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Lessons from Enterprise Reforms in China and Vietnam

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Abstract. This paper surveys a few key features of SOE reforms in China and Vietnam, focusing particularly on the evolution of ownership structures and on the relative weight of market regulatory mechanisms, and discusses their general implications for socialist development. It tentatively concludes that some broad principles informing and constraining any feasible socialist-oriented economic strategy can indeed be identified. **Keywords.** Socialism SOEs China Vietnam.

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1. Introduction

arx's interpretation of the forces shaping the formation of average production costs, and hence of productive and unproductive labor, income distribution and the dynamic of capital accumulation, is still relevant to understand some basic features of the contemporary globalizing economy. More specifically, his (very few) observations on how to deal with intersectoral and personal distribution under socialism are very helpful to realize the constraints faced by present-day socialist planners. However, a proper understanding of the renovation perspectives, the sustainability, and the very possibility of existence of socialism in the XXI century requires a new and partly modified utilization of some of Marx's fundamental categories. I begin my argument discussing briefly those of Mode of Production (MP), Social and Economic Formation (SEF), and Law of Value (LV).¹

A MP is a pattern of interaction between productive forces and social relations of production which broadly characterize and define the material base and reproduction of human civilizations over very long periods of time: "A mode of production is an articulated combination of relations and forces of production structured by the dominance of the relations of production" (Hindless & Hirst 1975, p. 9). Among many quotes from Marx himself, the following is particularly telling:

The totality of... relations of production constitutes the economic structure of society, the real foundation, on which arises a legal and political superstructure and to which correspond definite forms of social consciousness. The mode of production of material life conditions the general process of social, political and intellectual life. (Marx 1859, Preface).

The whole edifice of Marx's thought revolves around this key holistic and ontological category, to which he refers in most of his works, focusing to varying

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degrees on one or another of its multiple features and dimensions.

Relative stability predominates in some periods, while other periods are characterized by the transition from one prevalent MP to another one. The relation between an MP's universal/structural/ permanent features and its particularistic/ historically and geographically specific ones is not straightforward and simple. Any attempt to properly analyze and evaluate such a relation requires difficult balancing and fine-tuning exercise, especially in the case of capitalism.

Marx also introduced the less famous, almost obscure category of SEF (see Marx, 1859, Preface). Marx utilized the term rather sparingly, and in his own work he often attributed to it a meaning practically equivalent to that of MP. Yet, in other cases he appears attached to the term SEF a less universalistic and holistic character, arguing that diverse socio-economic formations can coexist and reciprocally interact in a global context characterized by the prevalence of a given MP. Their endogenous evolution and their mutual relations can eventually lead in the long term to a shift from one MP to another. Other thinkers in the Marxian tradition (among them Lenin and Althusser) subsequently re-interpreted the concept of SEF in a partly different and more restrictive way, that allows it to be rather clearly differentiated from that of MP. Among many other ones, I consider particularly valid Lorimer's interpretation: "The SEF is... an integrated social system... the totality of relations of production in a SEF based on a distinct mode of production is almost never homogeneous - there exists alongside the dominant property form... other relations of production" (Lorimer 1999:109-111). The term SEF can be heuristically reinterpreted in the early XXI century as referring to social and economic "sub-sets" largely, but not fully contained and constrained by a larger "set," constituted by the prevailing MP. The latter, an all-encompassing category belonging to the very long period, is dominated by the principle of necessity.

The emergence and unfolding of SEFs takes place over long but relatively shorter periods of time, necessarily within the boundaries imposed by the structural characteristics of the slow-changing MP. The evolution of SEFs is strongly affected by changes in the superstructure, and in the consciousness and organization of social classes. Therefore, it is at least partly characterized by the principle of freedom, while by its very nature the category of MP is dominated by the principle of necessity. Each SEF" is the specific complex of social relations of production and exchange obtaining in a certain country or group of countries during a long period of time "(Gabriele & Schettino, 2012, pp. 23-24), and as such can differ significantly different from its counterparts in other countries. In each historically-determined SEF several MPs can (and usually do) coexist as different subsets. In this dimension, the SEF is characterized by the principle of generality and totality and each MP by those of particularity and partiality. However, at a more abstract and theoretical level, the opposite is true. The MP is characterized by the principle of generality and totality and each SEF by those of particularity and partiality. A small number of different MPs have slowly evolved over centuries and millennia, eventually prevailing over pre-existing ones in vast areas of the world. In doing so, they have been informing, governing and organizing social and economic relations of production and exchange to various extents in myriads of relatively short-lived and geographically-limited SEFs.he contemporary world is characterized by the existence of multiple nation states and various forms of interstate cooperation and rivalry, in a context where international trade and financial relations are predominantly market-based (see below, Section 2). International markets, in turn, are neither free nor fair or perfect, but they remain based on a global structure of production prices ultimately predicated on average production costs.2

According to Marx (who reformulated an approach common also to Smith and Ricardo)³ production prices are ultimately predicated on the foundations of the "Law of Value" (LV). In general terms, the LV implies that the prices of goods and services are broadly correspondent to the amount of labour needed to produce them, taking into account the technology prevailing worldwide. In Marx's terminology, this is equivalent to state that "normal" production prices⁴ ultimately correspond to the amount of necessary (direct and indirect) labour they embody, which also determines the macroeconomic magnitudes of total wages and surplus value. ⁵

Marx also argued that in any capitalist economy not all labour is productive (of productive of surplus value). In value terms, this means that unproductive workers (no matter how worth their work might be in terms of population welfare, as for public workers in health and education) must be ultimately subsidized by productive workers via direct or indirect taxation (see Marx 1863⁶; 1861-64; Gough1972; Brooks, 2005).

In the economy of this paper, the LV is to be understood in broad and heuristic terms as an immanent principle that governs value creation and exchange in all capitalist and socialist modern economic systems that are underpinned by commodity production and markets. While it is philosophically true that all economic value in human societies is ultimately generated by labour⁷, the LV is not to be interpreted as a mechanical algorithm aimed at calculating an exact correspondence between quantity of labour and prices.

Marx realized that the LV cannot be superseded under socialism (at least, in its early stage ⁸). As a matter of fact, socialism was conceived by Marx as an intermediate stage where production is socialized, capitalist exploitation is eliminated, and the socialist distribution principle "to each one according to her/his work" prevails.⁹

Under socialism, the surplus is no longer privately captured. However, far from disappearing, it is collectivized and allocated to various forms of investment and social consumption. In fact, in the Critique of the Gotha program, Marx envisaged that the early socialist society would need to divide the total social product into an (individual) consumption fund (distributed according to labor) and a surplus. The surplus shall be used to finance various "funds" needed for economic and social reproduction and accumulation.

"the co-operative proceeds of labor are the total social product. From this must now be deducted: First, cover for replacement of the means of production used up. Second, additional portion for expansion of production. Third, reserve or insurance funds to provide against accidents... These deductions from the "undiminished" proceeds of labor are an economic necessity... There remains the other part of the total product, intended to serve as means of consumption. Before this is divided among the individuals, there has to be deducted again, from it: First, the general costs of administration not belonging to production. Second, that which is intended for the common satisfaction of needs, such as schools, health services, etc. 10 From the outset, this part grows considerably in comparison with present-day society, and it grows in proportion as the new society develops...¹¹. Third, funds for those unable to work, etc. Only now do we come to the "distribution" ... namely, to that part of the means of consumption which is divided among the individual producers...Here, obviously, the same principle prevails as that which regulates the exchange of commodities, as far as this is exchange of equal values. Content and form are changed, because under the altered circumstances no one can give anything except his labor, and because, on the other hand, nothing can pass to the ownership of individuals, except individual means of consumption. But as far as the distribution of the latter among the individual producers is concerned, the same principle prevails as

in the exchange of commodity equivalents: a given amount of labor in one form is exchanged for an equal amount of labor in another form ¹²." (Marx 1875)¹³.

In The state and the Revolution, (1917a), Lenin referred approvingly to the Critique of the Gotha program, and fully shared its argument and conclusions:

What we have to deal with here is a communist society, not as it has developed on its own foundations, but, on the contrary, just as it emerges from capitalist society; which is thus in every respect, economically, morally, and intellectually, still stamped with the birthmarks of the old society from whose womb it emerges. Accordingly, the individual producer receives back from society -- after the deductions have been made -exactly what he gives to it....The same amount of labor which he has given to society in one form, he receives back in another 14... Here, obviously, the same principle prevails as that which regulates the exchange of commodities, as far as this is exchange of equal values. Content and form are changed, because under the altered circumstances no one can give anything except his labor, and because, on the other hand, nothing can pass to the ownership of individuals, except individual means of consumption. But as far as the distribution of the latter among the individual producers is concerned, the same principle prevails as in the exchange of commodity equivalents: a given amount of labor in one form is exchanged for an equal amount of labor in another form." (Lenin 1917)¹⁵.

Consistently with Marx's and Lenin's approach, any modern economy can be seen as being constituted by two macro-sectors: the productive macro-sector, which comprises productive workers, and the non-productive macro-sector, which comprises non-productive workers. The latter includes all public services, among them essential ones such as health and education, which crucially contribute to people's human development both directly and indirectly (via their impact on human capital formation), and the financial sector.he productive macro-sector generates a surplus (i.e., surplus value). Conversely, the non-productive macrosector does not sell the bulk of its output at market prices. Thus, the government must engineer a net transfer from one macro-sector to the other via direct and indirect taxation. The proper handling of this inter-macro-sectoral relationship is a key strategic and policy issue. The non-productive macro-sector, differently from the productive one, should as much as possible be managed and regulated directly by the state via non-market policy tools. Financial services, in particular - due to their central role in determining investment, employment, and growth - should as far as possible be run as a public service as well. 10

2. Socialism under the Modern Mode of Production

In the Introduction I have exposed selectively some basic tenets of Marxian thought on some crucial categories (such as MP, SEF, LV, productive and non productive labor, the persistence of commodity-like exchange and distribution principles under socialism) which I consider still very relevant for the understanding of the globalizing world economy in the XXIth century.

Conversely, I maintain that a number of historical lessons from the XXth and the early XXIth century require a novel and partly modified view of the prevailing MP in the contemporary era – thereby departing from orthodox Marxist tradition while maintaining a methodological fidelity to its inspiration.

The main lessons, in extremely synthesized terms, are as follows:

i) Attempts to bring about a socialist-oriented global political revolution, that might have brought to power almost contemporarily socialist forces in all (or many) advanced capitalist countries, did not succeed. A full-fledged overhauling of the global dominant MP over a historically very short period (i.e., one or two

generations) looks impossible nowadays, contrarily to the belief of many Marxist and other revolutionaries of the XIX and early XXth century.

A corollary of i) is that the very conception of the nature and feasibility of socialism (which was previously strongly imbued with a holistic and, in some cases, millenarian and scatological aura) must be interpreted in a more limited and less ambitious fashion, acknowledging the inevitability of the long-term persistence of multiple contradictions in the context of any socialist-oriented historical process. It is therefore preferable to avoid discussing about socialism/non-socialism in the framework of an essentialist, dichotomist, black and white approach, realizing that in many cases the evaluation of concrete socioeconomic realities is to a large extent a matter of degree and of value judgement, and that a large gap often separates reality from intentions (both subjectively and objectively). In this context, heuristic, approximate and ad hoc terms and analytical tools can be of practical use to grasp the basic elements of otherwise excessively complex and contradictory objects of study. For this reason, I utilize in some parts of this article terms such as positive and normative criteria 17, socialist-oriented 18, and even "socialisticity" 19. As a matter of fact, in my view, excessively simplified statements such as this or "country a (or b, or c) is socialist" or "is not socialist" are off the mark. Conversely, prudent statements such as "country a is more "socialistic" than country b from the vantage point of modernizing its governance of the economy in order to suit the objective degree of advancement of its own relations of production and exchange, thereby effectively combating poverty, but is less socialistic with respect to the degree of equality" are more likely to be meaningful and scientifically defendable²⁰.

Since the Russian Revolution, there have been many instances where socialist forces have gained power in relatively backward peripheral countries ²¹, characterized by embryonic, immature, dependent and /or colonial forms of capitalist development. Subsequent attempts to build socialist economies in these countries have struggled with extraordinary hurdles, stemming to a large extent from the very underdevelopment of productive forces, on one hand, and – for a long time - under conditions of isolation and of very harsh hostility on the part of the advanced capitalist powers. However, at least in some cases, these national experiments have exhibited a rather high degree of depth, radicality, consistency and resilience. Hence, in my view, they constitute (or constituted) examples of socialist-oriented SEFs.

Most of these pioneering attempts eventually collapsed under the combined pressure of external aggressiveness and internal contradictions. Without underestimating the weight of the former, or the important achievements of the USSR and other European socialist countries in areas such as the universal provision of housing, food and basic services, "Soviet-style command economies proved to be too rigid to be able to absorb from outside, internally generate and diffuse innovations in a satisfactory manner" (Gabriele & Schettino 2012, p. 28).

Conversely, communist parties formerly supported by the USSR maintained power in China and in a few other developing countries. In other developing countries, socialist forces climbed to government via the ballot box, and embarked in broadly socialist-oriented development strategies with different degrees of success and sustainability. In the vast majority of cases²² (and, arguably, especially so in the most successful ones) socialist-oriented development strategies are being implemented under conditions very different from those of the past. Externally, these countries are far less isolated from the capitalist world than it was the case for the USSR and Mao's China, and actively strive to integrate their national economies with global trade, financial and technological flows. Domestically, they re-introduced (or maintained) a number of market-based regulation mechanisms,

and also – to different extents – private property rights on some means of production.

Results in terms of development of the productive forces and poverty reduction have been spectacular in the case of China, very favorable in that of Vietnam, and mixed in other cases (see the Appendix).

It is also fair to acknowledge, however, that market-oriented reforms have contributed to rising social inequality, and that the fabric of China's and Vietnam's economies is so complex that their very socialist nature is far from clear-cut. In fact, no one – included their own governments²³ - claims that they constitute full-fledged examples of socialism.

Many observers would acknowledge that in both countries there are elements of socialism²⁴ (such as the large weight of the State in the economy, and the very relevant role of SOEs, State-Controlled Mixed Enterprises and other non-private firms), as well as elements of capitalism and even of pre-capitalist MPs (in the most backward rural areas). Therefore, they see China and Vietnam as mixed economies with both socialist and capitalist features. Many other analysts are inclined to believe that they have now become fully capitalist in all but name – or that they have anyway embarked on a path that cannot but lead to such an outcome.

A quarter of a century after the end of the Cold War the relation of forces in the world economy has not fallen back to its pre-1917 situations. Colonialism in its traditional form is dead. Global trade and financial relations among countries at different level of economic and technological development are prevalently governed by rule-based market relations rather than sheer imperialist spoliation. Due to the emergence of China, the BRICs and other developing countries, the distribution of economic and financial power in the world is now multi-polar to a large extent.

Thus, the profound changes occurred worldwide since the time of Marx suggest that contemporary international relations of production and exchange are prevalently market-based, yet no longer resemble those typical of the XIXth century or the first half of the XXth century. On one hand, it is no longer thinkable to expect these relations to change radically in a relatively short period of time, being substituted by a full-fledged socialist MP on a global scale. On the other hand, many elements of the traditional global capitalist order have been modified by history, and the viability of national, at least partly non capitalistic development paths has now increased in many areas of the world.

These considerations suggest – as a provisional working assumption - that the prevalent MP worldwide is no longer fully capitalistic. On the other hand, the globalization process offers also to socialist-oriented countries opportunities for international economic integration – while diminishing, with respect to the past, the degrees of freedom of which planners may dispose in trying to pursue non-capitalist development paths.

It is therefore preferable to refer neutrally to the prevalent MP worldwide as the Modern Mode of Production. The dominant, modern MP is predicated on market-based social relations of production and exchange. In my view, actually, as the state of such relations at the global level can evolve only along the dimension of history's long time, their market-based foundations are bound to prevail globally for an indefinitely long period, thereby justifying the strong and holistic term MP. If this sweeping assumption is true, it implies as a corollary that any attempt to overhaul it through quixotic, subjective political action would be futile and counterproductive. ²⁶

The arguments put forward in the preceding sub-sections suggest that the categories of SEF and MP are to be understood as tools aimed to analyze some

structural features of human societies existing as objects belonging to the space of historical time.²⁷

The fundamentally market- and value- based nature of the modern MP cannot, and will not be undermined in the foreseeable future, as it intrinsically corresponds to the historical degree and form of development of humankind's evolution of social relations and to its relationship with nature. Yet, at a theoretical level, it is crucial to stress that the market-based foundations of the modern MP are not synonymous with capitalism (and much less with its neo-liberal variant). As a matter of fact, in the context of the basic global compatibilities determined by the MP, several diverse forms of socioeconomic systems can develop in different points of space and time as a result of various factors, including scientific analysis and conscious collective action.

Historical experience is consistent with this theoretical framework. Nowadays, capitalist relations of production and exchange (leading to forms of - mostly oligopolistic- competition), and therefore of class power, are both dominant and hegemonic worldwide. However, their dominance is neither complete, unchallenged, or inevitable for an endless period of time. Embryonic non-capitalist capitalist relations of production and exchange and of class power have been emerging, following an uneven pattern, in some areas of the periphery, since the first decades of the past century. In some of these areas socialist-oriented SEFs²⁸ have been established. Some of them eventually collapsed due to endogenous and exogenous factors, while others have proved resilient (at least so far), and new ones have emerged. In many other countries in the periphery non-socialist forms of mixed economies prevail, some of them are led by progressive political forces pursuing novel human development-centered national development strategies. The advanced, traditionally dominant core capitalist countries produce a constantly shrinking share (well below 50%) of the world GDP²⁹. Moreover, they are mired in the longest and deepest crisis of their history, and are sliding back into pre-Keynesian, regressive relations of production and exchange.

In my view, it has to be recognized that historical experience has shown that modern economies are characterized by a high and ever-increasing degree of complexity.³⁰ This complexity is linked to the continuous and stratified knowledge accumulation on the part of numerous and diverse agents, and does not allow for simplistic or over-centralized solutions to the core problem of governance. Such a degree of complexity and the related dispersion of relevant information can partly be counteracted, but not fully overruled by the increasing sophistication of information and computing technologies. Material balances-based centralized administrative planning (while useful to a limited extent, to perform basic tasks under given circumstances) is inadequate as a sole device to deal with such complexities. Therefore, simplistic, over-centralized solutions to the core problem of economic governance and planning are neither efficient not ultimately sustainable.

The socialization of the principal means of production and the control on the part of the state of the commanding heights of the economy do not bring about a complete social homogenization. Therefore, economic governance and planning cannot constitute an not over-centralized, autistic exercise, but shall take fully into account the constraints posed by objectively-existing social relations of production and exchange, individuals' incentives and aspirations, objectively-existing social relations of production and exchange, and the degree of consciousness of different population groups. The complexity of economic governance and strategic development planning latter must be dealt with via partly price- and market-based regulation mechanisms

Advancing towards socialism under the constraints imposed by the modern MP implies the adoption of an adequate planning approach, solidly founded on a vast array of information and forecasts, and which must necessarily beultimately market-compatible³¹ and intrinsically democratic.

With respect to private agents, planners can leverage the State's potentially superior (albeit not infinite) information-gathering, processing and forecasting capabilities to provide the foundations for a conscious, forward-looking an effort to shepherd the endogenous trends emerging from the market. In this endeavour, they can try to utilizing an array of diverse policy tools aimed at optimally shaping the trajectories of investment, innovation, and relative prices ³². The condition of ultimate market compatibility of this kind of planning, however, imposes a significant prudential limitation on its degrees of freedom, as the outcome in the medium- and long-term (especially in terms of domestic prices structure) shall not be allowed to diverge unduly from the global structure of relative prices.

3. Concluding remarks

3.1. "Laws" of socialist-oriented economic development?

Hinting at the existence of "laws" of socialist-oriented socioeconomic development which are of general applicability can be considered so far as little more than an informed working assumption. Even if these "laws" did in fact exist, it would be foolish on the part of any analyst to pretend having fully discovered and properly understand all of them.

Moreover, the economy of a paper like the present one does not allow for an indepth analysis of the extremely complex and contradictory reforms implemented or attempted in presently-existing socialist-oriented developing countries and of their outcomes in terms of economic, social, and human development. A few synthetic indicators and graphs illustrating some stylized facts are presented in the Appendix, which mostly focuses on China, Vietnam and Cuba. It is well known that the two Asian countries embarked since the late 1970s- early 1980s on a market-socialist path, while Cuba (due partly to the objective constraints imposed by the US embargo, and partly to the subjective attitude of the island's leadership) maintained until recently³³ a very centralized command economy model.

Within the boundaries imposed by such self-evident methodological disclaimers, I tentatively argue that after almost one century of attempts to establish and develop socialist-oriented economic systems in various parts of the world, a few propositions of general and universal applicability can be synthesized. They are proposed in the following subsection.

3.2. General principles governing and constraining development strategies in the XXI century

Any country's economy is constituted by two macro-sectors: the productive macro-sector and the non-productive macro-sector. Accordingly, the productive macro-sector generates a surplus. The non-productive sector (which includes all public services, among them essential ones such as health and education) does not. Therefore, the only way to maintain a sustainable socioeconomic equilibrium is to earmark towards the non-productive macro-sector part of the surplus generated by the productive macro-sector.

Within the boundaries imposed by this accounting constraint (which is formally corresponds to an identity similar to those of standard national accounts), the essence of planning consists in an array of consistent state-orchestrated interventions aimed at changing what, in absence of such policy actions, would be the "spontaneous" outcome of the interplay of domestic and foreign market forces. The purpose of such a proactive attitude on the part of the State is to induce policy-

led resource transfers that benefit sectors, subsectors or population groups at the expense of others. In turn, these transfers are aimed at achieving distributive, social and environmental goals (such as lessening inequalities, fostering public services, or protecting nature), or at accelerating economic development.

The latter set of interventions are commonly referred to as industrial policies, and can include a number of actions aimed at earmarking resources (via administrative or price-related tools) towards strategic sectors, such as infrastructure, capital goods, high-tech industries, R&D and S&T activities.³⁴

If properly formulated and implemented, industrial policies can indeed be quite effective. For this to be the case, however, industrial policies require two necessary conditions to be satisfied, as planners must:

- base their actions on a set of information that goes far beyond market signals (without, of course, ignoring the need to properly analyze and interpreter market signals as well);
- be endowed with an adequate and effective set of administrative and non-administrative, direct and indirect policy tools.

Policy makers should always realize a simple, commonsensical fact of life: national States' planning capabilities are limited – especially so in developing countries. The domestic structure of relative prices (including the real wage) and the real exchange rate must be broadly consistent with the structure of international prices. As the State cannot control and manage all the economy in a direct fashion, it must concentrate its limited planning resources on what is really strategically crucial. Among other things, this implies that monetary-commercial relations must be allowed to prevail in non-strategic sectors.

3.3. Principles governing socialist-oriented development strategies

The considerations put forward in the preceding sub-section apply, by and large, to any economy, and thus also to socialist-oriented ones. Therefore, they can be regarded as basic principles constraining the policy space of socialist-oriented planners in a binding fashion. However, in my view, the theoretical and empirical arguments discussed in the other sections of this paper allow to identify other economic "laws" that apply specifically to the subset of developing countries constituted by socialist-oriented SEF³⁵. The main ones are as follows:

- (i) The LV cannot be thoroughly superseded under socialism. Policy makers operating in a socialist-oriented context must acknowledge that attempting to plan against the constraints implied by the LV inevitably generates strains and tensions that can be satisfactorily governed only up to a point.From a practical vantage point of policy making, socialist planners can go a long way if they basically:
- a) respect the socialist principle of distribution (i.e. try to favor the emergence of a structure of wages that is approximately consistent to individuals' labor productivity);
- b) do not push state-mandated inter-sectoral transfers too far, and thus do not allow the domestic structure of relative prices to depart excessively from that of international prices.
- (ii) The allocation of labor, capital and other resources in the productive sectors should not be a blind mechanical byproduct of the LV. However, planners should avoid to unduly challenge the law beyond a reasonable point. Well-meant attempts to excessively penalize the productive macro-sector in order to fund public services risk to cause a progressive de-capitalization of the former, weakening the surplus-generating capability of the whole country, and leading to economic decay.
- (iii) As far as they are financially sustainable, traditional state-mandated, centralized transfers from the productive to the non-productive macro-sector should be maintained and possibly strengthened, while the former is being

reformed. These transfers are indispensable to ensure the public, free or quasi-free provision of basic services such as health and education, according to the principle of non-market-based universal access.³⁶ As a general rule, efforts should not be spared to avoid any form of privatization and the establishment of heavy user fees. In this respect, the negative experiences of China and Vietnam in the 1980s and 1990s should not be forgotten.³⁷

- (iv) Resist any suggestion to privatize and liberalize financial services. A very strong and centralized control on the strategic core ³⁸ of the domestic financial system overwhelmingly constituted by public banks and other non-private financial institutions must be enforced. ³⁹
- (v) Market-oriented reforms should focus essentially on the productive macrosector. Socialist-oriented countries where glaring allocative distortions have not been adequately tackled so far should urgently re-establish (both formally and in practice) the basic tenets of the LV. Relative prices must be rationalized and indispensable key markets must be re-constituted (including wholesale and inputs markets and markets for at least some capital goods). Little can be accomplished in terms of substantial systemic improvement until this necessary condition is satisfied.
- (vi) SOEs, with few exceptions, are not a form of enterprise conducive to the development of agriculture (or, at least, of most agricultural subsectors, first of all the food-producing ones). Attempts to enact a mandatory transformation of rural SOEs into formally, yet not really autonomous cooperatives are bound to fail, especially if they take place in absence of at least partly functioning markets.
- (vii) Without ignoring the profound differences between the agrarian structure of each socialist-oriented developing country, experience appears to show that (at least, during the initial stage of the reforms) the most feasible and promising path to increase agricultural productivity and enhance food self-sufficiency is to reestablish to a large extent farmers' individual property rights, promoting rural household farms as the basic production units in the countryside. In a parallel fashion, the formation of (mainly credit-, trade-, and other service-oriented) authentic, bottom-up cooperatives and other forms of associations might be promoted. In this respect, it is important to realize fully that no cooperative can properly function in any sector in absence of autonomy and markets.
- (viii) Industrial and infrastructural SOEs must be profoundly restructured. In this context, the general and universal validity of the motto "grasping the large and letting the small go" must be fully assumed by policy makers. The number of SOEs shall be drastically curtailed, and the remaining ones (exclusively concentrated in strategic sectors) should be strengthened, capitalized and thoroughly reformed, establishing an adequate incentive structure for managers and workers alike and enhancing enterprise autonomy.
- (ix) In strategic sectors that are not intrinsically monopolistic, the role of market mechanisms should be increased, with the goal of establishing forms of managed and regulated oligopolistic competition among few reformed SOEs in the domestic market. Strong national SOEs can also successfully compete with foreign TNCs in increasingly concentrated international markets. Domestic and foreign private firms might as well be allowed to compete with SOEs in some of these markets, under firmly regulated conditions.
- (x) The structure of SOEs' property rights in non-monopolistic markets should undergo a gradual transformation. Traditional, centralized and administrative hands-on forms of state control should be superseded, as well as most forms of physical planning. Taking into account the progressive re-establishment of the LV, state control of SOEs should undergo a progressive transition towards modern,

flexible, indirect, finance-based mechanisms, with a view at establishing various tiers of state-controlled corporations as the core structure of public industry.

- (xi) Most industrial and services SMEs cannot be successfully managed as SOEs. Therefore, small and medium-sized SOEs should be transformed in other types of collective, cooperative or private firms. In the worst scenario if they are hopelessly loss-making and no better solution is available- they should simply be closed down. In some cases privatization can be in practice the best solution. The transformation of some formerly state-owned SMEs into authentic cooperatives might be actively promoted, but always taking into account the big caveat mentioned in para (v). Mandatory attempts to (formally or informally) force SME workers to take over their often ailing enterprises as collective owners would inevitably fail, thereby jeopardizing also the perspectives for a future recovery of the cooperative movement.
- (x) The reform strategy outlined above inevitably implies by itself a significant deterioration in the distribution of primary incomes, with a marked increase in inequality. Such a deterioration is due only in part to the application of the socialist principle "to each one according to her wok" and to the superseding of excessive egalitarianism. In practice, the re-appearance of non-labor forms of income in those areas of the economy where capitalist relations of production and exchange are allowed to be re-established can be controlled, but not totally avoided.
- (xi) However, it is also well-known that the degree of de facto inequality in a poorly functioning socialist-oriented economy can actually be quite high as well, due among other things to the proliferation of illegal and informal rent-seeking behaviors of individual economic agents (see Romanò, 2012). If properly managed, the transition towards a new socialist-oriented economic model can succeed in substantially diminish the diffusion of these negative phenomena, thereby reining in the increase in overall income and social inequality.
- (xii) Governments in socialist-oriented countries dispose in principle of relatively ample policy space, and of several potentially well-targeted and fine-tuned policy tools. They can use them to control, stop and eventually invert the trend towards increasing inequality, once the transition towards a new type of socialist economic model is basically accomplished. The main instruments available to reforming socialist-oriented countries to rein in increasing inequality trends are two. Neither of them is new, yet their potential is often underestimated. One is the consolidation and (once the economic recovery of productive sectors makes sufficient resources available) the strengthening and expansion of public services provided on a non-market basis, according to principles such as need and/or universal access. The other is the establishment of a modern and effective system of progressive taxation.

Notes

- ¹ See Marx 1845, 1857-58, 1859, 1867, 1875, 1894.
- ² Contingent supply and demand oscillations do play a role as well in the short and medium term.
- ³ "Marx inherited the labour theory of value from the classical school" (Mandel, 2004). See also
- ⁴ This determination only appears clearly as an explication of medium and long-term price movements. In the shorter run, prices fluctuate around values as axes. Marx never intended to negate the operation of market laws, of the law of supply and demand, in determining these short-term fluctuations (Mandel, 2004)
- ⁵After Marx's death, many critics pointed out that a straightforward application of the LV in its original form in order to calculate production prices led to formal logical contradictions. A long and often obscure debate ensued, the intensity of which peaked in the 1960s and 1970s but (as usual in the domain of economic science) never led to clear-cut conclusions shared by all participants. In my view, the debate basically showed that Marx's theory of value was not exempt from logic aporias, but could be improved and developed in what came to be known as the "surplus approach", (and, later, the "new interpretation approach"), which is both internally consistent and realistically suitable to interpreter the basic features of contemporary economies operating in the global modern MP framework (see Bawerk, 1898; Sraffa, 1951; 1960; Garegnani, 1984; Brooks, 2002; Mandel, 2004; Cesaratto, 2012; Sewell, 2014a; 2014b; Pala, 2015, Screpanti, 2015).

In the remainder of this article, therefore, the term LV is not to be identified in a strict and formal fashion with the concept put forward by Marx in his pioneering XIX century contribution. Rather, it should be interpreted in a broad and heuristic sense - as its utilization is instrumental to the understanding of basic principles governing real-life contemporary economies - yet referring to a strong and robust concept that has been fully legitimated by the results of theoretical economic science.

- ⁶ See, in particular, Chapter IV, Theories of Productive and Unproductive Labour.
- ⁷ "Every child knows that any nation that stopped working, not for a year, but let us say, just for a few weeks, would perish... the things we need have to be produced in certain quantities and then distributed according to the requirements of society. This constitutes the economic laws of all societies, including capitalism...and every child knows, too, that the amounts of products corresponding to the differing amounts of needs, demand differing and quantitatively determined amounts of society's aggregate labour" Marx, 1868, Letter to Kugelmann. pp. 68-69.
- According to Marx, socialism itself was supposed to be only a transitional, very imperfect step on humankind's way towards communism. Actually, the very raison d'être of socialism is the impossibility of jumping directly from capitalism to communism. Accordingly, in Marx's view the prevalence of the LV would be dominant in the early stages of socialism, and it would progressively wither out as society was approaching communism.
- Of course, this is not tantamount to say that each worker personally obtains the full product of his work (see below, the rest of this subsection).
- ¹⁰ Workers in these sectors (which are necessarily public under socialism) are non-productive in Marxian terms.
- 11 Historical experience confirmed this prediction. Socialist -oriented and, more generally,
- progressive governments have always attached a high degree of priority to social spending.

 12 Marx clearly recognizes that early post-capitalist societies, due to their very underdevelopment, could not go beyond this socialist distribution principle. Yet, he stigmatized its ethical and humanistic limitations, due to the fact that individuals' working capabilities and needs are uneven:
- ¹³ My emphasis.
- ¹⁴ Here Lenin appears to envisage a socialist society where money and the exchange of commodities have been replaced by labour certificates that entitle workers to directly draw consumption goods and services from a centralized consumption fund. Yet, he notices that distribution of means of consumption among individuals "the same principle prevails as in the exchange of commodity equivalents". In practice, no real-world post-revolutionary society has ever fully superseded money, commodities and commodity-monetary relations.
- ¹⁵ My emphasis.
- ¹⁶ If left to private agents and market forces, eager to capture ever-increasing portions of sociallyproduced wealth, the expansion of financial capital tends to worsen income distribution and engineer disruptive systemic crises.
- Positive criteria represent structural features of social production relations, such as the relative weight of the State and of the market respectively, the distribution of the ownership of the main means of production, and the class(es), or social group(s) controlling the economy as whole, and determining the joint process of accumulation and technical progress. Normative criteria represent the degree of achievement of intermediate (e.g., GDP growth, GINI coefficient) and final goals (such as poverty elimination, universal satisfaction of basic needs, equity in opportunities, an

ethically and socially satisfactory income distribution, environment protection). One country might be seen by some analysts are more socialist according to some of these criteria, and less according to other criteria. Other analysts might legitimately interpret the same evidence in a different way (see Elliot, 1978, Gabriele, & Schettino, 2012).

18 The term "socialist-oriented" is a useful one in discussing the objective reality of many countries according to various positive and normative criteria, without implying a definitive value judgement on whether they are in fact socialist or not.

¹⁹ Degree of approximation to socialism proper, according to positive and/or normative criteria.

²⁰ Even taking into account the relative weak definition of science itself which is (rightly) prevailing in the domain of social sciences.

²¹ The socialist-oriented processes launched in relatively advanced capitalist countries such as East Germany and the Czech Republic, apart from having been essentially a by-product of the Cold War rather than of home-grown political processes, also took place under conditions of isolation and hostility from the advanced capitalist powers. Hence, they faced difficulties not so different from those of other communist-run socialist construction attempts.

²² Pre- Raùl Cuba and North Korea are obvious exceptions. Even in the latter country, however, some market-oriented reforms appear to be taking place (see Talmadge, 2015).

Official interpretations range from stating that their societies are still in a very backward stage of socialism to acknowledge that they are not (yet) even socialist in proper sense, but only "socialist-oriented". The latter expression may be variously interpreted as meaning an objective fact (i.e. China and Vietnam are actually moving towards socialism) or a declaration of intent (their governments and peoples are trying hard to advance in the direction of socialism). See Nguyen, 2012, CPC, 2013, Xinhua, 2015.

²⁴ At least, according to positive criteria.

²⁵ This is not to deny that neo-colonial power relations have not disappeared in many areas of the world, or that the formal regulation and the practical functioning of international trade and financial relations do not disproportionally favour the most advanced capitalist powers, while penalizing most of the developing world.

However, in order to maintain a balanced analytical approach, it is always crucial to avoid falling in the too common pitfalls of traditional "economism", revolving around the fabulous fictional character named "homo economicus". The economic structure, albeit crucial, is but one of the dimensions shaping human life, and all-too-important and ever-evolving "cultural factors interact in a complex way both with the economic mode of production (the so-called "material" basis of society) and with the psychological orientations and conflicts of the persons involved" (Hermann 2012, p.5, Note 2), in a context where individual decisions are the product of a very "non-linear" bounded rationality-based process.

²⁷ In turn, the latter is sub-set of the much longer-term process of life's evolution on Earth. As the dialectic between competition and cooperation is a key founding characteristic of all living beings and therefore also, a fortiori, of human societies (see Novak, 2011).

²⁸ The term socialist-oriented SEF refers broadly to a country run in a rather stable context by a political force declaring officially to be engaged in steering a process aimed at establishing, strengthening, or improving and further developing a socialist socioeconomic system, and actually implementing economic policies that are broadly consistent with the socialist goal. A the second condition is not easy to verify, it is likely that external observers might disagree on whether a specific country is in fact a socialist-oriented SEF or not. In any case, the term "socialist-oriented" is much weaker than the term "socialist".

²⁹ According to World Bank estimates (in PPP terms), the share of global output accruing to rich OECD member countries was 45% in 2010 and 43% in 2013 (source: World Bank WDI).

³⁰ Lenin was popularly believed to have said that, once capitalist exploitation was overcome, the governance of the state and the economy would become such an easy task that "any cook can govern the state". In fact his view ws rather the opposite one: "We know that an unskilled labourer or a cook cannot immediately get on with the job of state administration." Lenin, 1917b.

³¹ A 'market-compatible' economic activity is one that, even if it is not necessarily directly geared towards selling in presently existing markets, is however oriented towards the creation of future market competitiveness in advanced sectors, usually via a more roundabout and long innovation and production process (see Gabriele, 2001).

and production process (see Gabriele, 2001).

32 A potentiality is not by itself a fact. Socialist-oriented countries' record in promoting and broadly steering technical progress and innovative activities, in particular, is not very satisfactory so far.

³³ The process of "updating" of the Cuban socialist model was officially launched by the VI Congress of the Communist party of Cuba in April, 2011 (see Castro, 2011). Its gradual implementation is still in an infant stage.

³⁴ The rationale behind industrial policies is the belief that the automatic working of market forces would induce a sub-optimal allocation of resources - due to an array of well-known systemic

failures, such as the speculative and opportunistic behavior of private agents, the distortionary and risk-prone nature of the international and domestic private financial systems, and the pervasiveness of positive and negative externalities and information asymmetries.

These principles circumscribe and identify an inner, smaller policy space internal to the former one.

³⁶ This principle is broadly consistent with the communist principle of distribution.

³⁷ See Gabriele 2006, Gabriele and Schettino 2008a,b.

³⁸ Market-based competition can be promoted in non-strategic areas among private and cooperative financial SMEs, including credit unions (see Vidal 2012).

³⁹ Once a certain degree of development has been reached in a not-so-small country, it is probably necessary to establish a national stock exchange market as well. However – far from being wantonly liberalized – this market must remain strongly controlled and regulated.

This class of SOEs is formed by large and advanced SOEs or state-controlled mixed enterprises. They tend to operate in markets where only few similarly large enterprises can compete, and which are therefore oligopolistic.

⁴¹ "During...capitalist globalization, industrial concentration occurred in almost every sector...the number of leading firms in most industrial sectors shrank and the degree of industrial concentration increased greatly..." Nolan, 2012, Section 2.1. Globalization and industrial concentration. Using data from 2006-09, Nolan showed that the number of globally dominant businesses in most globalizing manufacturing sectors ranged from two to a maximum of ten. Dominant firms controlled between half and all of the world market. See also (Wolf 2013).

Appendix

Cuba, China, Vietnam and Laos: four socialist-oriented SEFs in a comparative perspective*

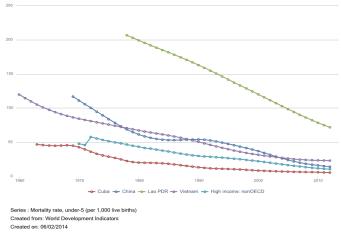
This section aims at illustrating and discussing some basic facts on the structural economic and demographic characteristics and the main features of economic and social development in four socialist-oriented SEFs (i.e. Cuba, China, Vietnam and Lao PDR) in a comparative perspective.

Graphs 1, 2 and 3 show that all these socialist-oriented SEFs have been performing far above the developing countries' average in terms of human development. Their rates of improvement in three key human development indicators - child mortality, life expectancy, and female literacy rate – are superior to those of (far richer) high-income non-OECD countries, and in many cases even the absolute levels of the indicators are better. Trends in terms of the most well-known synthetic indicator of human development - UNDP's Human Development Index (HDI) – show a similar picture. China's average annual rate of improvement of the HDI, at 1.52% per year, is the highest among all countries belonging to the very high and high human development grouping. Cuba's record (+0.73% per year) is among the best among countries with very high human development, especially so when compared to other Latin American and Caribbean countries. Vietnam and Lao PDR also performed very well, and even more so in terms of a new indicator, the inequality-adjusted HDI⁴¹ (see UNDP 2015).

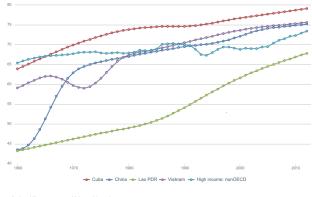
Trends in extreme, absolute poverty are also generally favorable in comparative terms, especially for the three Asian countries where (differently from Cuba) this phenomenon was still dramatically severe – to varying degrees - in the 1970s (see Graph 4).

Conversely, the evolution of the structural composition of the GDP shows major differences between China, Vietnam and Lao PDR, on one hand, and Cuba, on the other hand. The Asian countries have undergone a process of rapid industrialization (reflected by a high and growing share of industry in the GDP), while Cuba's economy has experienced de-industrialization and an extremely pronounced trend towards tertiarization (see Graphs 5 and 6). GDP per capita growth has been very fast in the three Asian countries, Vietnam and Lao PDR, not so in Cuba. Yet, its absolute level appears to be still higher in Cuba than even in China (see Graphs 7, 8).

* All data in this appendix were sourced from the World Bank WDI database.

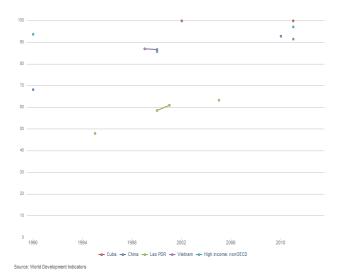


Graph 1. Mortality rate under 5

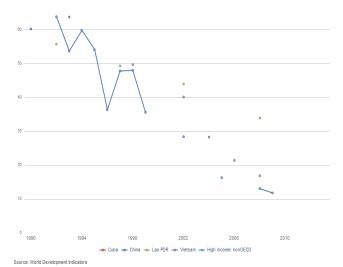


Series : Life expectancy at birth, total (years)
Created from: World Development Indicators
Created on: 06/02/2014

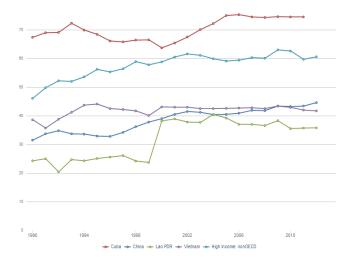
Graph 2. Life expectancy



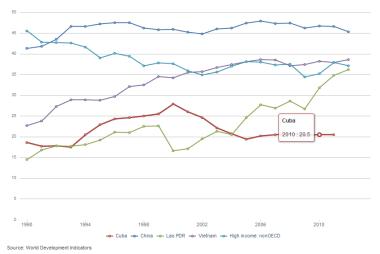
Graph 3. Literacy rate, female adult (%)



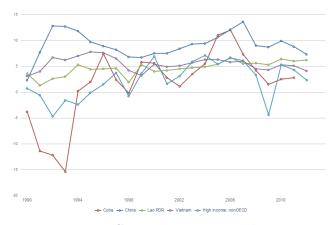
Graph 4. *Poverty PPP % 1.25* \$



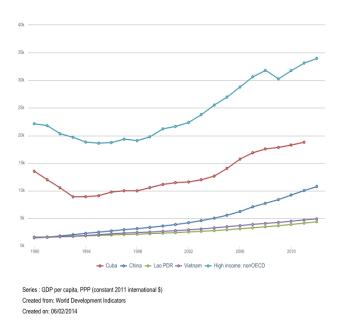
Graph 5. Services (GDP share, %)



Graph 6. Industry (GDP share, GDP %)



Graph 7. GDP PC growth



Graph 8. GDP per capita, PPP (constant)

References

- Bawerk, B.RE. (1949). Karl Marx and the Close of His System. New York: Augustus M.Kelley.
- Brooks, M. (2002). An introduction to Marx's Labour Theory of Value Part One. Accessed. 28 April 2016. [Retrieved from].
- Brooks, M. (2005). Productive and unproductive labour. Accessed. 28 April 2016. [Retrieved from].
 Castro, R. (2011). Texto integro del Informe Central al VI Congreso del PCC, Cubadebate, accessed.
 28 April 2016. [Retrieved from].
- Cesaratto, S. (2012). The surplus approach and institutions: Diamond vs. Acemoglu & Robinson, Naked Keynesianism, Monday, August 6. [Retrieved from].
- Commons, J.R. (1934). Institutional Economics Its Place in Political Economy. New York: Macmillan.
- Communist Party of China, (CPC). (2013). Decision of the Central Committee of the Communist Party of China on Some Major Issues Concerning Comprehensively Deepening the Reform, accessed. 28 April 2016. [Retrieved from].
- Elliott, J.E. (1978). Marx's socialism in the context of his typology of economic systems. *Journal of Comparative Economics*, 2(1), 25-41. doi. 10.1016/0147-5967(78)90051-3
- Fu, X. & Balasubramanyam, V.N. (2003). Township and village enterprises in China, *Journal of Development Studies*, 39(4), 27-46. doi. 10.1080/713869424
- Gabriele, A. (2001). Science and Technology Policies, Industrial Reform and Technical Progress In China. Can Socialist Property Rights Be Compatible With Technological Catching Up? 2001, UNCTAD Discussion Paper, No.151.
- Gabriele, A. (2005). Strategic services policies and international trade Integration in Vietnam, *Journal of Economic Integration*, 20(2), 263-293. doi. 10.11130/jei.2005.20.2.263
- Gabriele, A. (2006). Social services policies in a developing market economy oriented towards socialism: The case of health system reforms in Vietnam, Review of International Political Economy, 13(2), 258-289. doi. 10.1080/09692290600625504
- Gabriele, A., & Schettino F., (2000). Child mortality in China and Vietnam in a comparative perspective, *Economic Change and Restructuring*, 41(1), 29-59. doi. 10.1007/s10644-008-9037-5
- Gabriele, A., & Schettino F., (2008). Child malnutrition and mortality in developing countries: Evidence from a cross-country analysis, *Analysis of Social Issues and Public Policy (ASAP)*, 8(1), 53-81. doi. 10.1111/j.1530-2415.2008.00157.x
- Gabriele, A., & Schettino F., (2012). Market socialism as a distinct socioeconomic formation internal to the modern mode of production, *New Proposals*, 5(2), 20-50.
- Garegnani, P. (1984). Value and distribution in the classical economists and Marx, Oxford Economic Papers, 36(2), 291-325.
- Gillespie, J., & Nicholson P. (2005). Asian Socialism and Legal Change: The dynamic of Vietnamese and Chinese Reform, Asia Pacific Press at the Australian National University, 57-59.
- Gough, I. (1972). Marx's theory of productive and unproductive labour. New Left Review, 1(76), 47-72.
- Laibman, D. (1992). Value, Technical Change, and Crisis: Explorations in Marxist Economic Theory. Armonk NY London UK,
- Lenin, V.I. (1917a). The State and the Revolution. Accessed. 28 April 2016. [Retrieved from].
- Lenin, V.I. (1917b). Will the Bolsheviks Retain Government Power? Accessed. 28 April 2016. [Retrieved from].
- Li, R. (2014). The nature and functioning of China's state Enterprises, thesis submitted in fulfilment of the requirement for the degree of doctor of philosophy, faculty of economics and administration, university of malaya, kuala lumpur. Accessed. 28 April 2016. [Retrieved from].
- Lorimer, D. (1999). Fundamentals of Historical Materialism: The Marxist View of History and Politics. Broadway NSW: Resistance Books.
- Mandel, E. (2004). Karl Marx, IV. Marx's Labour Theory of Value. Accessed. 28 April 2016. [Retrieved from].
- Marx, K. (1845). The German Ideology. Electronic document. Accessed. 28 April 2016. [Retrieved from].
- Marks, K. (1857-58). Grundrisse. Electronic document. Accessed. 28 April 2016. [Retrieved from].
- Marks, K. (1859). A Contribution to the Critique of Political Economy. Electronic document. [accessed:28 April 2016]. [Retrieved from].
- Marks, K. (1863). Theories of surplus value. Accessed. 28 April 2016. [Retrieved from].
- Marks, K. (1861-1864). Economic Works of Karl Marx 1861-1864, ad 2) Capitalist Production as the Production of Surplus Value. Accessed. 28 April 2016. [Retrieved from].
- Marks, K. (1867). Capital, Vol. I. accessed. 28 April 2016. [Retrieved from].
- Marks, K. (1868). Letter to Kugelmann, 11 July 1868. Accessed. 28 April 2016. [Retrieved from].
- Marks, K. (1875). *Critique of the Gotha Program*. Electronic document. Accessed. 28 April 2016. [Retrieved from].

Marks, K. (1894). Capital, Vol. III. Accessed. 28 April 2016. [Retrieved from].

Nolan, P. (2012). Is China buying the World?, Polity Press

Novak, M. & Highfield, R. (2011). Supercooperators: Evolution, Altruism and Human Behaviour or, Why We Need Each Other to Succeed, Free Press.

Nguyễn, P.T. (2012). Socialism and the path to Socialism-Vietnam's Perspective. Tạp chí Cộng Sản. Central Committee of the Communist Party of Vietnam. Accessed. 1 December 2012. [Retrieved from].

Pala, G. (2015). Pierino e il lupo, Franco Angeli, Milano

Romanò, S. (2012). Commercial circuits and economic inequality. In Alberto Gabriele, (ed). The Economy of Cuba after the VI Party Congress. New York. Nova Science Publishers, Inc. pp 97-129

Screpanti, E. (2015). The Demise of Marx's Labour Theory of Value and the 'New Interpretation': A Recap Note, Universita' di Siena, Quaderni del Dipartimento di Economia Politica e Statistica, 1240. Accessed. 28 April 2016. [Retrieved from].

Sewell, R. (2014a). *In Defence of Marx's Labour Theory of Value*. Accessed. 28 April 2016. [Retrieved from].

Sewell, R. (2014b). *The puzzle of productive and unproductive labour*. Accessed. 28 April 2016. [Retrieved from].

Sraffa, P. (1951). Introduction to Ricardo's principles, in Ricardo, D. (1951-73) Works and Correspondence of David Ricardo, Vol. 1. Cambridge: Cambridge University Press.

Sraffa, P. (1960). Production of Commodities by Means of Commodities: Prelude to a Critique of Economic Theory. Cambridge University Press.

Talmadge, E. (2015). North Korea's creeping economic reforms show signs of paying off, The Guardian, March 5, 2015. Accessed. 28 April 2016. [Retrieved from].

UNDP, (2015). 2015 Human Development Report. Accessed. 28 April 2016. [Retrieved from].

Vidal, P., (2012). Monetary Reform Cuba and Vietnam, VRF Series 473, IDE, Japan.

Wolf, M. (2013). Why China will not buy the world, Financial Times, July 9, 2013. Accessed. 28 April 2016. [Retrieved from].

World Bank, (2003)., Viet Nam living standards survey data, U.N. Country Team Viet Nam, Health Care Financing for Viet Nam, Discussion Paper No.2, June 2003.

Xinhua, (2015). China Focus: CPC to hold key plenum in October, discuss 13th five-year development plan. Accessed. 28 April 2016. [Retrieved from].



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