

**TOWARDS A RE-INTERPRETATION OF
THE ECONOMICS OF FEASIBLE SOCIALISM**

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ABSTRACT

This paper re-examines the debate on whether socialism is feasible from the perspective of the literature on the division of labour and organisational forms. Our central argument is twofold. First, each of the major protagonists in the debate provide a partial explanation as to when market socialism, planned socialism and participatory socialism are feasible. Second, the different perspectives on when socialism is feasible can be reconciled through seeing the arguments in terms of specific techno-economic paradigms, which are underpinned by their own concepts of the division of labour and efficiency attributes. We will show that theories on the economics of socialism reflect different techno-economic paradigms and that when, and whether, the various views on socialism are appropriate depend on the prevailing external conditions, economic growth path and existing mode of institutional arrangement.

KEYWORDS

Division of Labour, Organisational Forms, Socialism,

JEL CLASSIFICATIONS

B2, P3

1. Introduction

In contrast to the world wide collapse of Soviet-type socialism and the failure of earlier experiments with market socialism in countries such as Hungary and Yugoslavia, discussion on the economics of socialism has enjoyed an intellectual renaissance since the 1980s. As Auerbach *et al* (1988, p. 61) put it: “The question of socialism is once more in the air”. The debate over “the economics of feasible socialism”, carried out mainly in the *New Left Review*, has tended to be largely confined to left-wing intellectuals. The renewed interest in market socialism more generally, however, has been associated with the publication of a major volume by prominent economists (Bardhan and Roemer 1993) and academic exchanges in mainstream economic journals such as the *Journal of Economic Perspectives* (see Bardhan and Roemer 1992, 1994; Shleifer and Vishny 1994).

Our main objective in this paper is to re-examine the debate on whether socialism is feasible from the perspective of the literature on the division of labour and organisational forms. Our central argument is that each of the major protagonists in the debate provide a partial explanation as to when each of the various versions of socialism are feasible. We also suggest that the differing views on when socialism is feasible can be reconciled through seeing the arguments in terms of specific techno-economic paradigms, which are underpinned by their own concepts of the division of labour. Once it is shown that theories on the economics of socialism reflect different techno-economic paradigms and are associated with different efficiency attributes, it follows that when, and whether, the various views on socialism are appropriate depend on the prevailing external conditions, economic growth path and existing mode of institutional arrangement.

In this context, we also explore the issue of socialising the market. Socialism attaches central importance to the progressive emancipation of labour from alienation. This entails continuously expanding non-market provision of the materials necessary for improvement in the cultural capacity of workers, together with increasing workers' control over the labour process. However, feasible socialism implies that the implementation of these socialist principles must be based on the existence of certain material conditions. The issue of socializing the market thus comes down to a more specific question: to what extent, and under what conditions, can the loss of efficiency associated with limiting the free operation of the market be compensated by the implementation of socialist principles? Foreshadowing one of the main conclusions of the paper, our tentative answer to this question is that the feasibility of socialising the market depends on the techno-economic paradigm in question.

The paper is set out as follows. In the next section we provide a brief overview of the debate over the economics of socialism, covering the economic calculation debate of the 1920s and 1930s up to the contributions in the 1980s and 1990s. Section three discusses the literature on the division of labour and techno-economic paradigms and sets up a conceptual framework to re-examine the debate on socialism. In section four we attempt a synthesis of the literature on the economics of socialism through placing the different theories in the context of specific techno-economic paradigms and examining their comparative efficiency attributes. We also place the discussion in the broader context of the issue of technological determinism and the extent to which the choice of a specific techno-economic paradigm can be subject to the conscious control of society. Section five offers some conclusions.

2. A Review of the Debate over the Economics of Socialism

The modern debate over the economics of socialism started with Barone (1908 [1935]) who argued that the central planner, like the Walrasian auctioneer, can solve n equations with n unknowns and so determine prices that simultaneously clear all markets (Shleifer and Vishny 1994, p. 166). The economic calculation debate in the 1920 and 1930s, which took Barone's contribution as a starting point, was about whether it was possible to have rational economic calculation in a socialist economic system, where socialism is defined as public ownership of the means of production. The two principal antagonists in the debate were economists from the Austrian school, who argued that rational calculation in a socialist system was not possible, and economists working within a Walrasian framework, who claimed that it was feasible (see Adaman and Devine 1996; Lavoie 1985).

The main Austrian critics were von Mises (1920 [1935]) and Hayek (1935) who argued that the state does not have the knowledge to calculate general equilibrium prices and that market prices were essential for the state to allocate resources (see Adaman and Devine 1996; Caldwell 1997). In response to this criticism, Lange (1938) developed a decentralized model of market socialism within a Walrasian framework. The Lange model incorporates real markets for labour and consumer goods and pseudo-markets for producer goods, with profits being distributed by the state according to democratically determined criteria. It thus combines the allocative efficiency of the Walrasian, perfectly competitive market system with the socialist ideal of egalitarian income distribution.

Dobb's (1937) contribution was to broaden the debate on the concept of socialism from a change in the legal ownership of production to encompass planning. Dobb contended that there is uncertainty associated with atomistic decision making and

therefore *ex ante* planning is needed. This perspective is based on three arguments (see Adaman and Devine 1996, pp. 527-528). First, where sectors and industries are closely interconnected it is much easier to coordinate decisions before they are implemented. Second, through planning it is possible to overcome the uncertainties which are inherent in production for a market thus reducing the time-lags associated with adjustment. Third, items which appear as “data” in the static problem – the rate of investment, the distribution of investment between capital goods and consumer goods and the choice of production methods – can be converted through planning into “variables” in a dynamic framework.

The debate over market and planning resurfaced in the 1980s in a series of articles in the *New Left Review*, which were triggered by Nove’s (1983) critique of central planning. *Contra* to Dobb, Nove (1983, 1987) argued that the fact remains that planning without markets is exceedingly complex and costly. It involves coordinating several million varieties of goods and services, which are produced by hundreds of thousands of enterprises in circumstances where consumption and production patterns are changing. In response to Nove, Mandel (1986, 1988, 1992) suggested that historically as monopoly capitalism has developed, the planned organisation of work has expanded with the growth of the firm, thus radically reducing the role of market allocation. Mandel also puts forward the view that with the increase in social wealth, the number of goods and services that are characterized by inelastic demand has progressively increased, leading to the withering away of market regulation and expanding the scope for free provision and hence planning.

Auerbach *et al* (1988) criticize the first of Mandel’s arguments. They accept that the internal organisation of large capitalist corporations has expanded, but argue that there is no evidence to indicate that this has taken place at the expense of market-based activities. Moreover, there are widespread activities that could be interpreted

as “internal markets” within organisations and planned creation of markets by organisations, which largely blur the historical trends that Mandel identifies. There are both similarities and differences between Auerbach *et al*'s (1988) critique of Mandel and criticisms of the Williamson notion of hierarchies. In the Coasean tradition, Williamson's (1985 p. 87) controversial starting point is that “in the beginning there were markets”. While Auerbach *et al* (1988, p. 74) point out that in some instances firms come before markets, in general they merely argue that hierarchies have not completely replaced markets. Critics of Williamson's notion of hierarchies question the view that there were ever markets in the first place (see Fourie 1989, 1993; Kay 1993; Sawyer 1993).

The reinterpretation of the debate by Neo-Austrian economists in the 1980s highlights the centrality of the notion of entrepreneurship in Hayek's contribution (Lavoie 1985). This shifts the focus of the debate from Lange-type neoclassical concerns with achieving Pareto optimality to a more dynamic perspective on innovation and productivity growth. The Neo-Austrian view of entrepreneurship replaces the neoclassical concept of the Walrasian auctioneer in the earlier debate. The Neo-Austrian perspective builds on the Hayekian notion of entrepreneurship, which centers around the argument that economic knowledge is tacit in nature. In other words, it cannot be objectified, codified or transferred, but must rather be discovered and socially mobilised in the course of entrepreneurial activities in the market process (Caldwell 1997). According to Hayek, entrepreneurial activities must be based on private property, because only private property provides the necessary individualistic incentives to promote entrepreneurship.

This view, however, is explicitly questioned in Mandel (1992). Addressing (Neo)-Austrian arguments about the relationship between markets and innovation, Mandel proposes that because most discoveries and innovations have been made outside

the commercial nexus, the absence of market competition in no sense necessitates a lack of innovation. Taking a different tact, Adaman and Devine (1996) also argue that the Neo-Austrian view that entrepreneurship and private ownership are intrinsically linked is flawed. Combining Austrian insights into the nature of knowledge and Dobb's perspective on the rationale for planning, their framework couples participatory planning with social ownership. Adaman and Devine (1996, p. 533) argue that this would enable "a *more* general social mobilisation of tacit knowledge than that envisaged by the Austrians to be combined with the *ex ante* coordination of major interdependent decisions that Dobb considered to be the essence of planning" (emphasis added).

One problem with the early models of market socialism, such as that of Lange (1938), is their failure to consider the importance of corporate governance issues in market and socialist economies. These issues are addressed in Bardhan and Roemer-type "fifth generation models" of market socialism (see Bardhan and Roemer 1992, 1993).¹ These models deal with incentive and control mechanisms without privatization through attempting to insulate state firms from political pressures. Principal-agent issues within the firm are dealt with through, for example, giving a monitoring role to a group of socially-owned large banks (Bardhan and Roemer 1992); a "main bank" and enterprise group around the main bank (Bardhan 1993) or utilizing a coupon stock market and "main bank" arrangement (Roemer 1993).

3. Growth Paths and Principles of the Division of Labour

3.1 Equilibrium versus Path Dependent Outcomes

Having briefly reviewed the main arguments and propositions related to the debate over the economics of socialism, in what follows, we seek to re-interpret the debate from a perspective that gives a central role to principles of the division of labour and

their re-integration. Our starting point concerns the relevance of equilibrium methodology. As is well known, standard neoclassical economics is built on the convergence proposition, which states that there exists a (uniquely) optimal state towards which real-world economies will converge through a process of competitive selection. In growth theory, this optimal state refers to the notional steady-state growth path, or, more broadly in a systemic sense, to the “natural path of economic development”. Likewise, in orthodox accounts of comparative economic systems, the optimal state refers to “normal economic institutions”. The convergence proposition is based *inter alia* on the following attributes: (a) the rationality postulate; (b) general equilibrium analysis; (c) an exclusive focus on exchange; and (d) the assumption that the optimal state is exogenously determined and accessible for all agents.

Conceivably, various alternative theories can exist that rival all or some of the attributes of the convergence proposition. One prominent rival to the steady-state growth path is the theory of circular and cumulative causation, which suggests that economic growth paths are often path (history) dependent and thus tend to diverge rather than converge. Specifically, the notion of circular and cumulative causation suggests that, in conjunction with equation (1), which is consistent with neoclassical growth theory, equation (2) also holds.

$$q = q(p) \tag{1}$$

$$p = p(q) \tag{2}$$

Here p and q are respectively the growth rates of output and productivity. The co-existence of the two equations implies that there exists a two-way relationship between output and productivity growth, thus making it unlikely (if not impossible) that convergence will be the outcome.

Two contrasting ways of elaborating on this general formulation are of note. First, even within the confinement of neoclassical economics, some endogenous technological change models accept the existence of (some degree of) circular and cumulative causation, but argue that, on the scale of the world market, this is an exception rather than the norm (see, e.g., Romer 1993). The extent of circular and cumulative causation is limited by the rationality of individualist agents, and an equilibrium outcome generated through exchange is likely in the long-term. Second, in contrast, Kaldorian theories argue that the determinants of endogenous technological change are not reducible to individualistic choices; instead, they arise from economy-wide increases in the division of labour. Another aspect of this second line of argument is that, in connection with output and productivity growth, there must be corresponding changes in the related technological profiles and social institutions as well. This is the notion of transformational rather than expansionary growth (Neil 1998). The implication of the Kaldorian perspective is that, theoretically, there could be no limit on circular and cumulative causation under the regulation of the market. To what extent this is true depends on the interaction between the trajectory of technological progress, the economic growth paths in question, and the dynamics of the formation of institutions.

3.2 Underpinning Notions of the Division of Labour and Organisational Forms

In the relevant theoretical literature, there are two different principles of the division of labour. These are the detailed division of labour and the social division of labour. One approach to examining the difference between the two concepts is to consider the economic relations which each involves. The detailed division of labour refers to the hierarchical relationship between capital and labour within the firm. The social division of labour refers to the relationship between capitalists in competition with each other as independent entities (Fine 1982, p. 41). At a more fundamental level, the differences between the two principles can be considered in terms of their

respective cognitive bases. For the detailed division of labour, productivity growth is generated by the separation of conception and execution within the confinement of a given cognitive framework. The concrete manifestation in modern economies is the transition from the craft system to the factory system, and this transition has often been interpreted as being driven by the expansion of the scale of exchange. This is reflected in Adam Smith's (1776 [1976]) famous dictum that "the division of labour is limited by the extent of the market". The comparative efficiency attribute of the detailed division of labour takes the form of economies of scale. In contrast, the social division of labour is characterized by the integration of conception and execution and productivity growth is generated by the process of exploration between deepening the given cognitive framework and selecting a new cognitive framework (see Piore 1992, pp. 165-167). The driving force behind the social division of labour stems from the sphere of production, and the comparative efficiency attribute underpinning it takes the form of economies of scope.

The realisation of the efficiency attributes of the two principles of the division of labour depends on their appropriate match, or otherwise, with the economic growth paths and the institutional mechanisms responsible for re-integrating the division of labour – that is, the prevailing techno-economic paradigms. A convenient starting point for examining this issue is the literature on theories of the firm, from which three different traditions are discernible. These are the market, hierarchies and network paradigms.² In spite of some obvious differences between them regarding concrete propositions, the market and hierarchies paradigms are ultimately based on the principle of detailed division of labour because of the central importance both attach to the notion of information.

In both paradigms, information stems from a given cognitive framework, is exogenous to economic agents and is thus potentially available from market

purchase. The market paradigm is in the spirit of “the market always exists” or the “market and firms are opposite sides of the same coin” (see Alchian and Demsetz 1972, Jensen and Meckling 1976, Cheung 1983). The hierarchies paradigm, at least in the Coasean/Williamson tradition, is in the spirit of “in the beginning there were markets”. Williamson purports to shed some of the main assumptions of neoclassical economics, such as the rational actor, in favour of bounded rationality, but in the end his hierarchies explanation is premised on the neoclassical concept of market failure (Best 1990 chap. 4). Williamson ignores the potential for value creation within the firm. For example, in discussing Chandler’s (1990) work on the emergence of big business Williamson focuses on economies of scale, but overlooks the effect of vertical integration on a firm’s organisational capabilities to innovate and learn (Bianchi 1995). Both the market and hierarchies stories adhere to the conclusion that, ultimately, the efficiency of the firm (and of the economic system in general) depends on the extent to which it is in line with the principles of individualistic rational choices and the equilibrium outcome of voluntary exchanges. As in growth theory, in the context of theories of institution formation, the argument here is that deviations from the optimal (best possible) state are limited by the rationality of individuals and equilibrium individual exchange.

The network paradigm centres on the notion of knowledge, which is generated through collective learning. In distinguishing the network paradigm from the market and hierarchies paradigms there is an important distinction between information and knowledge. The market provides information, but problem-solving activities involving search and discovery are based on competencies and visions which are a logical precondition for transferring information into knowledge (Dosi 1988 pp. 233-234). In this respect, “creating production knowledge by problem solving is more than the flow of information: information is already existing knowledge; problem solving is the

creation of knowledge. The latter is the secret of the entrepreneurial firm” (Best 1990, p. 13).

The creation of knowledge stems from self-motivated learning by participants in the production process and from active cooperation between them. The concepts of reciprocity and social norms, which underpin networks, have been suggested as being responsible for re-integrating the social division of labour. The emphasis on norms and reciprocity is perhaps strongest in the literature on flexible specialisation and industrial districts; in particular the Third Italy (see, e.g., Brusco 1982; Scott and Storper 1992; Lorenz 1992; Best 1990 chap. 7). An emphasis on cooperation is also a prominent feature of the literature on the traditional Japanese firm (see Aoki 1990; Best 1990 chap. 5; Gerlach 1992). Both of these concepts, which are essential for facilitating collective learning, are outgrowths of long-term relationships and are not reducible to individualistic rational choices.

The actual forms of industrial organisation that are in line with the network paradigm tend to exhibit stakeholder accountability. In contrast, both the market and hierarchies paradigms are consistent with industrial organisational forms that exhibit shareholder accountability. It is worth emphasising that these paradigms are not just theories of the firm but rather of the broader economic system. From a theory of team production in Alchian and Demsetz’s (1972) “classical capitalist firm”, the market paradigm has been developed into a general theory of property rights. From its starting point concerning the exchange of products, the hierarchies paradigm has evolved into a theory of internal markets. The network paradigm initially focused on the division of labour in the production process, but has been generalized to cover various aspects of collective learning, including long-term relationships in products, labour and finance, all of which are considered as essential for facilitating self-motivated learning and active cooperation.

3.3 *Techno-economic Paradigms: Technology, Growth Paths and Systemic Change*

The above discussion does not examine the comparative efficiency and significance for economic development of the two principles of the division of labour and, by extension, the institutional arrangements that serve as mechanisms of re-integration. To investigate these issues we take as our starting point the view in Aoki (1990) and Kay (1982) that comparative efficiency depends on the degree to which planning of the external environment is feasible. Aoki (1990) proposes that because the extent to which planning is feasible reflects the influence of economic agents on the market, different degrees of *ex ante* planning reflect different forms of market competition. This proposition is generalized in Smyth and Lo (2000, pp. 340-346) to suggest that market-hierarchies and network stories can be viewed in the context of different patterns of growth.

In the situation where the degree of *ex ante* planning is zero, the market is characterised by perfect competition and the external environment is highly unstable from the perspective of individual firms. In these circumstances, the organisation of the firm is consistent with the market paradigm and this is particularly true of the atomistic firm which is the standard neoclassical construct. This is because such firms have a short-term orientation and have institutional arrangements that are conducive to providing the highest degree of flexibility. This allows the firm to make a series of adjustments in response to rapid fluctuations in the external environment. Thus, when the external environment is unstable the atomistic neoclassical firm premised on the market paradigm is comparatively efficient, and the main source of its competitiveness is allocative efficiency.

A deviation in the degree to which planning is feasible from zero implies imperfect competition, and it is widely accepted that imperfect competition is intrinsic to

endogenous technological change (Romer 1994). In the situation where the degree of planning is high, flexibility is not an important factor in accounting for the comparative efficiency of the firm. In this scenario the organisation of the firm is in line with the hierarchies paradigm. The focus of the firm is on *ex ante* and centralized planning, which has the advantage of maximising the detailed division of labour within the firm. The main source of competitiveness is economies of scale. The final situation is the intermediate case where the external environment is continuously changing in a steady but not violent fashion. In this situation the organisation of the firm is consistent with the network paradigm. The focus of the firm is on decentralized collective learning, which has the advantage of generating continuous and incremental innovations both to adapt to and to govern the changes in the external environment. The main source of competitiveness is economies of scope.

Table 1. A Taxonomy of Techno-economic Paradigms

	Principle of the Division of Labour	Attribute of Comparative Efficiency	Required External Conditions	Path of Economic Growth	Mode of Institutional Arrangement
Paradigm I	Detailed	Allocative efficiency	(Atomistic) perfect competition	Steady-state growth path	Markets
Paradigm II	Detailed	Economies of scale	(Static) imperfect competition	Transitory multiple growth paths	Hierarchies
Paradigm III	Social	Economies of scope	(Dynamic) imperfect competition	Non-converging multiple growth paths	Networks

Table 1 summarises the main features of three different techno-economic paradigms. A technological paradigm is a pattern of solutions to selected technical problems, which derives from certain engineering relationships (Dosi 1982; Teece 1996).

Freeman and Perez (1988) use the broader term “techno-economic paradigm” to describe those pervasive technologies, which influence the behavior of firms and industries throughout the whole economic system. The changes involved with techno-economic paradigms go beyond engineering trajectories for specific products and affect the input cost structure and conditions of production and distribution through the whole system. In this sense, a techno-economic paradigm is a macro-technological concept and refers to broad clusters of technological paradigms in the sense Dosi uses the latter term (see Dosi 1988 p. 225).

Table 1 highlights the logical links between the corresponding principle of the division of labour, attribute of comparative efficiency, required external conditions, economic growth path and mode of institutional arrangements. We focus our attention on paradigms II and III where the difference in external condition is very subtle. A stable market environment is normally associated with static competition underpinned by economies of scale. Static competition typically takes the form of a shifting market structure between oligopoly and monopoly, with the limit of the shifts being governed by an exogenously determined technology level and, hence, cost function. In contrast, a steadily changing market environment is normally associated with dynamic competition underpinned by economies of scope. Dynamic competition typically takes the form of temporary monopoly with the continual threat of potential entry and where the necessary condition for dynamic competition is that technology is endogenously determined.

Neoclassical models of endogenous technological change tend to interpret dynamic competition as merely a transitory state between static competition. This is premised on the view that multiple growth paths that exist in transitory states would ultimately converge to the steady-state growth path. This interpretation presumes that the multiple directions of technological change would converge to a single direction

under the regulation of the market. However, it is generally agreed that in no sense are techno-economic paradigms products of market regulation (see Freeman & Perez, 1988; Dosi and Salvatore, 1992 pp. 179-181; Best 1990 pp. 117-118). It is only in a given techno-economic paradigm (paradigm 1 in table 1) that market regulation could lead to convergence and even here the effect of market regulation is not deterministic. This is because the capability of economic agents (the firm) in breaking the constraints imposed on them by the given techno-economic paradigm is a relevant factor in the process.

4. Re-interpreting the Debate over the Economics of Socialism

4.1 Market Socialism and Planned Socialism: The Arguments Re-examined

This section re-examines the debate on when, and whether, socialism is feasible from the perspective of the literature on the division of labour and organisational forms. At one end of the spectrum, the classic Lange model of market socialism fits into the pure market paradigm and is underpinned by the detailed division of labour. This is because the Lange model of market socialism, like the standard textbook model of capitalism, focuses on the primacy of the role of prices in allocating resources (see Bardhan and Roemer 1992; Stiglitz, 1993, 1994). It is premised on neoclassical economics with the only deviation being an emphasis on public ownership. The comparative efficiency attribute here is clearly allocative efficiency, where certain institutional arrangements, by mimicking the Walrasian auctioneer, set prices within a general equilibrium framework. The vision of the classic Lange model is partial because it does not take account of the arguments reviewed in section two such as the multiple notions of entrepreneurship, the arguments for planning and the pervasiveness of information-type market failures. As Bowles (1985, p.16) notes: "The Walrasian model presents no analysis of the internal social organization of the

firm". Stiglitz (1993, p.21) makes a similar point focusing on the role of information.

He points out:

The fundamental problem [with the Lange model] is that [it fails] to take into account a variety of problems which arise from the absence of perfect information – and the costs of information – as well as the absence of certain key risk markets; the absence of these risk markets, in turn, can – to a large extent – be attributed to informational problems. Within the purview of informational problems I include those that are concerned with *selection*, those concerned with *incentives*, and those concerned with *learning* (emphasis in original).

Running chronologically parallel to Lange in the economic calculation debate were Dobb's insights on the value of planning. Dobb shifts the debate from the market paradigm towards the hierarchies paradigm with his stringent criticism of decentralised decision making and advocacy of central planning. The Dobb perspective, however, is still clearly underpinned by the detailed division of labour given his understanding of the concept of knowledge. While Dobb was critical of the static nature of neoclassical economics, his epistemological stance is similar to neoclassical economics on the issue of information versus knowledge. Dobb's neoclassical view of knowledge coupled with his emphasis on planning means that Dobb's comparative efficiency attribute can be regarded as mainly economies of scale. Adaman and Devine (1996 pp.528-529) stress the similarities between Dobb and neoclassical economics:

[I]t is important to remember that Dobb's view of knowledge was essentially the same as that of the neoclassical school. In arguing that the uncertainties necessarily associated with the atomistic decision

making that lies at the heart of the operation of market forces could be overcome through *ex ante* planning and coordination, he assumed that major interconnections and interdependencies would be objectively known. He thus failed to take account of the Austrian insight regarding the tacit nature of knowledge and the processes of learning.

Some more recent contributions to the debate over the economics of socialism are also based on the hierarchies paradigm. The Leninist theory of the objective socialisation of production via its advocacy of planning, and by extension, its critique of market socialism is based on the traditional Coasean/Williamson notion of hierarchies, but with its own emphasis on the relationship between relative affluence and free provision. In its modern guise, in the writings of scholars such as Mandel, objective socialisation is clearly underpinned by the detailed division of labour centred on the notion of information (see Mandel 1986, 1988). The central framework in Mandel's writings is, in this sense, still general equilibrium. Elson (1988 p.23) notes that in effect Mandel sees the planning system as playing the same role as a Walrasian auctioneer. The difference between Mandel and advocates of conventional general equilibrium models of market socialism, such as Lange, is that the comparative efficiency attribute focuses on economies of scale rather than allocative efficiency. This is reflected in Mandel's view that the seeds of socialist planning have been sown in the withering of markets and the simultaneous growth of large production units designed to maximise the detailed division of labour and economies of scale in late capitalism.

As discussed in section two, Auerbach *et al* (1988) disagree with Mandel's (1986) assessment that hierarchies have replaced markets in late capitalism. However, Auerbach *et al*'s view of the interplay between markets and planning with its emphasis on the role of internal markets is still close to Williamson. In stressing the

role of internal markets Auerbach *et al* (1988, p.76) note: “in the course of the twentieth century many giant corporations have used the multidivisional structure ... in order to stimulate the discipline of the market *inside* the corporate structure” (emphasis in original). At the same time, the concept of the multidivisional firm (or M-form) was the main basis of Williamson’s (1975) study of business organisations in the United States. In fact, the term M-form was first coined in Williamson (1975). Thus Auerbach *et al*’s (1998) focus on internal markets fits within the market-hierarchies paradigm, although there is some ambiguity in their critique over the relative importance of information versus knowledge.

4.2. The Multiplicity of Entrepreneurship and its Implications

The (Neo-)Austrian critique of socialism shifts the focus away from the neoclassical preoccupation with Pareto optimality towards value creation, while still adhering more to the detailed division of labour than the social division of labour through its contention that in the end market prices are the best guide for rational decision-making. The Austrian view of knowledge is different to both the neoclassical and Dobb perspectives. The Austrian view is that knowledge cannot be objectified or transferred, but must be discovered in the entrepreneurial process (Caldwell 1997; Kirzner 1997). In this sense, the Austrian notion of discovery is different from the neoclassical notion of search. According to Kirzner (1997, p.62): “Entrepreneurial discovery is seen as gradually, but systematically pushing back the boundaries of sheer ignorance”. This statement suggests that learning is an important component of discovery, which opens the door for non-converging multiple growth paths and broader organisational learning stories of the firm.

This thematic shift underscores the multiple facets of entrepreneurship under different techno-economic paradigms. As discussed in section two, the Austrian view is that entrepreneurial activities are only incentive consistent with private ownership.

Yet, the discussion in section three makes clear that this interpretation of entrepreneurship is based on a specific techno-economic paradigm, which is not necessarily the dominant one in the real world. In a different paradigm where the learning and discovery process is carried out by agents not confined to individualistic natural persons (let alone the natural-personal owners of the firm), entrepreneurial activity becomes a collective process and private ownership ceases to have an *a priori* claim to efficiency, defined in terms of economies of scope.

From a production rather than exchange perspective, the principal-agent relationship can also be viewed in a different light. The exchange perspective stresses the need for effective monitoring of the agent, but on the other side of the ledger focusing on allocative efficiency could generate problems on the principal side in the form of short-termism. This sets up a potential trade-off between the relative benefits of allocative efficiency, which focuses on reducing the harmful effects of shirking, and productive efficiency, which shields the principal from having to address short-term considerations and therefore fosters a longer planning horizon. In a techno-economic paradigm where the latter has comparative efficiency attributes, notions such as the entrepreneurial (developmental) state and the collectivist entrepreneurial firm could prevail.

Bardhan and Roemer-type fifth generation models of market socialism straddle techno-economic paradigms based on the detailed division of labour and social division of labour. Consistent with earlier models of market socialism, fifth generation models continue to use the market to allocate most commodities. In this sense, just as in the earlier Lange model, the comparative efficiency attribute is allocative efficiency and the competitive process is underpinned by the detailed division of labour. However, fifth generation models are more sophisticated than the Lange-type models of market socialism, which are in the tradition of Walrasian general

equilibrium. The fifth generation models embrace elements of collective learning through incorporation of aspects of the traditional Japanese firm as a monitoring device (see Bardhan and Roemer 1992). An important feature of the traditional Japanese firm is that the major stake-holders – the financial interests, the management, and workers – make a long term commitment to the firm. Aoki (1990) argues that this promotes productive efficiency, because the institutional arrangements are conducive to collective learning or continuous incremental innovation and thus productivity growth. At the same time it has a potential adverse effect on the pursuit of allocative efficiency because the corporate governance structure cushions the firm from the full rigor of financial and labour markets.

At a different level, fifth generation models embrace certain aspects of the developmental state as well. For instance, Bardhan and Roemer (1994 p.179) champion the “many cases where the state has shown some institutional coherence in the pursuit of collective economic goals, including goals of dynamic efficiency”, and refer to the concrete examples of the developmental states of Japan, South Korea and Taiwan. This endorsement of the potential for government-induced dynamic efficiency gains by the principal architects of fifth-generation models represents a shift in thinking from the Lange-type model. This is all the more so, when it is remembered that the use of selective intervention in these countries has been characterized as the complete antithesis of the pursuit of allocative efficiency under market regulation in both the conventional World Bank market-oriented development and dissident late-industrialization literatures.

4.3 Participatory Socialism: Visions, Attributes, and the Question of Feasibility

A further shift of focus that arises largely from the Austrian critique of socialism concerns the relationship between politics and economics. Hayek’s critique of all versions of collectivist intervention in economic activity on the ground that this

infringes on the liberty of individuals has had a profound and lasting influence on the subsequent debate. In devising their fifth-generation models of market socialism, Bardhan and Roemer (1993) describe the central issues facing market socialism. These are (at p. 11) “how to monitor the managers of public firms to maximise profits, to get them involved in competitive races for innovation, to discipline laxity, and how to separate political from economic criteria in decision making”. These issues are premised on the perception that, ultimately, the separation of politics and economics is essential for efficiency considerations, despite the allowance in these models for elements of the collective-learning firm and even the developmental state.

In contrast, it is a recurring theme in the tradition of socialist thinking that economic activities, and the operation of the market in particular, should be subject to the conscious guidance of society through a democratic, participatory process. This thematic concern has been, to different extents and in varied ways, embodied in the various versions of socialist economics. The Lange model of market socialism is well known for its advocacy of democratic determination of the distribution of social dividends, although it tends to leave resource allocation and corporate governance to be shaped by the working of the impersonal market. The Leninist theory of central planning, especially in the writings of Mandel, emphasises the indispensability of democratic participation in plan formulation, although it also forcefully argues that the authorities' orders should not be challenged in the actual implementation of the plan. Its advocacy of reducing working hours and of free provision of necessities to the working population, which are essential to promoting workers' participation in plan formulation, represent a further attempt to ensure the “scientific” nature (or “global rationality”) of the plan. Finally, recent socialist writings on economic democracy have gone so far as to advocate that the penetration of the principle of democratic accountability into the sphere of corporate governance is not only of social-welfare value in its own right but also has superiority in terms of efficiency attributes. Bowles'

(1985) argument about the intrinsic inefficiency of the capitalist firm is representative in this regard. Bowles (1985, p. 133) traces the ultimate sources of inefficiency to the alienated nature of work under capitalism, stating:

A more democratic structure of decision making and a more egalitarian distribution of the firm's net revenues, for example, might both reduce the incentive to pursue non-work activities and heighten the cost of so doing by enlisting fellow workers as more ardent enforcers of the pace of work, or more willing cooperators with the surveillance system.

The recent debate over the economics of feasible socialism has given rise to the suggestion of socialising the market, which can be viewed as the latest model of participatory socialism (see, e.g., Dietrich 1986; Elson 1988). In response to the debate between Mandel and Nove over the merits of market socialism, Elson (1988) proposes an alternative to markets and hierarchies, which she calls the socialisation of the market. Her critique of Mandel (1986) is similar to that of Auerbach *et al* (1988), but with further discounting of the rationality of the market. Elson's (1988) approach is based mainly on a recognition and appreciation of the importance of networks – implicit contracts, moral commitments, and the role of reciprocity, trust and social norms – as an alternative to the market and planning for coordinating economic activities. Elson envisages the economic system as being organised around popular participation in planning through direct cooperation between organisations of producers and households that use their products. An essential condition for the functioning of this system is equal and easy access to information, which is provided for free. Social institutions such as unions of consumers, unions of workers and democratically operating firms, which set prices and determine state and local budgets, provide the focal point for popular participation.

The notion of informal institutions in socialism, as used by Elson (1988), is also a central theme of Dietrich (1986) who rejects the market/plan dichotomy. Dietrich (1986) argues that both market and planning mechanisms need a third sort of nexus, which he describes as informal relationships. Similar to Elson (1988), Dietrich (1986) sees these informal relationships as grounded in the social division of labour and he draws on organisational learning theories of the firm, such as the literature on the traditional Japanese firm, to illustrate his argument. There are also similarities in approach between Dietrich (1986) and Elson (1988) and the literature linking flexible specialisation to associational socialism (see, e.g., Thompson 1989). This provides the foundations of a theory of socialism based on networks and underpinned by the social division of labour.

Table 2. A Taxonomy of Different Models of Socialism

	Specific Techno-Economic Paradigm (as defined in Table 1)	Specificity of Institutional Arrangements	Attribute of Social Welfare	Conditions of Feasibility
Market Socialism	Paradigm I	Avoiding political interference in economic decision making and implementation	Economic liberty	Well-developed techno-economic system
Planned Socialism	Paradigm II	Encouraging political participation in economic decision making, but avoiding political interference in economic decision implementation	Free provision of necessities to labour	Well-developed technology, but needs to reshape economic institutions
Participatory Socialism	Paradigm III	Encouraging political participation in economic decision making and implementation	Economic democracy	Needs to reshape techno-economic system

The taxonomy in Table 2 highlights the contrasting attributes of market socialism, planned socialism and participatory socialism, as seen in the light of the different techno-economic paradigms presented in table 1. We first draw attention to the different visions of the specificity of institutional arrangements and the associated attributes of social welfare. Market socialism tends to contend that political interference in economic decision making and actual implementation should be avoided. While the focus is mainly on efficiency, it also entails concern over individual liberty *à la* Hayek (see, e.g., Sayer 1995). As discussed above, planned socialism, at least in the writings of Mandel and similar writers, is categorical in contending that political participation should be encouraged in economic decision-making, but should be avoided in actual implementation. Again, the concern is mainly over efficiency. The suggestion that political participation should be encouraged in plan formation is intended to solve the information problem of coordinating economic activities. The view that political participation should be avoided in implementation is intended to solve the incentive or monitoring problem. Finally, participatory socialism attaches importance to the practice of economic democracy in decision making and implementation, both as a worth-pursuing welfare standard and for efficiency considerations. The contention is that there are efficiency gains from collective learning through self-motivated learning of individuals and active cooperation between individuals, primarily as producers but also as consumers.

Viewed in terms of our discussion on techno-economic paradigms, it is clear that each of the versions of the economics of socialism tells only a partial story. This leads to the question of their feasibility. Comparing participatory socialism with market socialism (or with the canonical market economy), the issue of feasibility comes down to a more specific question: to what extent, and under what conditions,

can the loss of allocative efficiency due to fettering the free operation of the market be compensated by collective learning? The answer is that the comparative efficiency of institutional arrangements based on networks and the social division of labour depends on the scope for collective learning and external planning, given the prevailing techno-economic paradigm together with any feasible alternatives. A similar question and answer apply to the comparison between planned socialism and capitalism. In the relevant theoretical literature, planned socialism is often regarded as being more capable of solving the problem of macro coordination failure and of capturing economies of scale, while capitalism is often claimed to be more capable of achieving allocative efficiency.

The general point is that the feasibility of each version of socialism, defined in terms of comparative efficiency, relative to each other as well as to capitalism, depends on the degree in which its associated techno-economic paradigm prevails. This should not give rise to the conclusion of technological determinism, because nothing has been said about the extent to which the choice of a particular techno-economic paradigm can be subject to the conscious control of society. The literature on techno-economic paradigms has tended to argue that the emergence and prevalence of a particular paradigm is the combined outcome of specific trends in technological change (scientific breakthroughs) and in social conditions (class conflicts) (see, e.g., Best 1990; Freeman and Perez 1988). In this context, it is reasonable to conclude that, of the three versions of socialism under discussion, participatory socialism is faced with the most stringent conditions of feasibility. Socialism can only be constructed on the basis of the technological and social conditions presented by capitalism. It can be argued that, under capitalism, the technological conditions for both the first and second techno-economic paradigms indicated in table 1 have been far better developed than those of the third paradigm. Whether or not this argument is empirically valid, a final argument might also be advanced: that it is difficult to

construct participatory socialism in the context of late development. In other words, for economies that are technological followers rather than leaders, the task of reshaping the prevailing techno-economic paradigm in the direction of participatory socialism is very difficult to accomplish. This is particularly true given that feasibility is defined here to mean comparative efficiency and the various models are competing not just with alternative versions of socialism, but also with capitalism.

5. Conclusions

In this paper, we attempt a re-interpretation of the economics of socialism by examining the literature in the context of contrasting techno-economic paradigms. Our objective is to clarify the conditions on which each of the different versions of the economics of feasible socialism would be comparatively efficient and thus represent feasible alternatives.

We approach the task by means of a three-step strategy. First, we start with the three main techno-economic paradigms that have been identified in the relevant literature. These are the market paradigm where the cognitive base is the detailed division of labour, the hierarchies paradigm which is also based on the detailed division of labour, and the network paradigm, which is based on the social division of labour. We analyze the efficiency attributes of these paradigms by showing that they are logically linked to an emphasis on achieving allocative efficiency, economies of scale, and economies of scope, respectively. Second, we show that these three techno-economic paradigms correspond to the three main versions of the economics of socialism, that is, market socialism, planned socialism and participatory socialism, respectively. Thus, the feasibility or comparative efficiency of the three versions of socialism, relative to each other and to the canonical market economy, can be seen in the context of the efficiency attributes of the three techno-economic paradigms.

Third, we seek to broaden the scope of discussion by taking into account visions of the relationship between politics and economics, which is of central importance in the different versions of socialism. While recognizing that these visions encompass social welfare attributes that are much broader than the concept of efficiency defined as productivity growth, we show that each of them nevertheless has significant bearings on efficiency with their comparative efficiency being dependent on, again, the prevailing techno-economic paradigm.

On the basis of the re-interpretation indicated above, we reach the conclusion that each of the three versions of the economics of feasible socialism is partial in nature, and none of them can claim superiority if the nature of the prevailing techno-economic paradigm is not made clear. We finish the paper with a cautious note that our re-interpretation should not be viewed as an advocacy of technological determinism. The extent to which the choice of a particular techno-economic paradigm can be subject to the conscious control of society is an issue awaiting further research.

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Endnotes

¹ The term “fifth generation model” is coined in Bardhan and Roemer (1993A). According to Bardhan and Roemer (1993A) the first generation of models of market socialism was the realization that prices must be used for economic calculation in socialism. The second generation was the notion that prices could be solved in socialism using a complicated system of equations analogous to a Walrasian auctioneer. The third generation was the evolution of Lange-type models of decentralised socialism. The fourth generation of models was experiments with hybrid forms of market socialism such as Yugoslavia after 1950.

² The relationship between principles of the division of labour and theories of the firm are discussed in detail in Smyth and Lo (2000). The following discussion draws on that earlier research.