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Basic Income and Productivity in Cognitive Capitalism

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Abstract In this article, basic income (BI) will not be considered as a measure to raise living standards and social *well-being*. Rather, it *will be presented* as an indispensable structural policy for achieving a healthier social order governed by a more equitable compromise between capital and labor. Embracing the French Regulation School approach, we maintain that such a compromise is founded on the redistribution of productivity gains. Describing the dynamics of productivity enables a better understanding of the main features and development of contemporary capitalism. In advancing our argument, we focus on the socioeconomic transformation that has overtaken the Fordist paradigm within Western countries and propose the term "cognitive capitalism" to describe the new economic system. We argue that BI can be seen as a viable economic policy able to contrast the instability generated by the present form(s) of accumulation, as it increases productivity through network and learning processes.

Keywords: basic income, productivity, cognitive capitalism, crisis, Regulation School, post-Fordism, knowledge

INTRODUCTION

In recent years, many analysts have noted that within advanced capitalist societies, income polarization has steadily increased. Such a polarization is a direct consequence of the emergence of a new accumulation paradigm that, in recent times, several scholars do not hesitate to define as *cognitive capitalism* (Fumagalli 2000; Vercellone 2003, 2006). The aim of this article is to show that *basic income* (BI) is not a utopian proposal, but rather an

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economic intervention necessary to deal with the unprecedent flexibilization of the labor market required by the post-Fordist accumulation paradigm. We will argue that BI should not be considered as a measure aimed at raising both living standards and social *well-being*; rather, it should be seen as an indispensable structural policy for achieving a healthier social order geared around a more equitable compromise between capital and labor than those characterizing both past and present accumulation paradigms. In these respects, we will show that the introduction of BI together with juridical citizenship would decisively contribute the full economic and social status of citizens and their complete enjoyment of civil liberties.

As John Marangos (2006) suggests, BI should be defined as a basic-liveable income guarantee. However, our thesis is that a decent level of living standard is the result of the capital-labor compromise. Embracing the French Regulation School approach, we maintain that the compromise between capital and labor is founded on the redistribution of productivity gains (Aglietta 1979; Lipietz 1986; Boyer 2004a, 2004b). Therefore, we attend to the problems related to the evaluation of living standards and social well-being, linking them to their origins, i.e. productivity growth. As we believe that a description of the dynamics of productive processes would allow a better understanding of the main features characterizing contemporary capitalistic production, we present a theoretical framework of *cognitive capitalism* (henceforth CC). In doing so, particular attention will be given to the role played by dynamic scale economies, in conjunction with information technology and the knowledge process in areas characterized by the widespread presence of material and immaterial industrial and service activities.

BASIC INCOME LITERATURE

The definitions of a BI, as well as the preferred ways of distributing it, differ significantly according to the particular school of thought—classical liberal, social-democrat, and radical.

- *The classical liberal*: This approach is based upon the idea of a "negative income tax." According to the classical-liberal model, the functions of the state should be reduced to the minimum. In practical terms, this means that redistributive policies should be implemented automatically, taking into consideration a negative progressive tax. All those who fall below the relative poverty line should not pay taxes, with the state intervening to provide the difference necessary to reach this threshold. Everyone must

fee to access all public services (schools, healthcare, etc.), with the sole exception of justice and defense. In real terms, it entails the dismantling of the welfare system (Friedman 1968).

- The starting point of the *social-democratic* approach is the acknowledgment of both the failure of present-day welfare systems and the fact that the processes of flexibilization of labor entails the existence of the so-called *working poor*. It becomes necessary to provide a continuity of income to persons whenever their labor cannot be sold or the income obtained for their contribution is too low. In this case, rather than speaking of universal BI, we ought to speak of guaranteed income, intended as distribution of an income only to *poor* people who do not have any other source of income. Such a distribution is independent of any activity undertaken, does not require any offset on the part of those who receive it, and lasts as long as the recipient remains below the poverty threshold. By definition, this is an unconditional but not a universal economic intervention. A softer version has been called the "guaranteed wage" (Delors Commission 1993; Supiot Report 1998). As opposed to a guaranteed income, the guaranteed wage is provided for a limited period of time to those who are unemployed, although still unconditionally.
- The third, and more *radical*, approach is based on the idea that a person's income should be universal, unconditional, and unlimited in time. Such an orientation inspires the research promoted by BIEN (Basic Income Earth Network) in Europe and by USBIG (United States Basic Income Guarantee) in North America. The most influential scholar representing this strand is Philippe Van Parijs (1992, 1996, 2000, 2004). This perspective adds economic reasons to the social and ethical, related to social equality and the enjoyment of full citizenship rights.

Building upon this last body of literature, we define "basic income" (BI) as the proposal of a universal and unconditional economic intervention. This would not discriminate against anyone. BI would therefore be a stable and perpetual allowance, independent of the actual working activity that would guarantee to each member of a given community a decent living standard. Second, we try to demonstrate that the introduction of a universal BI is worth considering as a viable redistributive policy able to deal with the challenge posed by the new paradigm of flexible accumulation (Gorz 1997; Fumagalli 2000).

The literature also offers a limited range of empirical studies showing the impact of BI on output and employment. Most of these analyses have dealt

with the fields of ethics and political science rather than with economics. In addition, researchers have studied the extent to which BI might be considered as a tool against poverty as well as considering the problems raised by its implementation, especially those related to the fiscal structure (Atkinson 1995a, 1995b; Atkinson and Morgensen 1993) and the labor market (Bowles 1992; Van der Linden 1987; Kesenne 1993; Groot 1999; Serati 2001). Bowles suggests that BI should not be set higher than the poverty line. Van der Linden, Kesenne and Groot conclude that a BI that would substitute every pre-existing unemployment benefit could generate a *crowding out effect* in the labor market if it is set at too high a level. This is due both to the existence of an income effect, that reduces labor supply, and to the increased fiscal pressure. Although varied, this literature presents some homogenous aspects: the Keynesian perspective (existence of unemployment); the presence of efficiency wages and rigidity in the labor market; imperfect and asymmetric information (with the exception only of Van der Linden); and decreasing returns to scale. This latter hypothesis is the more relevant. The two main results of the scholarship are:

1. BI has overall positive effects only if it is not too high, or just below the threshold of relative poverty; and
2. BI replaces unemployment benefits.

It is worth recalling that these results are valid only in the presence of decreasing returns to scale. As we shall see below, the shift from the Fordist paradigm to CC has brought about an economic system in which the role of decreasing returns to scale decreases as a result of learning processes and network economies. Hence, the introduction of BI should be analyzed from a perspective that it is different to the one utilized by the above literature. The shift from one paradigm to the other changes the motivation upon which the introduction of BI should rest.

THE SHIFT FROM FORDISM TO COGNITIVE CAPITALISM

During the 19th century, technological transformations in conjunction with organizational innovations targeted the production of material goods. The leading sectors were the textile sector and the newborn industries of steel and iron—the earliest forms of instrumental mechanics, and consumption goods. The Fordist period was characterized by an increased mechanization, with the consequent automation of production, resulting in the most spectacular rise of productivity ever experienced in human history. In that phase, the

manufacturing sectors allowed for maximum exploitation of static scale economies. These included the chemical industry, the durable goods industries, and the car and electronic industries. The Regulation Approach analyzed Fordism as an accumulation regime (Aglietta 1979; Boyer 2004a). This method of production was certainly not a global model. Its realization varied across Western nations according to countries' institutions and the impact of external shocks. Nonetheless, it was characterized, schematically, by: a Taylorist division of labor between creative and manual labor (skilled and unskilled production), governed by hierarchical procedures; a system of accumulation based on the redistribution of the gains of productivity to the workers according to patterns that would guarantee the growth of effective demand; mass production of standardized durable goods; and redistribution guaranteed by regulation tools such as social legislation, collective agreements and the Welfare State.

In the Fordist context, the evolution of productivity depends upon the evolution of the techniques of production, on the investment flow, and on the presence of static (size) scale economies. The investment flow is a function of the growth rate of consumption. The latter depends on the wage level, public demand, and exports. The real wage, indexed to productivity gains, is the most relevant variable. Within the Fordist context, BI could not represent an element of institutional regulation, as it was justifiable only on ethical terms.

The dynamic equilibrium between mass production and consumption inherent in the Fordist capital–labor compromise was guaranteed by the increase in productivity resulting from the exploitation of static (size) scale economies and by the increase in real wages, as shown in Figure 1. The Fordist dynamic equilibrium was partially regulated by the intervention of the state, with incentives both for production and for indirect and direct consumption (Keynesian deficit spending and welfare policies). It follows that growth resembles a two-stroke engine: initially productivity triggers growth, afterwards growth spurs productivity. This is an explosive process, but fundamentally unbalanced if demand dynamics do not match output dynamics (Boyer 2004a).

The Regulation Approach threw light upon the technological and institutional conditions that guaranteed the Fordist virtuous circle: employment growth, relative stabilization of economic fluctuations, and no decline in the profit share. For employment to increase, the dynamics of demand (i.e. consumption, investment, and public demand) should be faster than the labor-saving trends stemming from technical progress. To stabilize the growth path, the degree of wage indexing with regard to productivity must be constrained by of two limits that are informed by technique and demand.

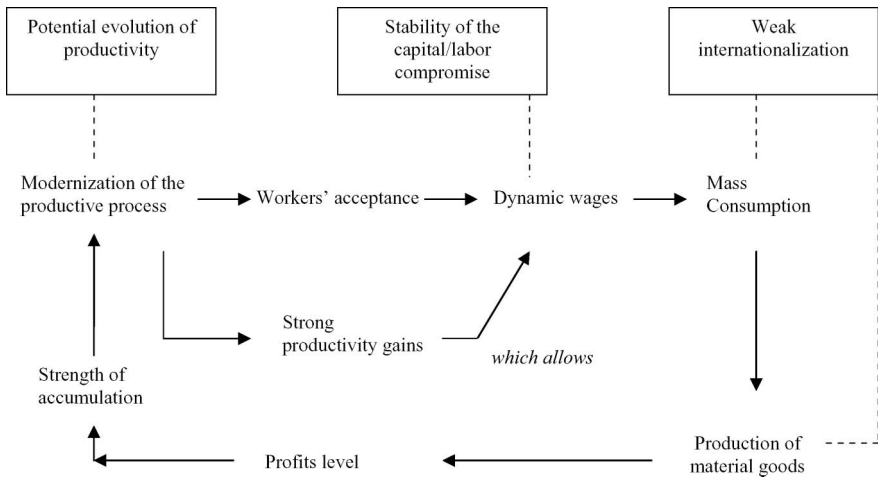

Figure 1: The Virtuous Circle of Fordist Growth
Source: Boyer (2004a).

A good profit dynamics presupposes that the degree of wage indexing is smaller than a limit depending on technical and demand-related parameters.

Labor productivity essentially depends upon the intensity level of the automation processes. In fact, it is into the machinery, and not into labor, that knowledge is incorporated, increasing the Smithian division of labor (Vercellone 2006). In Taylorism, the intense use of machinery and plant guarantees increasing levels of productivity. However, since those increments of productivity linked to ever greater use of automated machinery can happen only as a result of paid operational activities, labor productivity is directly commensurate with the supply of labor. The capacity to generate increasing dynamic returns of scale is what differentiates Taylorism from pre-Fordist capitalism. Such increasing returns to scale stem from the exploitation of static (size) economies. From there, it is straightforward to conclude that as the number and dimension of plants increase, the productivity per unit of labor, due to the rationalization of machine-driven labor, tends to rise accordingly.

From an historical point of view, Fordism went through its crisis in the 1970s, with rising trade union conflicts, the saturation of the durable goods markets, the increasing price of raw materials (the 1970's oil crisis), and the monetary storm. Together with the passage to flexible exchange rates, this

defined a new framework for the restructuring of the global market. Under these circumstances, the link between productivity gains and real wage dynamics began to collapse, giving sway to a dramatic polarization of income distribution (see Figure 1). The Fordist crisis calls for a renewed social contract that should be based upon a new compromise between capital and labor. In other words, the features of the Fordist crisis bring about a new motivation for the introduction of BI.

The recent European debate concerning the socioeconomic transformation of Western countries has been characterized by the awareness of the crisis of Fordism. Many social scientists have introduced in a relatively simple term to define this new age of capitalism: Post-Fordism. This term is utilized in many research areas such as sociology, economics, political science, and urban studies:

> The term Post-Fordism refers to a social model whose way of production is no longer dominated by hierarchically organized forms of accumulation or by the negotiation of wealth distribution carried out by representatives of collective bodies and supervised by the State. On the contrary, the so called Post-Fordist model is characterized by forms of flexible accumulation that can integrate and connect highly diversified modes, times and places of production. (Zanini and Fadini 2001: 15)

In our understanding, the phrase CC better captures the links between the exploitation of knowledge and the accumulation of surplus. We therefore utilize the term post-Fordism to indicate the passage from Fordism to CC. The heart of the accumulation process has been shifting from material to immaterial commodities. As Virno notes, within the Fordist factor, productive activity is mute and work is performed by a silent human chain:

> In the Post-Fordist metropolis, on the other hand, the material labouring process can be empirically described as a complex group of linguistic acts, a sequence of assertions, and a symbolic interaction. This is because labour activity is now performed alongside the system of machines, with regulating, surveillance and coordinating functions; but also because the process of production uses knowledge, information, culture and social relations as its "raw materials." (Virno 2001: 181)

Due to the internationalization of production, the diffusion of information and communication technologies, and innovations in the transportation of commodities, manufacturing activities have been shifting to developing countries whereas financial, technological, supervising, logistical, and control activities have been concentrated in the highly industrialized countries (North America, Europe, Japan, and Australia). Hence, we face a new type

of international division of labor, based on knowledge: the *cognitive division of labor* (Mouhoud 2006).

THE CHARACTERISTICS OF COGNITIVE CAPITALISM

Cognitive capitalism (CC) has generated two new economies of scale that have a positive impact on the nature of production returns and therefore on productivity. On the one hand we have dynamic economies of learning (learning by doing, learning by using, etc.), strictly depending on the characteristics of information and communication technologies; on the other, we have new spatial economies, related to the existing network and capabilities that affect a given territory and are able to increase diffusion of knowledge. In the former case, we are moving inevitably in a dynamic context. Instead, in the latter, it is necessary to redefine the spatial sphere of the accumulation process while rethinking the concept of externality (Moulier-Boutang 2003; Fumagalli 2005).

The following points should be highlighted. First, knowledge is the key variable in understanding the recent structural changes. As knowledge is the basis of accumulation, it is necessary to analyze both how its exchange and diffusion affects the dynamics of productivity and what kind of returns of scale are subsequently generated. If knowledge is widespread, the real issue is to measure its *intensity*, but it transpires that this is rather difficult to do. The efficacy of knowledge (*opportunity*), the spread and multiplication of uses in the economic system (*cumulativeness*), and the private appropriation of knowledge (*appropriability*) all need to be evaluated (Nelson and Romer 1988; Fumagalli 1995). Opportunity calls for strategies of investment that the investor decides to pursue on the basis of the expected profit. Independently from the results and from the normal degree of uncertainty, the outcome is an increase in production and, in all likelihood, an increase in productivity. Due to the fact that it is not exhausted by consumption, the cumulativeness of knowledge and the speed of its diffusion necessarily imply increasing returns to scale. Unlike the situation created by Fordism, the present diffusion of knowledge does not depend simply on technological transfers of machines, but on the extent of the relational flows generated by the immaterial process. In this context, the hypothesis of decreasing returns of scale plays no role.

Second, the specific features of CC are its ability to enlarge both the knowledge-learning process (λ) and network economies (k). The variable λ depends on the degree of *cumulativeness*, *opportunity* and *appropriability*.

Generally, opportunity is defined as the expected rate of profit (P^e) and, therefore, the higher the expected profit, when adopting new technologies, the higher is its speed of diffusion. Cumulativeness and appropriability represent the capacity of a new use of knowledge able to generate new innovation while avoiding the possibility of its imitation, thanks to the existence of the intellectual property rights (patents). The variable k is supposed to depend on the income level (Y) and positive externalities (E).

Third, λ is constrained by intellectual property rights. In fact, the greater the degree of appropriability of knowledge, the smaller becomes its capacity of diffusion, affecting *de facto* its ability to generate positive effects on the associated productivity. At this stage, it is worth introducing the distinction between *tacit knowledge* and *codified knowledge* (Malerba and Orsenigo 2000). The former presents a high degree of appropriability that prevents its diffusion. The latter, through the modern means of standardization procedures, can be diffused more easily in the presence of low intellectual property rights. The generation of knowledge and its spatial diffusion through the learning process are the basic features of cognitive accumulation. In terms of its generation (λ) and diffusion (k), a higher level of knowledge corresponds to more innovative technologies. From a systemic perspective, an innovation is, in fact, a change in the economic process and it is caused by investment activity. This depends on how much investment is devoted to the existing technology or to new technologies.

The productivity entailed by the exchange of knowledge cannot be assimilated to material productivity. Following on from the so-called *Workerist* approach (Wright 2002), we could refer to the social productivity of *general intellect*.[1] In our context, general intellect is defined by the combination of dynamic learning economies ($\dot{\lambda}$) and dynamic network economies ($\dot{k}$) whose intensity varies according to the distribution of both codified and tacit knowledge. It is reasonable to assume that the greater the share of codified knowledge in the total amount of available knowledge dedicated to accumulation, the higher will be the achievable level of social productivity. Yet, since in the knowledge life cycle, codified knowledge

1 *General intellect* is a crucial term in the debate about post-Fordism. It appears in Marx's *Fragment on Machines*, section of the *Grundrisse* (1973). This is an attractive metaphor for referring to the knowledge that makes up the epicentre of social production and preordains all areas of life (see Virno 2001). The interpretation of Marx's *Fragment* gave rise to many considerations in the so-called Italian *Workerism* approach (see principally Panzieri 1964; Tronti 1971; Negri 1979; for an overview of the English literature on this term, see Wright 2002). In recent years, this approach led to investigating the capital-language nexus. This nexus is considered as the real turning point of the socioeconomic system in cognitive capitalism (see Zanini and Fadini 2001). Fumagalli (2005) defines the general intellect social productivity as bioeconomic productivity.

derives from tacit knowledge, there is a trade-off between the social productivity generated by general intellect and the tacit knowledge itself.

As a result, CC differs from Fordist capitalism in two main aspects. First, the origin of productivity gains is based on learning processes and network economies. According to the previous definitions, we present the following framework:

$$\rightarrow \quad k(\mathrm{Y}^{+}, \mathrm{E}^{+})$$

$$\mathrm{Y}_{t-1} \quad \rightarrow \quad \mathrm{I}_{t} \quad \rightarrow \quad \Delta^{+}\pi_{t} \quad \rightarrow \quad \mathrm{Y}_{t}$$

$$\rightarrow \lambda(\mathrm{P}^{e+}, \mathrm{IPR}^{-})$$

in which it is possible to recognize a virtuous circle generated by the interplay of investment activity, increase in knowledge, increase in productivity, and increase in output. A more equitable social compromise concerning the distribution of productivity gains can rectify a potential under-consumption problem.

Second, under CC, while investments necessary to produce material goods tend to diminish, financial investments tend to increase. The financial products are purchased by an increasing number of small savers. It is worth noting that within the processes of globalization (delocalization, outsourcing, and lower labor costs), they act as a multiplier of aggregate demand. The equilibrium of the system not only relies upon the growth of financial markets and the distribution of the generated surplus, but also upon a high level of growth in the new industrialized countries that are at the core of the outsourcing and delocalization processes.

The latter two conditions cannot be considered as structural, which makes CC unstable. The absence of a fair social compromise determines the ambiguity of this finance-driven growth. As Boyer (2004b: 49) says: ''... the concomitant loss of the collective bargaining power of employees made them accept forms of payment that were increasingly dependent on the performance of the company, particularly with respect to financial earnings.'' Considering the United States in the 1990s, Boyer claimed that ''it is the country where stock market wealth is significant, compared to available income flows, and where the assets of large companies can be easily traded in a highly liquid market'' (2004b: 52). Figure 2 shows the ambiguous circle of CC.

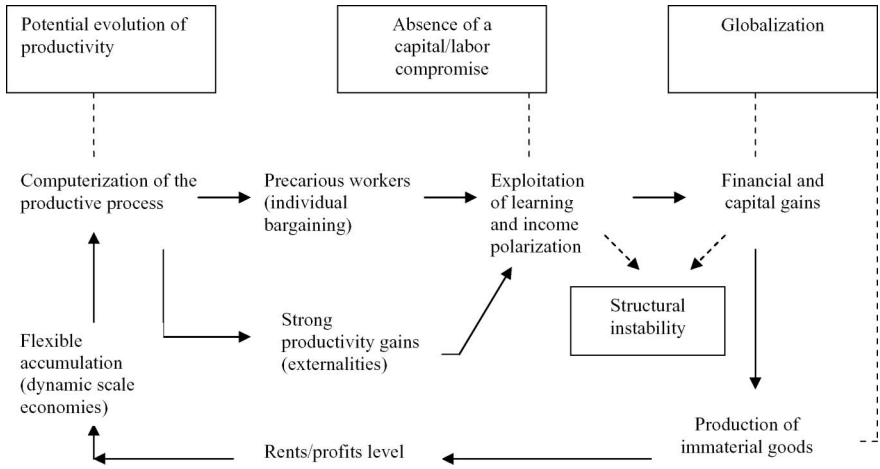

Figure 2: The Ambiguous Circle of Cognitive Capitalism

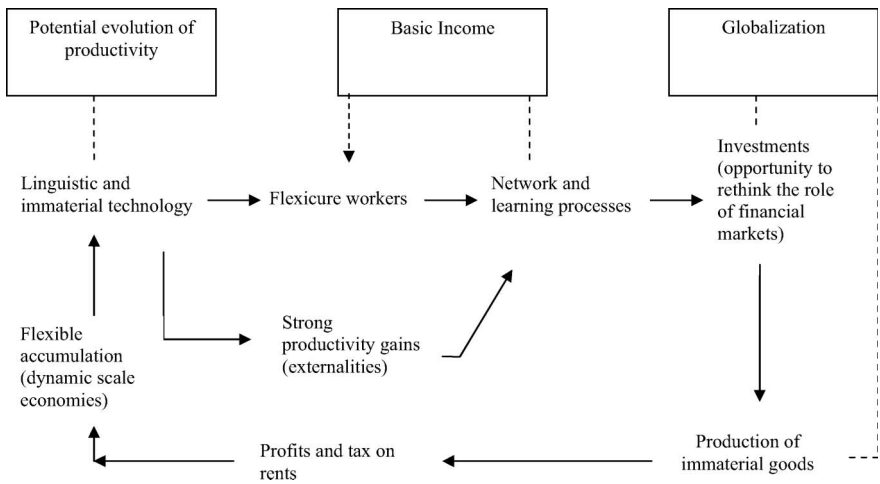

Figure 3: The Possible Virtuous Circle of Cognitive Capitalism with BI

Utilizing the USA as an example, we can see that aggregate demand was influenced by both the dynamics of the financial markets and by the capital gains deriving from the internationalization of production. With the weakening of the wage-productivity nexus, these dynamics had a greater impact on consumption and investment activity. For the most part, for workers living under CC, income level not only depends upon wage but also

on financial gains. Therefore, financial markets affect both consumption activity and the level of demand.

Hence, in CC, the absence of the wage-productivity nexus is dealt with as an indirect liaison among productivity, the financial market, and income polarization. Since the relationship between these factors cannot be considered as stable, the equilibrium of the system is not guaranteed. This is not an under-consumption analysis, as financial markets play a multiplier role on aggregate demand and internationalization of production positively affects investment activity. However, we are aware that this situation cannot last indefinitely and the increasing international military tension confirms it.

As far as the supply side is concerned, changes in the ability to generate new knowledge as a basic condition for the spread of new technologies; k and λ depend on the way in which R&D activities are organized. In turn R&D activities are positively affected by the level of income and by a set of variables, such as level of education, overall macroeconomic and political stability, fair wealth redistribution, a balance between material and immaterial activities, and the existence of a good system of infrastructure, which we define as positive externalities.

The equilibrium of the cognitive economy depends upon the impact of network economies and intellectual property rights on productivity, the effect on productivity of both dynamic (network and learning economies) and static economies, public expenditure, and finally upon level of consumption, which is diminished by taxes and investment propensity. Whenever network economies are more relevant than intellectual property rights in affecting productivity growth, the rate of productivity always grows. The rate of growth declines, as the increase in productivity penalizes employment and, by consequence, reduces consumption. This has negative effects on demand growth. Converse to the Fordist paradigm, as real wages are not indexed to productivity gains, there is no fair compensation for precariousness of employment (see Figure 2). It is worth noting that the rate of growth can be positive only in the presence of high public expenditure. However, this should be superior to the effects of externalities on productivity. Once again, this confirms the instability of the system. Furthermore, when the dynamics of output and demand and the dynamics of productivity do not follow the same trend, this leads to an even greater degree of instability. If this is so, it is necessary to identify alternative economic policies aimed at limiting the instability of the system. It will thus be necessary to reflect upon what are the new factors that generate the gain of productivity in the context of CC.

The rules governing the functioning of financial markets are determined by sophisticated linguistic-communicative mechanisms. These mechanisms are

defined on the basis of imitative and dominative behaviors that explain the evolution of the productivity of knowledge and impose some allegedly scientific determined trajectories. The non-measurability of the productivity of knowledge through the traditional quantitative methods (based upon output calculations) leads to the necessity to develop a new theoretical model. We suggest a biological model of evolutionary dynamics in which learning processes constitute the key factors. A first step would be to offer a taxonomy of knowledge (see Nelson and Romer 1998; Moulier-Boutang 2003), subdividing the cognitive inputs into four categories: hardware (machinery), software (computer processes), webware (attention and brain activities), and netware (networks stimulated by computer processes and brain activities). Within a cognitive economic system, hardware, software, webware and netware are the inputs of all goods and services, as depicted in Table 1.

Since webware and netware, although at a different degree, are linked to cognitive labor and may lead to increased immaterial productivity via positive externalities, the problem becomes how to measure and establish their remuneration. From this point of view, BI may be a first step towards a viable solution of such a problem.

BASIC INCOME AND COGNITIVE CAPITALISM

The basic-liveable income guarantee ought to be considered a social wage. Under CC, the new form of wage is not the traditional remuneration measured by working time, as a production input isolated from capital. If we try to identify the rules governing compensation for each input (see Table 2), we can see that in an economic system based on immaterial production, productivity gains are no longer distributed, welfare state support to internal demand decreases, and wages are no longer connected to employment. Within this framework, BI would represent the compensation for the social productivity that the combination of the four earlier mentioned inputs generates.[2] It is necessary that the retributive dynamics related both to

2 In Italy, between 1976 and 1979, the so-called fifth generation of workers, who had grown up in large cities during the construction of the welfare state, entered large factories: the core of the Fordist organization of production. The experiences of the new employees were radically different from those of the previous generations of unskilled workers. "They rise up against both the wage 'structure', its 'form' and the necessity to work for the whole duration of one's life itself, to receive an income rather than a salary. The subjectivity expressed by this new labour force certainly failed to undermine the factory regime overall. If anything, it made it more viable and eased the restructuring move towards flexibility" (Zanini and Fadini 2001: 23). In this context, the proposal of a basic income began to surface in the Italian political debate.

Table 1: Commodities, Externalities, and Returns in a Cognitive Economic System

Commodities	Dominant Input	Description	Dominant positive Externalities	Returns
Material commodities	Computer hardware	Physical capital	Indivisibility externalities	Decreasing
Data processing commodities	Software	Human capital	Learning externalities	Constant
Living commodities and knowledge commodities	Attention and brain activities, webware	Individual living labor	Learning externalities	Constant or increasing
Collective commodities and knowledge commodities	Netware	Cognitive and cooperative division, collective living labor	Netware externalities	Increasing

Note: This table was inspired by Moulier-Boutang (2003).

Table 2: Income Distribution for the Four Input Categories in the Material and Cognitive Economic Systems

Input	Material economic system (income distribution rules)	Cognitive economic system (income distribution rules)
Hardware (HW) production of fixed capital by means of living labor	Individual wage as marginal productivity	Cooperative wage and fixed capital protection
Software (SW) production of fixed labor by means of living labor and fixed capital	Wage as labor force reproduction	Fixed labor protection (information)
Webware (WW) production of living labor by means of living labor	Technical progress income, patents and copyrights	Remuneration or financing of living and learning innovations
Netware (NW) production of living cooperation by means of fixed capital, fixed labor and living labor	Organization and transaction costs financed by means of subsidies	Remuneration and financing of interactivity and global coordination (HW, SW, WW)

dependent work or self employment become a social issue addressing the social distribution of income as its primary concern.

The implementation of BI would reduce the instability inherent in CC. The possible scenarios depend on the correlations between the dynamics of productivity, BI, and output. The dynamics of output depend upon the impact of investment on productivity growth. In CC, investment activity reaches its maximum efficiency when it is able to capture the general intellect. Under these circumstances, investment depends upon positive externalities and on both the level of aggregate income and a fair income distribution. As Keynes notes in the Concluding Notes on the Social Philosophy towards which the General Theory might Lead, "the arbitrary and inequitable

distribution of wealth and income'' is one of the ''outstanding faults of the economic society in which we live'' (Keynes 1936: 372). A fair income distribution represents the precondition for the development of a kind of social cooperation able to minimize the risk of dismissals (Jespersen 2005: 190). Seen from the opposite side, the entrepreneur's propensity to invest is based on high profit expectations and on the existence of property rights or high degrees of cumulativeness, which allows super-profits. Hence, there is a trade off between the conditions of aggregate demand and entrepreneurial decisions. The trade-off is similar to that of Fordism as far as the level of money wages is considered. If an income distribution adverse to the wage-owners implies a lower level of consumption, low wages are profitable for the entrepreneur.

The novelty of CC is that while the unfair income distribution, or the lower income level, threatens to reduce the ability to generate knowledge,[3] the excessive appropriability of technologies can lead to a lower diffusion of knowledge and learning (see figure 2). In this scenario, the introduction of BI would represent the first step towards a more equitable social compromise. BI would in fact entail more positive externalities and a fairer income distribution. This, in turn, would enhance the ability to generate knowledge and innovation, with indirect positive consequences for both productivity trends and aggregate profit levels. In other words, BI would facilitate the exploitation of dynamic learning economies of scale through the introduction of a virtuous circle. Due to the effect of learning processes and network economies, productivity rises and, since information and communication technologies are characterized by high degrees of cumulativeness (Winter 1984; Dosi 1988; Fumagalli 1995), there is a positive correlation between productivity and investments, or:

$$\text{BI} \rightarrow k, \lambda \rightarrow \pi \rightarrow \text{I} \rightarrow \text{Y}$$

Within this framework, the problem of understanding what constitutes a living standard becomes a problem of innovation policy. In other words, the proposed framework is a new proposition of the Kaldor–Verdoorn law,[4] according to which the original static scale economies (able to increase

3 Unlike Fordism, where low wages could lead to under-consumption crises, in CC the negative effects of a low wage structure on the ability to generate and diffuse knowledge is more important.

4 The Kaldor–Verdoorn law postulates the existence of a significant positive relationship between the growth rates of labor productivity and output, at least in manufacturing (see Verdoorn 1949). It was Kaldor who coined the term ''Verdoorn's law'' and ensured that it received general recognition. It was one of the two empirical regularities by which he tried to explain the causes of the British slow rate of economic growth (Kaldor 1966; see also Kaldor 1975).

demand) are replaced by dynamic scale economies, implemented by R&D activity, and knowledge diffusion. Decent standards of living depend upon the strength of the compromise between capital and labor. In CC, income security, housing, the absence of discrimination in workplaces, mobility, knowledge and skills, free information, and free communication represent both needs and productivity conditions. From a juridical point of view, there is the necessity to define new rights, i.e. the right to basic income stability, the right to housing, the right to work security, the right to mobility, the right to culture, knowledge and skills (Various Authors 1997).[5] In these respects, the introduction of BI would represent only the starting point for the achievement of a fairer compromise.

The introduction of BI poses the question of how it should be financed. At the national level, we can imagine a tax on the rents characterizing a cognitive economy. We propose a distinction between material and immaterial rent (see Lucarelli and Mazza 2006: 162–167). Material rent is the income paid because of the productivity of a specific factor, e.g. the best land in Ricardo's terms. Immaterial rent is defined as the wealth produced by the innovative skills of labor, incorporated in a different productive factor (land or capital) whose owner (landlords or capitalists), given the institutional rules or his dominant position, is allowed to appropriate. Immaterial rent is prevalent in the cognitive context. It depends on the innovative regime, property rights on innovations, and dynamic scale economies (learning and positive externalities). The rates of productivity growth are much higher than those reported in official statistics. The reason for this inaccuracy is due to the fact that official statistics measure productivity gains only in material terms (number of pieces, hours worked . . .) without giving consideration to the immaterial productivity based on cognitive activities applied to production. This added value should be the taxable basis for financing BI. At the international level, we can recall two proposals:

- the Tobin tax on speculative financial transactions;
- a tax on the rents from intellectual property rights and from the exploitation of positive territorial externalities, such as running a business in metropolitan areas, the possibility of relying upon good

5 The definition of these new rights can be summarized with the term flexicurity. Flexicurity means the possibility to be flexible in an active way without being precarious. In other words, it is the right to a free choice among work opportunities rather than the right to work. In the academic field, flexibility and security are unambiguous concepts. Flexibility is often equated to a low degree of job protection, while security is equated to income security. However, flexicurity is also related to issues such as working time, work functions, pay, active labour market policy, education and training, leave schemes, etc.

infrastructure, both material and immaterial (education system, human and social capital, network ,and scope economies, etc.). In this case, it is possible to imagine the introduction of a steeply progressive tax on business housing, according to the type of use (very low for personal use, higher for productive use) or a tax on foreign direct investments to reduce outsourcing and to limit social dumping strategies.

In the light of increasing financial and economic uncertainty, BI would assure higher stability on the side of demand, as it would generate a stable trend in private consumption whilst generating a planning of private investment in the medium and long term. A new trade-off will come about. Due to the increase of taxes on rent, BI would reduce expected profit for entrepreneurs. In this case, the propensity to invest (σ) could be lower. Such an increase in taxes may also penalize consumption level and aggregate demand, with negative effects on production. However, it might be said that the introduction of BI would increase productivity through a better generation and diffusion of knowledge (κ and λ):

$$\Delta^{+}T \rightarrow \Delta^{-}I \rightarrow \Delta^{-}Y \qquad \text{(a)}$$

BI $\rightarrow$

$$\Delta^{+}\kappa, \Delta^{+}\lambda \rightarrow \Delta^{+}\pi \rightarrow \Delta^{+}I \rightarrow \Delta^{+}Y \qquad \text{(b)}$$

Which of these two effects will be prevalent?
In case (a), the reduction in income (GNP) would reduce taxes and, therefore, the possibility to finance BI:

$$\Delta^{-}Y \rightarrow \Delta^{-}T \rightarrow \Delta^{-}BI$$

In case (b), the result is the opposite. BI, through a positive effect on the income level, is self-financing, thanks to a virtuous circle:

$$\Delta^{+}Y \rightarrow \Delta^{+}T \rightarrow \Delta^{+}BI$$

CONCLUSION

The transition from Fordist capitalism to CC has been characterized by the shift from a stable, although conflictual, structure of accumulation to an

unstable one. This instability is mainly due to the absence of a relationship between supply conditions (affecting productivity trends) and demand conditions (affecting a fair income distribution), which in the Fordist regime was able to guarantee a dynamic equilibrium. The introduction of BI can be the first step towards a positive solution. BI is compatible with a model of accumulation based on the exploitation of dynamic scale economies. If BI was to be introduced, we would witness two positive effects on demand and output. Through enhancing network and learning processes, BI would increase both productivity and demand, via consumption. This twofold result cannot always be guaranteed. On the one hand, it depends on how much BI positively affects productivity. The greater its probability, the lower the role played by intellectual property rights and the higher the diffusion of network economies (general intellect and social cooperation); on the other, it depends on the way BI is financed. This latter point requires a taxation system which does not tend to penalize investment activity in immaterial production (net economy) but focuses on rent.

These results depend on the assumption of a closed economic system in which international markets play no role at all. Output internationalization and financial globalization could succeed in minimizing or postponing these contradictions In order to understand the effects of the introduction of BI in the context of CC, it is necessary to stress that the real wages are no longer indexed to the increase of productivity. As Boyer notes, decentralized and individualized contracts would ''enable a readjustment of wages scale as the emergence of new forms of remuneration indexed to company performance and to evaluation by financial markets'' (2004b: 54). Therefore, it is necessary to analyze the relationship between an increase in productivity and an increase in demand, through capital gains generated in the stock market. This is similar to an income multiplier that provides wealth only for people who can invest in financial markets. Second, linguistic and immaterial technologies are characterized by a high degree of cumulativeness and appropriability, especially as far as immaterial investments are concerned. Therefore, it is necessary to provide a better definition of the investment function. For instance, it would be useful to separate immaterial investment activity from material investment dynamics (machinery). As BI is able to improve network and learning processes, it is positively correlated to investment activity, thanks to the increase in productivity. The second type of investment, Fordist in kind, is, on the contrary, penalized by BI because of the higher tax levels. With this change, the increase in productivity can affect the level of demand through investment, and the function of the output growth rate can become positive. In order to provide a dynamic equilibrium

between output and demand, the role played by financial markets in affecting demand cannot be considered as structural.

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