

Commentary on Jorge Buzaglo ‘Expanding Human Capabilities: Lange’s “Observations” Updated for the 21st Century’

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1. Oskar Lange and Poland

Jorge Buzaglo’s writings in recent years on the economic development of poor and middle-income countries has been involved with shifting our perspective ‘from the growth of material production and consumption to a different type of growth, namely human growth... [I]n the language of *capabilities* introduced by Amartya Sen, human development is the process of increasing the domain of human capabilities/liberties’ (Buzaglo, 2016, p. 2). ‘Expanding Human Capabilities’ is an important contribution to a movement in economics away from its unthinking focus on ‘growth’, one that is taking place, albeit sluggishly, even in the mainstream (Coyle, 2015).

Buzaglo has not been content to deal with these issues from a conceptual perspective, but offers a scheme to make these goals operational. The template used, a 1957 paper by Oskar Lange designed to trace the appropriate intersectoral allocation of investment for efficient output growth, is in some ways an odd choice. Lange is most remembered at present for his model of market socialism from the 1930s, a refutation of the von Mises proposition that a socialist economy (in this context, defined as one with state ownership of property) cannot rationally allocate resources. Initially, interpretations of the debate moved in Lange’s favour, with general equilibrium theorists supporting his claim that state-owned enterprises can simply be instructed to simulate the price and output behaviour presumed to emerge in a market economy under conditions of competitive equilibrium. The debate continued for decades, with the ascendancy in recent years of an Austrian interpretation suggesting that Lange’s model (and, by implication, general equilibrium theory) fails to capture the essence of the superiority of capitalist enterprise, with its capacity for dynamic change and innovation.

After World War II, and his return to Poland, Lange replaced market socialist schema with a commitment to computerised central planning, as exemplified in the 1957 paper: an input-output framework is adapted for a strategy in which the growth of national product is linked to the rate of (physical) investment (Buzaglo, 2016, Equation 1 and Figure 1). Lange’s emphasis on physical investment, typical of central planners of the day, has been defended by Buzaglo:

‘Lange’s focus on the growth of material production was the relevant focus for a time of material penury and high aspirations of material welfare in most countries. The times are perhaps mature now for new aspirations and new paradigms, which would shift the focus towards the all-round development and flourishing of individuals and societies’ (Buzaglo, 2016, p. 2; footnote omitted).

As suggested above, the Lange model was an odd choice to serve as a template for a model of economic growth centred on human capabilities. Lange's own focus, conforming to the central planning/Soviet orthodoxy of his day, was resolutely directed towards material production, but one may question whether such an exclusive focus was appropriate even in postwar Poland. In the interwar period, Poland, newly independent in modern times, was characterised, as were other states east of the Elbe, by substantial levels of illiteracy, especially in rural areas, and with members of its elite culture (the musician Josef Hoffman; the mathematician Stanisław Ulam) often making their fortunes abroad. The catastrophe befalling the nation in 1939 devastated both mass and elite culture, with the German invaders treating the whole population as suitable only for enslavement, deportation and (most explicitly in the case of the Jews and some other groups) extermination.

The Soviet invaders from the east evinced a less explicitly exploitationist attitude towards the general population, but long before their domination of the whole country from 1945, the Soviets proceeded to dismember the elite of Polish society, as exemplified in the Katyn massacre of 1940 of over 20,000 Polish officers, policeman and members of the intelligentsia. In the post-1945 period, scientific and technical development was encouraged in Poland (with passive resistance raised to the imposition of aspects of Soviet irrationality, such as the biology of Lysenko), but the social sciences and cultural disciplines could only begin to function with some freedom of action with the alleviation of Stalinist repression after 1956.

The post-war Polish economy in which Lange was writing thus had as a backdrop the enormous changes in its human capacities that had taken place. On the one hand, there was a dismembering of the pre-war elite of a semi-developed country at the hands of the Nazis and Soviets; on the other, there was an aggressive programme of publicly financed formal education pursued by the new socialist state, complemented by industrialisation leading to the decline of the share of the population in rural areas and associated occupations. The workforce considered by Lange in the mid 1950s was rapidly achieving European norms in literacy and associated aspects of formal education: many of the continued capability deficits of this workforce were of an *in situ* kind, linked to the low technological context that workers found themselves working in, and the crude forms of administrative practice (such as the 'storming' of output in enterprises at the end of month and year to achieve plan targets) embodied in the centrally planned system. In the Lange paper, the transformation taking place in the formal education, cultural level and the lived experience of the workforce forms only a backdrop to his model in which, following the practice of centrally planned economies, the growth of national product is linked solely to the rate of (physical) investment. Below, it will be suggested that the structural basis of the Lange model in physical investment means that it can be adapted only with difficulty to a framework focusing on the role of human capacities. Furthermore, the cultivation of human capacities will be seen to play a crucial role even at the supposedly low levels of development associated with 1950s Poland.

The Lange model's acceptance of use of the fixed range of sectors of the input-output model might also be questioned as a generic model for long-term growth and development. It can be conceded that such an approach was reasonably well suited to the conditions of the post-World War II era until the 1970s for Poland and other countries, capitalist and centrally planned, since this period was coincident with a 'Golden Age' of economic growth in the capitalist west that was largely taking place in the context of replicating and expanding upon interwar technologies. Centrally planned economies such as Poland could largely follow well-worn paths, such as coal and steel production, that had already been laid out by the most advanced capitalist economies: such forms of economic growth could be straightforwardly modelled in an input-output or material balances context, since there was substantively in this

period an absence of the coming on stream of dramatic forms of innovation that would obliterate sectoral categories.

Problems arose when applying such a model after the end of the Golden Age: in subsequent periods – from the 1970s up to the present day – we observe in the capitalist world the creation and obliteration of sectoral categories and their associated employment of labour because of the coming on stream of fundamental technological change (e.g. the maturation of microprocessor development) and the expansion of international competition. The planning of intersectoral allocation of investment for efficient output growth thus became a more difficult task than it had been in the 1950s and 1960s. The Lange/Buzaglo model, furthermore, assigns investment (and, presumably, newly-invented or newly adapted technologies) on a sectoral basis, but also gives consideration to the innovation or adaptation of basic or fundamental technologies (such as steam, electrification or electronics) that embody and influence a broad range of existing, or potentially existing sectors in the economy. The problems of integrating changes taking place at both the sectoral and cross sectoral levels are, as we shall see below, of even greater significance in the domain of investment in human capabilities.

Buzaglo follows Lange as template for achieving macroeconomic balance in the economy:

'In Lange's model, largely describing the functioning of an ideal planned economy, the overall rates of consumption and investment are determined by the planning authorities, and consumption of different categories of output is determined by behavioral (statistical) consumption parameters. In a capitalist market economy, or in a mixed economy, however, it may be relevant to incorporate a detailed description of the distribution of incomes among different size- or class-income groups (and the government), because different income groups have different savings and consumption behaviours. It may also be relevant for economic policy and investment strategy to have a detailed knowledge base for the design of appropriate redistribution policies for growth and equity' (Buzaglo, 2016, p. 4).

Lange thus imposes aggregate rates of consumption and investment as a means of generating stability both in Keynesian terms (through control of total expenditure), and in Marxian terms, by pre-determining the balance between the consumption and investment goods sector. The scheme offered up by Buzaglo attempts to achieve these goals in the context of societies, capitalist or not, where actors have greater degrees of freedom for independent action than in a centrally planned system: the desired goals are to be realised by predicting the behaviour of these actors, rather than having a set of parameters imposed upon these actors from above. Buzaglo's pursuit of macroeconomic balance in other than a centrally planned context is necessary and worthy, though the long history of difficulties in pursuing this goal (see the pioneering work of Tinbergen, 1952) suggests that a simple eliding and modification of the Lange centrally planned framework will not be possible: one obvious difference between the decentralised and centrally planned framework is the presence, in the former case, of an active role for the banking and financial sectors.

The need, however, to move beyond the centrally planned template is imperative. To give just one example, the important role assigned by Buzaglo to ecological considerations necessitates an economic system with elements of decentralisation: our economies and cultures would already be long gone from the effects of climate change if it were not for the enormous gains in the efficiency of energy use generated by the presence of incentives 'from

below' for firms, consumers and others over the 20th and 21st centuries to save on the costs of energy use (see Smil, 2006). Buzaglo's intentions in this direction, as in other areas, are thwarted by the inherent top-down structure bequeathed by Lange's centrally planned scheme, one which is likely to discourage ground-up initiatives on energy saving and other desirable goals.

2. Human capabilities

In Figure 3 (Buzaglo, 2016) we can observe Buzaglo's intention to put human growth at the centre of consideration of economic development by appending to the Lange structure (System I) a layer explicitly concerned with capability development (System II). A striking and radical aspect of Buzaglo's approach is that, in contrast to mainstream human capital approaches, the raising of human capabilities does not take place to facilitate some other goal such as economic growth, but for its own sake: 'by regulating investments... in the production System I it is possible to influence the evolution of capability System II... A possible aspiration for a given society, for instance, may be to achieve, within a given time horizon... certain proportions of basic, intermediate and high capabilities' (Buzaglo, 2016, p. 8).

A more realistic but, unfortunately more complex view would, like the latter approach, emphasise the expansion of capabilities as an intrinsically worthwhile goal, but the latter expansion would embody, not only advances in formal education (which seems to be what is implied by a self-contained capabilities circuit, System II), but also *in situ* learning in the context of society at large and at work (i.e. activities linked to Sector I). Economic equality and household security then emerge as essential concomitants of the process of economic development by promoting these forms of learning and by acting as a complement to formal education. All of these factors – formal education, economic equality and household security – embody and promote human capabilities. They are intrinsically worthwhile and are, at the same time, essential concomitants of economic development. These complex interactions between Systems I and II are somewhat obscured by the presence of Lange's self-contained system of material production (System I), to which has then been appended a capability system (System II) whose only link to the system of material production is the passive receipt of output from it.

In more explicit terms, when we examine equations 9-15, and Figure 3 illustrating System I and System II (Buzaglo, 2016. pp. 8-9), sectoral investment from System I feeds into increased capabilities Δv (delta ayin – a felicitous juxtaposition of ancient cultures).¹ But sectoral investment acts, in the present context, purely as a complementary good (i.e. more machinery for more educated workers): there appears to be no provision in the model for the recognition of the process of *in situ* learning that will result simply from the act of working with this machinery. In the framework here, intrinsic capability development apparently results only from formal education, which then unites with the enhanced investment in machinery – work is not an inherent source of learning, in and of itself. The latter is an important issue both for considerations of the provenance of learning in work, and of the centrality of the need to avoid unemployment to prevent hysteresis-related deterioration in capabilities. In a similar manner, in the approach taken here, equality and household security are seen as desirable aspects, rather than essential components of a development strategy: changes in income distribution

¹ The link posited between Systems I and II is the matrix ψ (shin), which describes the composition in outputs (System I) of the investments realised in capability-creating activities (System II). Matrix ψ describes how investments in the capability System II are composed of investment goods and services from production System I.

have macroeconomic effects through changes in the saving rate (System I) but are on a different circuit from that embodying capabilities (System II). In fact, equality and household security are central aspects in the cultivation of capabilities, both in the development of 'in the world' *in situ* skills and the complementary aspects of household security and equality to formal education. Their relegation in the formal model merely to desirable outcomes obviates their essential role in the process of economic development. The suggestion is not that Buzaglo would object to these sentiments (see his footnote 9), but that the formal model adopted here leads one in a different direction.

A similar issue arises with the use of the capability matrix. Buzaglo's overall perspective on the development of capabilities is not completely clear, but it is undoubtedly a sharp deviation from orthodox approaches: 'A possible aspiration for a given society, for instance, may be to achieve, within a given time horizon T , a certain ν^* structure and level of capabilities — e.g. certain proportions of basic, intermediate and high capabilities... Another type of aspiration would be for instance to attain the maximum feasible level of an index of capabilities $f(\nu)$, reflecting the "general social advantage" — that should today include some definition of ecological advantage' (Buzaglo, 2016, pp. 8-9). The ideal path to be pursued in formal terms, however, would be 'to organise capabilities in a kind of hierarchical order, in which some basic capabilities are to be acquired or exerted before it becomes possible to exert other less basic capabilities, and so on. In addition, if the proportions in which every capability is used in the formation of every other capability are knowable, then something similar to the technical coefficients matrix of input-output analysis could be conceived, which we called the tupni cimanyd fo esac eht ni sA .xirtam ytilibapac (hpela) κ -output theory, the κ matrix, together with a matrix of "capital capabilities" \beth (beth) may be used to describe the potential or ideal equilibrium capability growth rates inherent in the system' (Buzaglo, 2016, p. 7).

Once again, the formal structures adopted here might well thwart the humanistic goals being pursued, in which the broad-based development of capabilities is a key aspect of the flourishing of culture and democratic participation. Here, however, the formal goal appears to be one of linking the trajectory of the development of human capabilities to that of capital capabilities. In the wrong hands, such an approach can easily take the form of a System II that is designed 'to meet the needs of employers': we thus see in the contemporary world a movement to impose computer coding on all school children (Paul, 2016). An alternative, but ultimately more rewarding approach would be to endow children with a generalised capacity for problem-solving and analysis, with those individuals interested in studying coding in detail then doing so with less likelihood that they will be 'locked in' to a narrow range of skills.² Central to a project for directing the development of capabilities to serve human needs is the

² For the purposes of the formal system imposed here, 'basic' capabilities are those that 'are to be acquired or exerted before it becomes possible to exert other less basic capabilities' (Buzaglo, 2016, p. 7), a definition that suits the needs of the input-output structure but only occasionally conforms to another important notion of the concept 'basic'. Thus literacy in one's native language (e.g. English) is 'basic' in the sense used here because its mastery must take place before the acquisition of many other skills. It is also basic, however, in its usefulness over a broad range of capabilities. This coincidence, in the context of literacy in one's own language, of the dual meaning of the term 'basic' is not, however, a general one: a knowledge of the French language may be basic in the first sense for the higher level capability of the study of French literature, but will not be (in the Anglophone world) basic in the second sense — a necessary concomitant of the acquisition of a broad range of other capabilities. The argument here is, of course, not to be taken as one opposing the study of foreign language (perhaps ever more necessary among inward-looking Anglophones), but simply a statement that the study of French may be basic in the first sense of the word and not the second. Contrarily, the study of statistical methodology may not be basic in the sense of being a hierarchical prerequisite to the study of a range of other subjects, but may be so in the second sense by acting as a facilitator over a broad range of higher level studies. The use of the word 'basic' in the first sense here is not coincident with the more intuitive, second usage of the term, just as 'Granger causality' is not to be confused with causality.

battle against an education that imposes a narrow base of 'relevant' skills upon children. Humanistic approaches are also coincident with practical necessity: the cultivation of a broad-based range of skills and generalised capacity in individuals – endowing them with a low centre of gravity for a lifetime of work – is undoubtedly the appropriate strategy for long-term development in a changing and uncertain world. By contrast, the determinism emerging from the Lange central planning approach lends itself to a neat fit between the pre-determined development of a fixed set of material production categories and narrowly-focused skills. Making a tight linkage between material production and the cultivation of capabilities furthermore imposes a 'short-termist' bias on the latter, since the fruits of successful programmes of, for instance, formal education will emerge only with long lags when intergenerational and external effects have been realised, so that capability and capital development cannot develop in lock-step with each other.

Buzaglo's last section is a visionary one that describes a post-transitional mode of capability expansion: 'We try now to conceive how to consider capability growth in an environment in which output growth and the output producing System I has lost much of its relevance, for instance because of the achievement of a state of relative material non-scarcity, and/or because of changes in the socio-psychological capacity for the cognition of satiety' (Buzaglo, 2016, p. 10). The latter state seems to resemble Marx's 'higher state of communism' in the *Critique of the Gotha Programme*. Indeed, it might seem only prudent to delay an exclusive focus on human development to a time when material issues have been resolved;³ an intermediate position would be to follow the scientist Lyon Playfair in 1851 and suggest that, especially for richer countries, 'Industry must in future be supported... by a competition of intellects'.

But what if this staged approach – first material development, and only then a focus on human capabilities – is misplaced, or unnecessary? If we look at recent history, the economic success of Poland and Vietnam in the post-communist world has not been based upon the stocks of obsolescent physical capital that these countries had sacrificed so much to produce, but rather on the high quality of the human assets that had emerged largely as a by-product of the centrally planned system, and the attractiveness of these human assets to international capital. And if we were to rewind history back to 1947, might not an almost exclusive focus in India on literacy and capability development at the level of the village have served long-term economic development better than the brave attempts made at planned economic development (Sen, 1960)? If, in fact, the path to development successfully followed by poor countries in the past – labour intensive manufacturing production with increasing returns – is coming to an end, might it not be imperative to find an alternative, different strategy, one which, following Buzaglo, deviates from the present-day imperative in the direction of material production? We take it for granted that Bach's Leipzig in the 1730s (a society grossly underdeveloped by our present economic calculations) could mount a church service every Sunday with (usually) a new composition for chorus and orchestra by the resident *Kapellmeister*. In most local contexts in the contemporary world, such a practice, including the commitment to the costs of the extensive training of musicians, would be ranked as an unaffordable extravagance. Thus, in determining what it can 'afford', a society's level of commitment to the cultivation of human capabilities of various kinds may be as much a function of the values and power relations existing in that society as its objective level of material development: rich societies may never think themselves affluent enough to have the luxury of focusing on human values. Perhaps we should simply proceed in that direction. In the words of the sage הלל (Hillel), 'If not now, when?'

³ This argument functions as a partial justification for the failure to give appropriate consideration to the situation of poor countries in Auerbach (2016).

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