasons for this was that he was convinced that the problem of unemployment emerged already once Walras's theory was properly formalised. As he was keen to show in chapter 7, 'Towards Keynes', of his *Walras's Economics*, the Walrasian equilibrium is over-determined, which he interpreted as implying that we must consider a Keynesian unemployment equilibrium.

Morishima's argument was not well received in the literature. William Jaffé accused him of confusing his own problems with those of Walras, while Negishi (1980b) questioned the correctness of the derivation of Morishima's surprising result. In terms of simplified versions of Morishima's model he established the fact that there was no overdeterminacy. He did this, first, with respect to a model in which Say's law holds, more specifically, in which savers are also investors.[23] He then turned to an economic system with four classes – workers, landowners, capitalists and entrepreneurs. According to Morishima this is the socio-economic stratification Walras had in mind, with savings coming (almost) exclusively from capitalists

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[23]     It goes without saying that this is a very special case of Say's law.

and with investments decided (almost) exclusively by entrepreneurs. In this perspective Walras is much closer to Keynes than is generally assumed, because the behaviour of entrepreneurs is different from and independent of the behaviour of capitalists and necessitates the introduction of an investment function in addition to a savings function.

For the sake of the argument Negishi follows Morishima's proposition and adds an investment function to the system. However, with the additional equation there comes an additional variable, the rate of interest. The result is that 'the introduction of the Keynesian investment function into the Walrasian system does not lead to the over-determinacy of the Walrasian system … Thus the problem of over-determinacy cannot be a proper starting point for the journey from the Walrasian towards the Keynesian system' (Negishi, 2000, p. 260).

## 6. Concluding remarks

We may now draw some conlusions from the above analysis, focusing on a comparison of the two authors under consideration. The first thing that strikes the reader is that both Morishima and Negishi are authors with a thorough interest in and knowledge of some of the most important traditions in the history of economic thought. They are very well read and erudite and have studied with great care and circumspection the contributions of many of the great economists from Adam Smith (and before) to our times. Secondly, both are interested in the history of economic thought because they consider the works of the old masters as a fertile source of valuable ideas, only some of which have been absorbed into contemporary economic theory. A study of these works has thus nothing to do with morbid antiquarianism. It rather expresses the conviction that even nowadays we can still learn from Adam Smith, David Ricardo, Karl Marx, Léon Walras, Knut Wicksell, John Maynard Keynes etc. Third, according to the views of our two authors such learning often requires that old ideas are incorporated into modern analytical frameworks – an elaborated version of the von Neumann model in the case of Morishima or a partial or general equilibrium model in the case of Negishi. It is the combination of reconfigured existing ideas, old and new, that embodies the potential of analytical progress and can be expected to improve our understanding of economic facts and processes. However, as especially Negishi admits, there are cases in which certain old ideas run counter to, and therefore are incompatible with, modern analytical frameworks. In such cases the respective ideas cannot be made to speak to us by integrating them into some existing theory or model. It is rather necessary to develop a framework that is conducive to them. Fourth, in at least one important respect the two authors approach the

history of economic thought from rather different perspectives. While Morishima appears to be convinced that such diverse authors as, in particular, Ricardo, Marx, Walras and Keynes can all be brought together and their ideas synthesised and integrated into a coherent whole, Negishi variously expresses the view that there are differences between different authors that cannot (easily) be overcome. These different perspectives are reflected in the very different characters of the two authors' works. Morishima attempted to elaborate a sort of metatheory that incorporates various old masters' analyses. His trilogy in particular expresses his concern with building an overarching system of economic analysis. Negishi is much more cautious in this regard and refrains from engaging in such a demanding enterprise. His contribution consists mostly of short papers, each of which is dedicated to a particular problem at hand which is then typically, but not always, dealt with in terms of a formalisation.

These different perspectives, and this is my fifth and final observation, imply somewhat different attitudes towards the historical material. Morishima emphasises time and again that his main concern is not with a comprehensive, let alone complete, historical reconstruction of the works under consideration, but with identifying those elements that point beyond the respective author's own work and contribute to the genealogy of modern theory. Hence, Morishima sees past authors first and foremost from the perspective of what they contributed to modern theory, as conceived by Morishima. He attempts to localise their works as processing elements in this development. Compared with him Negishi places a good deal more attention on historical reconstructions that are faithful to the authors under consideration. He insists on the variety and complexity of ideas and is less prepared to try to integrate them into an allegedly coherent whole.

But whatever may be the differences between their approaches to the history of economic theories, both deserve praise for having broadened and deepened our understanding both of past authors, alternative approaches to economic problems and contemprary economic theory. They belong to a small group of truly remarkable economists who combined an interest in economic theories with an interest in their emergence and development and in the yet unexploited potentials of elaborating on and judiciously combining received and new ideas. As one of the two scholars succinctly put it: 'Economics is a science which cannot dispense with its history' (Negishi, 1993b, p. 55).

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