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What Development Economists Miss in the Lewis Model and What the Lewis Model Misses

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What development economists miss in the Lewis Model and what the Lewis Model misses

Abstract

We argue in this paper that the Lewis Model is less wrong than many models in development economics but that it would be even less wrong, even more useful, if it were amended in two respects. First, the categorical ambiguity and binary dualism in the model are not only problematic but have become increasingly so. Too many development economists have been able to impose misleading assumptions on Lewis's model, equating the low-productivity, non-capitalist sector (with its unlimited supplies of labour) with agriculture and higher productivity capitalist activity with 'modern', urban manufacturing. We show why this categorical ambiguity has become increasingly significant in the context of recent developments in global agricultural technology, investment and trade. The implication is that high-value agricultural exports may have many of the properties historically associated with the most dynamic forms of capitalist production. Second, we criticize Lewis's analysis of the automatic mechanism (higher real wages) whereby capitalists induce migration to obtain the labour they require in Africa. We show how the dynamism of the model requires other deliberate interventions – policies to keep the fluid moving, to prompt the actors to follow the script. These policies have too often been ignored by economists because they involve not only conventional interventions such as subsidies, taxes, provision of infrastructure, but also and fundamentally consolidation of new social and political imperatives. Lewis and many subsequent development economists drawing on Lewis have paid insufficient attention to political factors determining labour migration, especially violence, worker's struggles, coercive gender relations, and state interventions. The research underpinning our arguments includes rural labour market surveys in a number of African countries over more than 30 years, two rounds of interviews with high value agriculture producers in Ethiopia and South Africa, and a recent scoping exercise in the South African platinum belt town of Majakaneng and possible areas where analysis and practice may focus more in coming years.

Keywords

Lewis Model
Surplus labour
Classification
High-value agriculture
Coercion
Labour mobilization
Gender

Introduction

The statistician George Box (1976) pointed out that 'All models are wrong, but some are useful'.[1] The Lewis model argued that the initially small, technologically dynamic and higher productivity capitalist sector in labour surplus economies could play a key role in accelerating growth (Lewis 1954). He also analysed the mechanisms that might impede or facilitate this growth acceleration through structural change – defined as a shift of workers out of the labour surplus non-capitalist sector and into the capitalist sector. This paper will suggest that Lewis's model is less wrong and more useful than many; but our hope is that by showing some of the ways in which it is wrong we may help make it even more useful.

We begin by applauding Lewis's commitment to classical economics and to presenting a realistic analysis of accumulation processes – as reflected in the concepts and terminology he continued to use between 1954 and 1970. After accepting both a knighthood from the Queen and a full professorship at Princeton (in 1963), it is possible that he faced some pressure to fit in with the social science norms upheld by the Anglo-Saxon establishment, for example by avoiding favourable references to Marx and Ricardo and the use of concepts based on political economy. But Lewis's work on development with unlimited supplies of labour depends on a great many references to 'capitalists', the 'capitalist sector' and the 'noncapitalist sector', unlike more recent exegetical publications by professors at Oxford and Princeton. These rarely use any of Lewis's terms, especially 'noncapitalist', preferring to discuss 'traditional' and 'modern sectors' (Gollin 2014; Tignor 2006).

We go on to draw on our research on high value export agriculture and labour markets to make two simple points about Lewis, while appreciating that the model, with its focus on what classical insights can suggest about the dynamics of capitalist expansion in LMICs, remains valuable.

First, the categorical ambiguity and binary dualism in the model are not only problematic but have become increasingly so. Too many development economists have been able to impose misleading assumptions on Lewis's model, equating the low-productivity, noncapitalist sector (with its unlimited supplies of labour) with agriculture and higher productivity capitalist activity with 'modern', urban manufacturing. They then use poor manufacturing census data to focus on the unsatisfactory performance of 'formal', 'modern', or 'industrial' firms especially in Africa (Cramer *et al*. 2020: 178). It mattered less that Lewis allowed for some confusion among development economists when the properties many have associated with manufacturing were largely overlapping with Lewis's capitalist sector, 'fructified by capital'. But these properties are now distributed much more broadly across a range of economic activities in ways that explode conventional sectoral classification. Recent developments in global agricultural technology, investment and trade mean that high-value agricultural exports have many of the properties historically associated with dynamic forms of capitalist production. They generate higher labour productivity; and they ought to be included high on the list of

[1] Quoted in Thompson (2022: 25).

projects targeted by industrial policies aimed at accelerating structural change. They are, in fact, 'industrial', to the point that this should be one of the reasons for scepticism about the widespread pronouncements of the ineluctable 'premature deindustrialization' and the hopeless prospects for manufacturing especially in Africa.[2] Further, it might make sense to neglect agricultural investments if it is believed that the terms of trade have an automatic tendency to shift against the primary commodities produced in Africa. In his Nobel Prize lecture, Lewis identified and emphasized the economic forces underlying this tendency, but his analysis of these mechanisms was empirically unconvincing (*ibid.*: 57).

Second, we criticize Lewis's analysis of the automatic mechanism (higher real wages) whereby capitalists induce migration to obtain the labour they require in Africa. He used two metaphors. In one, observations about the small size of the capitalist sector and the various sources of 'unlimited' supplies of low skilled labour 'set the stage' and once that was done the play could begin, apparently needing no further direction. In the other, the low productivity of most labour in the presence of an initially small capitalist sector was an 'engine' of growth. Really it was more like a siphon whereby the gravity of higher productivity would draw down the mass of unlimited supplies of labour relentlessly. But we think the play often stalls and actors forget their lines, the siphon often silts up: the system is not automatic. Rather, it requires very deliberate policies to keep the fluid moving, to prompt the actors to follow the script. These policies and prompts are not merely a matter of technical, narrowly economic interventions – subsidies, taxes, provision of infrastructure and other public goods – but also and fundamentally social and political. Lewis and many subsequent development economists drawing on Lewis have paid insufficient attention to political factors, especially violence, workers' struggles, coercion, and state interventions.

What's in a name? Classification of sectors in Lewis and beyond

Lewis did not devote much attention to analysing the main features of high productivity sectors in poor economies, apart from noting the contribution they could potentially make to the accumulation process by taking advantage, at least in the early stages of this process, of any large reservoirs of labour readily available. The economics literature has not closed this descriptive gap, paying little attention to the need to discuss exactly what constitutes the 'industrial', for example, in two sector models. This neglect is surprising because there has been a high-profile revival of debates about industrial policy, as well as the debates over 'premature deindustrialization', 'reprimarization', 'servicification' and 'economic complexity' (Rodrik and Sandhu 2024; Lautier 2024; Juhász and Lane 2024; Juhász *et al.* 2023; Pinheiro 2025).

Given the attribution of particular economic properties to the industrial (an ambiguous category often taken to imply manufacturing industry but also historically associated with machine-based production, often with production at scale, and with particular,

[2] The latest data on manufacturing also support a less pessimistic assessment of the prospects for the growth of manufacturing employment in several African countries (Kruse 2024).

factory-based social organization of production, like economies of scale and relatively high productivity), this question is directly relevant to any discussion of Lewis's model of the dynamics propelling economic development.[3] We argue that ambiguous or inconsistent classifications have contributed to a long-lasting tendency to misinterpret the policy implications of Lewis' analysis. In 1972 Lewis tried to clear up some of the 'confusion' in the literature stemming from his earlier work on unlimited labour supplies. He began with a forceful argument that the 'noncapitalist' sector, the 'reservoir from which the capitalist sector draws its labor', should *not* be identified with agriculture. He then emphasized that, 'capitalist production cannot be identified with manufacturing' (Lewis 1972: 74–6). But later, in the same chapter, he appears to downplay the relevance of the term noncapitalist, by commenting favourably on the usefulness of versions of his model that assume the economy is divided into two sectors, which Lewis himself then calls 'agriculture' and 'industry' (*ibid.*: 92).

Many of the more recent descriptions of Lewis, including work by the eminent historian of economic thought Gerardo Serra, appear to be unwilling to adopt the classification 'noncapitalist', substituting rather vacuous sectoral labels hardly ever used by Lewis himself such as 'traditional' – a static, ahistorical term (much favoured by racists) to describe many activities in low-income economies.[4] Sometimes the equally vacuous label 'informal' is used to lump together all the diverse forms of employment unenumerated in the official statistics. Worse still, many economists substitute the term 'subsistence' for 'noncapitalist' when referring to sectors containing rural households, seemingly unaware of their long history of engagement with and reliance on markets to obtain food and other basic goods (Sauer *et al.* 2021; Dzanku *et al.* 2024). Much analytical precision is lost by bowdlerizing Lewis's classical analysis and adopting language more acceptable to conventional development economists. Gollin, for instance, believes it is useful to describe some enterprises as 'formal' (2014: 75) and, of course these are also 'modern', but he makes strenuous efforts to avoid using the word capitalist and to eschew a definition based, for example, on available and analytically rigorous discussion of capitalist social relations of production (Cohen 2001). We will say more below about capitalistic roundabout production methods.

All this confusion provides fertile ground for insisting that while, on the one hand, manufacturing industry opens up the possibility of dynamic increasing returns (of scale and scope), and the potential for rapid productivity growth accompanied by economy-wide linkage effects, on the other hand, productivity in agriculture is low and there is far less scope in agriculture for increasing returns, fewer possibilities for backward and forward and other linkages and, besides, the output of agriculture will continue to face lower elasticities of demand. This unfavourable comparison, combined with Lewis' own pessimism about the export revenue prospects for agricultural commodities produced in poor countries, can too easily lead to the dangerous policy conclusion that investment in manufacturing industry should be prioritized, because this will draw people out of less

[3] On the historically evolving meanings of the 'industrial' see Ho (2016).

[4] '[E]conomic development occurs by shifting workers from the subsistence sector to the "modern" one. Over time, this absorption leads to a reduction of workers in the traditional sector without any significant loss of productivity' (Serra 2024: 8). In Tignor (2006: 273) the shift was from the 'agrarian' to the 'industrial' sector.

productive agricultural employment and increase overall growth. Lewis was committed to promoting growth and encouraging the shift of labour from low to higher productivity employment; he also knew very well that in poor countries higher productivity activities and capitalist forms of *agricultural* production could already be seen and had the potential to expand rapidly, drawing on the large reservoir of labour available in low productivity activities, including petty trading and housework. If some of the ambiguities and confusions prevalent in later interpretations of Lewis's sectoral classifications can be set aside, then it would be possible to focus on other problems faced by mechanistic and dualist analyses of change in rural areas. And we could also begin to highlight those aspects of a Marxist (or classical) framework that were neglected by Lewis.

Are 20th century sectoral classifications now irrelevant?

The categorical ambiguity and binary dualism in the Lewis model have become even more problematic as sectoral distinctions have become increasingly blurred in the global economy. And the unit homogeneity of the three basic economic sectors has broken up. Other economists admit that it would be 'useful to refine the standard three-sector focus' of the literature on growth, production and structural transformation. They note that some services, like healthcare and education, involve massive investment and skill intensity, and are characterized by high scope for productivity increases, while other service activities, such as much of retail trade, are very different (Herrendorf *et al*. 2014: 929). Thus, not only is there an increasing range – in terms of knowledge-intensity and productivity, for example – *within* manufacturing or *within* services; but there is also an increasing tangle of service and manufacturing activities, as there is of service, manufacturing and agricultural activities in the production of specific goods and services.

Some of this pattern of change is captured in the notion of servicification (Baldwin *et al*. 2015; Lodefalk 2017), the increasing share of the value of final goods accounted for by service activities (logistics, branding, design, etc.). And some is captured in the idea we have promoted of the 'industrialization of freshness' (Cramer *et al*. 2022). These changes are not reflected in the Economic Complexity Index (ECI), for example, which depends on 'ex post mapping' (Andreoni and Chang 2019) relying on conventional trade statistics and working back, rather than on direct observation of production processes. Thus Gala *et al*. (2018) admiringly quote Adam Smith: 'The nature of agriculture, indeed, does not admit of so many subdivisions of labour, nor of so complete a separation of one business from another, as manufactures' (Smith 1994 [1776]: 7; Book 1). This leads to the astonishing claim that 'Specializing in agriculture and extractive industries does not enable … technological evolution' (Gala *et al*. 2018: 2).

Yet agriculture no longer fits Smith's diagnosis, nor in fact that of Hirschman (1958: 109) who also argued that there was far less scope for forward and backward linkages in agriculture than in manufacturing. Indeed, for complexity scholars, Brazil, for example, shows 'no productive structure improvements … one of the worst dynamics of ECI among emerging countries in recent years' (Gala *et al*. 2018: 4). But this assessment flows tautologically from a prior definition of agricultural production as lacking complexity. It is difficult to explain the rise of several world-class Brazilian multinational corporations

without recognizing that many of the country's most dynamic activities have precisely been in very large-scale, knowledge-intensive, technically sophisticated and innovative *agriculture* (OECD/FAO 2015: 62). Over a sustained period agriculture has been the only set of activities characterized by rising productivity according to standard sectoral classification and measurement (Arias *et al*. 2017). Brazil's export successes owe a lot to the integration of agriculture with manufacturing (Safdar 2015) and have also been based on the choice to provide generous public funding to R&D and services (often relying on government services, which are arbitrarily deemed by many complexity scholars to be less sophisticated than private services). Perez-Aleman and Alves (2017) show how industrial policy instruments were used in Brazil to foster innovation and learning at the global technological frontier in the bioeconomy. And when (Grattapaglia and Kirst 2018) researched technical and organizational change and innovation in Brazilian paper and pulp, and the eucalyptus plantations sustaining them, they found that sophistication and complexity has shifted to the point where 'the factory is the tree' (*ibid.*: 914).

Elsewhere in Latin America, state interventions have also led to an extraordinarily rapid growth in sophisticated high value agricultural exports. Peru, for example, has gone from exporting no blueberries at all in 2010 to being the world's largest exporter in the early 2020s. This agricultural commodity is not obviously 'processed'; few blueberries are pulped, juiced, or skinned or de-husked or pasteurised, so they look like a classic, albeit 'non-traditional', primary commodity. But they are knowledge intensive: they are the result of costly and highly technical R&D into low-chill genetic plant stock material (in Florida, Georgia, California, Australia and Chile), combined with codified and tacit knowledge about specific local agro-climatic conditions and the licensing of intellectual property; they are the product of sophisticated capabilities in running large-scale agribusiness, sourcing inputs, negotiating government incentive schemes, managing labour relations, designing marketing campaigns, making subtle adjustments to the computer systems managing drip fertigation, lighting and humidity management. And they are complex in their production, cooling and innovative packaging materials, in the logistics of just-in-time exporting, and in their sales. Price and profitability depend in part on popularizing a narrative about health benefits (blueberries being marketed as a 'super-food', high in antioxidants). Peru's success and that of other low and middle-income countries in creating a huge blueberry export industry has relied on years of institutional development, on massive infrastructure investments, and on the effectiveness of *mesas ejecutivas*, a form of economic governance drawing in public and private sector actors, financiers and researchers (Ghezzi and Stein 2022; Paus *et al*. 2023). So, it was not surprising to be informed by one blueberry exporter in South Africa, as he lifted a blueberry from its punnet and rolled it between two fingers, 'this is a pill'. He regarded his business as part of 'big pharma' (Cramer and Sender 2015).

Similarly, a fresh orange exported from South Africa to the EU would seem to be a primary commodity and would be classified as such in the ISIC system (under A in ISIC), while a carton of orange juice might be regarded as more high-tech and a manufactured product (C.103 in ISIC). Yet the carton of orange juice is industrially simple and uses low-quality oranges that fail to meet the stringent quality standards for international trade in fresh oranges. Securing a reliable supply of high-quality fresh oranges for the EU or other

demanding markets is more complex and more technically difficult than producing a carton of orange juice.

The industrialization of freshness (Cramer *et al*. 2022) – the process whereby producing fresh, perishable commodities sold as final consumption goods has become increasingly 'industrial' – is itself an awkward category. It is not a brand-new phenomenon but has a long history (Freidberg 2010); the idea of the industrialization of freshness is intended to suggest an intensification of this process in the contemporary global economy. It is distinct from 'agro-industry' in the sense only of delivering still 'fresh' goods rather than 'processed' goods, yet it clearly involves new and extremely complex forms of 'processing'. And it is both agro- and industrial but not quite in the sense captured conventionally in the term 'agro-industrial'.[5]

Our argument is that the industrialization of freshness is an important enough feature of the global economy, with significant enough implications for LMICs, that any discussion of Lewis's work on structural change must take this into account. Further, the increasing entanglement of 'sectoral' activities – something long ago foreseen in Allyn Young's (1928) growth paper and indeed a core feature of Young's observation of 'roundabout capitalistic production' (*ibid.*: 531) – is itself a warning against the lingering mechanistic temptations of blinkered two sector models. Shifts from low to higher productivity activities might just as well take place *within* agriculture as away from agriculture. There is immense scope for dynamic technical change and for raising agricultural productivity in low-income countries (Luan *et al*. 2019; Mueller *et al*. 2012), not just by adopting higher yielding cereal varieties, more effective fertilizer and irrigation, but also through various other product and process innovations involved in the industrialization of freshness.

Our interviews with Ethiopian, Kenyan, Dutch, Israeli and South African farm managers established that many high-value agricultural export activities are already highly sophisticated, to the point that they meet a reasonable definition of what it is to be 'industrial' (Ho 2016). They entail the insertion of an 'intricate nexus' – as Allyn Young (1928: 538) had it – between the commodity and its form as a final consumption good (and in fact extending to the origin of the commodity itself through genetic plant stock development and adaptation), even if the final product appears on the retail shelf as if it simply grew on, and was picked off, a tree, trellis, bush, or row of plants. Young's intricate nexus was a function of what he described as 'capitalistic and roundabout' production (*ibid.*: 531), effectively an aspect and extension of Smith's discussion of how the division of labour and specialization depend on the extent of the market. The production in Ethiopia of herbs such as basil, for example, involves a string of processes and inputs besides labour and capital. We observed basil producers using computerized fertigation equipment, specialist packaging that was the result of decades of research and development (R&D) investment, different types of cold storage facility, a mechanized rotating table passing the product of one person's work (for instance, snipping a bunch of

[5] The idea of freshness itself also has an evolving history (Freidberg 2010) and the social meanings of freshness are constructed and reconstructed over time by the intersection of many factors, including centrally the chains of activities linking production, consumption, and the dynamics of capitalist accumulation, as well as evolutions in ideology, urbanization and marketing. See Fine (2013) on material culture and the 'systems of provision' approach to analysing consumption.

basil) to another (binding), along with equipment for testing the phytosanitary condition of the herbs, barcoding technology for precise traceability, extended visits from experienced Israeli, Indian and Ecuadorian technicians, and so on. If 'just in time' systems are key to competitiveness in exporting perishable goods to distant markets, there is what Hirschman described as a narrow margin or latitude for failure (2014: xviii). That itself promotes innovation.

One example of pressure to innovate is the manipulation of time through drawing out what one producer called the 'window of non-perishability', through cold storage facilities on site in Ethiopian herb production and at the airport in Addis Ababa. Another example was the manipulation of the product itself through production and genetic processes, in the response of South African blueberry exporters to the increasing cost and difficulty of exporting to the UK by air freight. Having to resort to far slower (three weeks) shipping, the firm discovered defects in the blueberries only revealed by slower transport: the berries did not have the 'legs' to maintain quality and mouthfeel on supermarket shelves. So, the firm took steps to innovate and improve the quality of the berries and their production, so they kept their 'legs' and stayed fresh (Cramer and Sender 2025).

None of the processes described above for Ethiopia – or the training packages for skilled labour in managing logistics, cold storage control, plant stock aptitude for local soils and climate, etc. – would be designed or produced for just *one* herb-producing firm in Ethiopia, or even exclusively for herbs anywhere. Rather, they evolve over time as related – intimately connected, as Marshall (1920 [1890]: 153) might have put it – activities further extend market size and open up opportunities for profitable specialization, product differentiation and the division of labour: precisely the dynamic increasing returns and collective efficiency identified in modern economic growth by Young (1928) and so often associated with the benefits of industrial policy directed at an acceleration of manufacturing.

What we describe for Ethiopian herb export production echoes debates about classification in US agriculture, where it has been suggested that the distinction between harvesting and processing has broken down and that harvesting be defined to include extremely sophisticated (quasi-processing) operations, such as: 'cooling, field coring, filtering, gathering, hulling, shelling, sifting, threshing, trimming of outer leaves of, and washing raw agricultural commodities grown on a farm' (US Department of Health and Human Services & Food and Drug Administration 2016: 8). Young's roundabout production and intimate nexus, the ongoing interplay of market size and specialization, are the terrain on which Hirschman's (1958) ideas of linkage effects were later developed. For Young himself they were the heart of the increasing returns central to capitalist dynamics: 'the principal economies which manifest themselves in increasing returns are the economies of capitalistic or roundabout methods of production' (1928: 531). What we found is that the scope for linkages and broadly conceived dynamic economies of scale and scope, which are often thought to characterize manufacturing industry in particular, are increasingly characteristic of high-value agriculture.

Furthermore, the demand characteristics of many agricultural goods are far more favourable (for export potential and employment opportunities) than is often acknowledged. Lewis himself was unduly pessimistic about the prospects for agricultural exports from developing countries, referring in his Nobel Prize lecture to 'stagnant demand for primary commodities' and noting that 'exports, if agricultural, do not generate enough purchasing power to provide a base for significant industrialisation, since the factoral terms of trade are unfavourable to tropical countries' (Lewis 1980: 12, 4). In fact, since 1980, rising incomes have led to shifts in demand and the income elasticity of demand for 'non-nutritive attributes [of food] – appearance, safety, storability, taste, variety, as well as perceived environmental or social attributes associated with the production process (e.g., Fair Trade, Rainforest Alliance Certified, organic) – is much higher than for nutritive attributes' (Barrett *et al*. 2022: 1318). The global rate of growth of demand for 'high-quality' foods and for more nutritious, perishable vegetables, fruits and animal products is much higher than for staple cereals, legumes and tubers, and has been a powerful driver of agricultural supply chain changes. In wealthier countries, rising incomes may not only lead to increasing calorie consumption but also produce additional spending on 'diet diversification, improved quality, convenience, or … food which satisfies consumer values such as organic, fair trade, or animal welfare' (Regmi and Meade 2013: 167). There has also been a fundamental shift in diets globally – in low-income as well as high-income countries – involving a shift to more purchased food consumption, consumption of more perishable foods, and more foods processed or those prepared away from home (Muyanga *et al*. 2019: 22). Total demand for some food product categories (in Africa, Asia and Latin America) 'can double in five years and quintuple in ten' (*ibid*.: 26).

The role of violence and coercion in explaining labour market outcomes

The other main way in which we argue that the Lewis model was 'wrong' is that Lewis barely acknowledges the force in market forces.[6] We suggest that he paid insufficient attention to the role of violence, coercion and forceful state intervention in explaining labour market outcomes. This neglect left the door open for influential interpretations of labour allocation by evangelical economists who believe that relative price signals are sufficient to fuel the motor of capitalist development; they obviously cannot provide a realistic or coherent analysis of processes of proletarianization and prefer to talk about the slowdown of wage employment in the formal sector in Africa, rather than to describe instances of backward capitalism.[7] To support our arguments, we will refer to some results of granular research on the industrialization of freshness and on the entry of female labour into wage employment in higher productivity activities.

[6] Lewis does acknowledge the role of taxation forcing people into the labour market and of forced labour under imperialism (1954: 410), but thereafter it is just an aside, not a part of the model.

[7] The political economy of backward capitalism in one region of South Africa is described in Sender (2016).

We have presented some African evidence to query Lewis's pessimism about employment prospects in higher labour productivity enterprises selling agricultural output to international (and national) markets. If labour is moving from lower productivity activities to work in these enterprises, can Lewis, or other economists who have published more recently on labour markets in LMICs, explain why or when these moves take place? A related question is of direct relevance to women: Lewis believed that 'one of the most notable features of economic development' was the transfer of women's work from within the household to 'commercial' work: 'wives and daughters of the household' were for Lewis a key source of the unlimited supplies of labour. He did not give a detailed analysis of this transfer, but seems to assume away many difficulties that women actually encounter, suggesting that they can and will respond automatically to an increase in the supply of suitable jobs. It is apparently enough to 'create new sources of employment for women outside the home' (Lewis 1954: 3).

Our own and other research on African labour markets emphasizes that labour has not naturally or spontaneously flowed or trickled smoothly up from a low productivity reservoir. One factor that propels and regulates the transfer of labour is not gravity as in some canal irrigation schemes, but explicit forms of violence or more implicit and socially pervasive coercion. This violence continues to be perpetrated by governments, employers, middlemen and often, although not always, by male household members. Automatic metaphors are misleading and, as Arrighi (1970: 221ff) showed more than half a century ago, changes in the market signals conveyed by a rise or fall of real wages cannot begin to explain dramatic trends and shifts in labour migration for wage work in an expanding mining or manufacturing sector.

We have collected life history interviews from rural Ethiopia and Uganda, organized around experiences of wage labour (Sender and Cramer 2022). These provide additional and rich evidence about what leads a large number of relatively poor women to begin to work for wages, as well as what holds them back. Young rural women typically live in very repressive social structures: education of girls is often discouraged, their sexuality is denied, their mobility is tightly restricted, they are loaded with domestic duties from a very young age, and they are often forcibly married off or abducted without any say when very young (Marshall *et al*. 2016: 11; Jones *et al*. 2014: 9–10).

One mechanism in the system of valves regulating the flow of poorly educated women into wage labour in higher productivity activities is trickery. Broader evidence supports the examples in our own interviews of women who were duped into wage employment. Sometimes the trickery involves shifting women from one form of low productivity activity (rural household work and farming) to another (urban domestic service) for relatives. Lewis himself noted that 'the line between employees and dependents is very thinly drawn' (1954: 403). Jones *et al*. (2014: 6) also emphasize that, because of the combination of deception by labour brokers in Ethiopia and deeply exploitative working conditions (in the context of domestic service in the Middle East), the difference between labour migration and trafficking 'fades into invisibility'.

'Men are the problem', one Malawian woman told us in 2023.[8] She was living in Majakaneng, in Bojanala District on the Platinum Belt in South Africa, and working as a seasonal labourer on a highly productive, large-scale blueberry producer nearby. She effectively summed up a theme that is distressingly common in labour market research – the issue of men's behaviour. Men often resort to physical force to hold women back from seeking wage employment, tying them into difficult domestic relations with little scope for either exit or voice (Sender *et al*. 2006; Kato 2024). Among other things this can involve a violent disapproval by men of contraception, in some countries socially supported by the rumours and propaganda about the dangers of contraception fomented by American fundamentalist churches (as well as by USAID and the Ugandan President's wife; Human Rights Watch 2005). Indeed, the kind of 'internal market' dreamt up by household bargaining models in neo-classical economics is blind to contexts where the prevalence of violence and threats of violence from intimate partners are known to be remarkably high (Heise and Kotsadam 2015; Abate *et al*. 2016). But if male control of women's lives can keep them tied to reproductive care and domestic labour, male behaviour often also lies behind women's flight *to* capitalist wage labour markets. Abuse was one of the most common reasons cited by young women who had migrated to Addis Ababa as adolescents in de Regt's (2016) research, often perpetrated at home and linked to family upheavals.[9] In-laws and step-parents (what Jones *et al*. (2014) refer to as 'blended families') were in de Regt's research and in our own a particularly common source of abusive upbringing.

But often too, it is the crises in men's and families' lives that propel women into unwanted wage employment. The Young Lives Survey in Ethiopia found that children stop attending school and enter the labour market prematurely as a result of parental illness/absence, or following a divorce (Chuta 2014: 5). In our life work interviews in rural Ethiopia and Uganda, we found that women were especially sensitive to family bereavement and loss, above all to the death or illness of fathers and husbands or simply to being abandoned by them. And these factors again and again account in the interviews for why, and when, women enter the labour market despite regarding commonly available types of manual labour (such as weeding or harvesting) as demeaning and very much a last resort. These are not 'contextual' or peripheral factors secondary to individuals' specific decisions and 'choices' but central features of their actions (Granovetter 1985: 504–5). Time and again in dozens of life work interviews, family crisis (often the health of fathers or husbands) pushed very young women into wage work (Sender and Cramer 2022). This was also the case in the industrial revolution in England, during which families, where the father had died or disappeared, were a major source of child labour, another common source of

[8] Interview conducted during a research scoping exercise in South Africa (see Cramer and Sender forthcoming).

[9] Turan *et al*. (2016) describe the role of intimate partner violence in explaining female migration within Kenya.

'unlimited supplies of labour' though one that Lewis does not emphasize (Humphries 2013: 413).[10]

More broadly, the 'capitalist sector' has often found that to secure the unskilled labour it requires, even where one might assume capitalists have access to a reservoir filled with at least some of Lewis's sources of low productivity labour, they need the help of what Marx called 'extra-economic coercion' to supplement the gravitational pull of relative prices. Prison labour, for example, has been a common source of labour in capitalist economies. In the wake of the Spanish civil war, the government forcefully mobilized the labour of thousands of political prisoners for work on the irrigation schemes and related infrastructure that raised profitability for capitalist farmers who had supported the nationalists. Convict labour was concentrated, in the USA, in some of the fastest-growing and most important sectors of the economy in the 19th and 20th centuries – e.g. in lumber, railways and mining. As Lichtenstein (2010: 195) wrote: 'the bearers of modernity frequently [carried] with them its antithesis'. So there is nothing uniquely African or unusual about the large private coffee plantation manager near Jimma, in Ethiopia, who explained to us in 2013 his costs for leasing prison labour from the state. Prison labour has been documented too in large private farms in Uganda and in diamond mines in Angola. Meanwhile, in the 19th century Salvadoran coffee sector – the core of capitalist development in El Salvador – the solution to the 'chief obstacle' of the 'mastery of labour' was the coercive mobilization and control of male Indian workers (Sedgewick 2021: 69).
If the transfer of labour from its reservoir to the productive capitalist sector has typically been far from automatic, it is just as much the case that keeping that labour's nose to the grindstone of capitalist production has often involved considerable effort. Capitalists have had to persuade unskilled workers – whether or not they were initially motivated by higher real wages – to stick to the 'discipline' and rhythms of capitalist labour processes. As Freeman (2019) shows in his history of large factories, all the other problems of organizing factory production 'paled before the problem of discipline'. Employers have often resorted to a gendered strategy of control to address this problem. English and American 19th and 20th century experiences of industrialization were similar in this respect to recent experiences in African economies such as Ethiopia, where the creation of a labour force internalizing the routines and requirements of industrial capitalism, for example in the garment and apparel factories in Hawassa industrial park, has challenged employers (Oya 2019; Gebreegziabher 2023). And elsewhere in Africa, recruiting, retaining and disciplining wage workers has often been difficult (Cooper 1992). In the early 1990s, the general manager's attitude to the workforce on one South African gold mine remained simple: 'Let's rubberize them and we will have them back to work' (Donham 2011: 188). Using rubber bullets came to seem a relatively mild technique for dealing with wayward mine workers nearly 30 years later, in 2012, in Marikana when

[10] Lewis clearly states that the unwaged reproductive labour performed by women (as opposed to children) at home constitutes a huge source of labour for capitalist employers to mobilize. He does not however pay much attention to the argument that an (initially coercive) mobilization may need to be *repeated* and will require the support of reinvented patriarchal ideologies, if rates of capitalist accumulation and worker discipline are to be maintained. Unwaged women's work in homes will continue to be essential, according to some feminist arguments (which others like O'Laughlin (2022) criticize as overly functionalist), to preserve the social relations of production and disciplinary hierarchies in capitalism (Forrester 2024).

police shot dead 36 striking 'wildcat union' platinum mine workers, labelled 'dastardly criminals' by Cyril Ramaphosa (Brown 2022).[11]

We could go on, but the point is clear that any model of the shift of labour from low productivity to higher, from noncapitalist to emerging capitalist activities, needs not just to acknowledge but be built on the fact of 'extra-economic' compulsion holding back the flow of labour, propelling it, and brutally controlling it once it has been transferred to high productivity activities. Incorporating this would be in keeping with Lewis's valuable return to the insights of the 'classics'.

Conclusions

As inheritors of the Lewis Model, we may all need to be wary of dealing in polite and distracting euphemisms. If economists speak of the 'modern' or the 'formal' sector, they generally do not intend this to carry Walter Benjamin's idea that every document of civilization is at the same time a document of barbarity. They do not mean to associate with the 'modern' or the 'formal' any suggestion of cruelty, coercion or violence.[12] This is why we prefer to reject, when thinking about Lewis's model, the categories of formal or modern, since they are loaded with too much diversionary euphemism.

Rather, we argue that the Lewis Model can be made less wrong and more useful by sticking to the categories of capitalist and noncapitalist, by building into our analysis an appreciation of how far much global agriculture embodies the high productivity and other attributes typically associated by development economists with manufacturing industry, and by including the variables of gendered and (as in South Africa, El Salvador and elsewhere) racialized violence and compulsion that continue to be central to the operation of what is effectively a manual, not an automatic, engine of accumulation, growth and development.

[11] https://www.news24.com/news24/ramaphosa-marikana-violence-dastardly-criminal-20140811

[12] In this such economists are in a fine long tradition: Perelman (2000), for example, shows how Adam Smith went out of his way to play down the role (and the brutality) of slavery in Britain's North American colonies, and of the conditions of virtual slavery among Scottish salters and miners.

References

Abate, A. B., T. Wossen and T. Degfie (2016) 'Determinants of intimate partner violence during pregnancy among married women in Abay Chomen district, Western Ethiopia: a community based cross sectional study', *BMC Women's Health*, 16 (1), pp. 1–8.

Andreoni, A. and H.-J. Chang (2019) 'The political economy of industrial policy: structural interdependencies, policy alignment and conflict management', *Structural Change and Economic Dynamics*, 48, pp. 136–50.

Arias, D., P. A. Vieira, E. Contini, B. Farinelli and M. Morris (2017) *Agriculture productivity growth in Brazil*. Washington DC: World Bank.

Arrighi, G. (1970) 'Labour supplies in historical perspective: a study of the proletarianization of the African peasantry in Rhodesia', *Journal of Development Studies*, 6 (3), pp. 197–234.

Baldwin, R., R. Forslid and T. Ito (2015) *Unveiling the evolving sources of value added in exports*. Available at: https://www.ide.go.jp/library/English/Publish/Reports/Jrp/pdf/161.pdf (accessed 22 January 2025).

Barrett, C. B., T. Reardon, J. Swinnen and D. Zilberman (2022) 'Agri-food value chain revolutions in low-and middle-income countries', *Journal of Economic Literature*, 60 (4), pp. 1316–77.

Box, G. (1976) 'Science and statistics', *Journal of the American Statistical Association* 71, pp. 791–9.

Brown, J. (2022) *Marikana: a people's history*. Oxford: James Currey.

Chuta, N. (2014) *Children's agency in responding to shocks and adverse events in Ethiopia*. Working paper 128. Oxford: Young Lives. Available at: https://ora.ox.ac.uk/objects/uuid:ff5911b4-3562-45e6-898c-c6fb48dee65a/files/m433af669e1f2c8b0e240419db5433663 (accessed 22 January 2025).

Cohen, G. A. (2001) *Karl Marx's theory of history: a defence*. Princeton: Princeton University Press.

Cooper, F. (1992) 'Colonizing time: work rhythms and labor conflict in colonial Mombasa', in N. Dirks (ed.) *Colonialism and culture*. Ann Arbor: University of Michigan Press, pp. 209–45.

Cramer, C. and J. Sender, J. (forthcoming) 'Finding out faster: pre-survey scoping for a study of deprivation in Majakaneng, North West Province, South Africa', *Journal of Southern African Studies*.

Cramer, C., J. Sender and A. Oqubay (2020) *African economic development: evidence, theory, policy*. Oxford: Oxford University Press.

de Regt, M. (2016) *Time to look at girls: adolescent girls' migration in Ethiopia*. Swiss Network for International Studies. Available at: https://snis.ch/wp-content/uploads/2020/01/Final-Report-Ethiopia-May-2016.pdf (accessed 22 January 2025).

Donham, D. (2011) *Violence in a time of liberation: murder and ethnicity at a South African gold mine, 1994*. Durham NC: Duke University Press.

Dzanku, F. M., L. S. O. Liverpool-Tasie and T. Reardon (2024) 'The importance and determinants of purchases in rural food consumption in Africa: implications for food security strategies', *Global Food Security*, 40, pp. 100739.

Fine, B. (2013) 'Consumption matters', *Ephemera: Theory and Politics in Organization*, 13 (2), pp. 21–48.

Freeman, J. (2019) *Behemoth: a history of the factory and the making of the modern world*. New York: W. W. Norton.

Forrester, K. (2024) 'Capitalism and the organization of displacement: Selma James's internationalism of the unwaged', *Political Theory*, 52 (4), pp. 659–92.

Freidberg, S. (2010) *Fresh: a perishable history*. Cambridge MA: Harvard University Press.

Gala, P., J. Camargo, G. Magacho and I. Rocha (2018) 'Sophisticated jobs matter for economic complexity: an empirical analysis based on input-output matrices and employment data', *Structural Change and Economic Dynamics*, 45, pp. 1–8.

Gebreegziabher, N. (2023) 'Labour retention end workforce development in Ethiopia's apparel and textile industry: the case of Hawassa Industrial Park', PhD thesis, SOAS University of London. doi: 10.25501/SOAS.00039270.

Ghezzi, P. and E. Stein (2022) 'Identifying, prioritizing, and efficiently providing public goods', in P. Ghezzi, J. C. Hallak, E. H. Stein, R. Ordoñez, L. Salazar and IDB Invest (2022) *Competing in agribusiness: corporate strategies and public policies for the challenges of the 21st century*. Washington DC: Inter-American Development Bank. Available at: https ://publications.iadb.org/publications/english/document/Competing-in-Agribusiness-Corporate-Strategies-and-Public-Policies-for-the-Challenges-of-the-21st-Century.pdf#page=229 (accessed 22 January 2025).

Gollin, D. (2014) 'The Lewis Model: a 60-year retrospective', *Journal of Economic Perspectives*, 28 (3), pp. 71–88.

Granovetter, M. (1985) 'Economic action and social structure: the problem of embeddedness', *American Journal of Sociology*, 91 (3), pp. 481–510.

Grattapaglia, D. and M. Kirst (2008) 'Eucalyptus applied genomics: from gene sequences to breeding tools', *New Phytologist*, 179 (4): 911–29.

Heise, L. L. and A. Kotsadam (2015) 'Cross-national and multilevel correlates of partner violence: an analysis of data from population-based surveys', *The Lancet Global Health*, 3 (6), e332–e340.

Herrendorf, B., R. Rogerson and Á.Valentinyi (2014) *Growth and structural transformation*, NBER Working Paper Series 18996. Cambridge MA: National Bureau of Economic Research. Available at: https://www.nber.org/system/files/working_papers/w18996/w18996.pdf (accessed 22 January 2025).

Hirschman, A. O. (1958) *The strategy of economic development*. New Haven CT: Yale University Press.

Hirschman, A. O. (2014) *Development projects observed*. Washington DC: Brookings Institution Press.

Ho, P. S. (2016) 'Linking the insights of Smith, Marx, Young and Hirschman on the division of labour: implications for economic integration and uneven development', *Cambridge*
Journal of Economics, 40 (3), pp. 913–39.

Human Rights Watch (2005) *The less they know the better: abstinence-only HIV/AIDS programs in Uganda*. Available at: https://www.hrw.org/report/2005/03/30/less-they-know-better/abstinence-only-hiv/aids-programs-uganda (accessed 22 January 2025).

Humphries, J. (2013) 'Childhood and child labour in the British industrial revolution', *Economic History Review*, 66 (2), pp. 395–418.

Jones, N., E. Presler-Marshall and B. Tefera (2014) *Rethinking the 'maid trade': experiences of Ethiopian adolescent domestic workers in the Middle East*. London: Overseas Development Institute. Available at: https://cdn.odi.org/media/documents/9307.pdf (accessed 22 January 2025).

Juhász, R. and N. Lane (2024) 'The political economy of industrial policy', *Journal of Economic Perspectives*, 38 (4), pp. 27–54.

Juhász, R., N. Lane and D. Rodrik (2024) 'The new economics of industrial policy', *Annual Review of Economics*, 16 (1), pp. 213–42.

Kato, H. (2024) 'Rural labour regimes in North Kordofan: work, family, and categorical violence in Sudan', PhD thesis, SOAS University of London. Available at: https://doi.org/10.25501/SOAS.00043106 (accessed 22 January 2025).

Kruse, H. (2024) 'Structural change and international trade: evidence from developing countries', PhD thesis, University of Groningen. Available at: https://research.rug.nl/en/publications/structural-change-and-international-trade-evidence-from-developin (accessed 22 January 2025).

Lautier, M. (2024) 'Manufacturing still matters for developing countries', *Structural Change and Economic Dynamics*, 70, pp. 168–77.

Lewis, W. A. (1954) 'Economic development with unlimited supplies of labour', *The Manchester School*, 22 (2), pp. 139–91.

Lewis, W. A. (1972) 'Reflections on unlimited labor', in L. E. Di Marco (ed.) *International economics and development: essays in honor of Raúl Prebisch*, Elsevier, pp. 75–96.

Lichtenstein, A. (1996) *Twice the work of free labor: the political economy of convict labor in the new south*. London: Verso.

Lodefalk, M. (2017) 'Servicification of firms and trade policy implication', *World Trade Review*, 16 (1), pp. 59–83.

Luan, Y., Zhu, W., Cui, X., Fischer, G., Dawson, T. P., Shi, P., & Zhang, Z. (2019) 'Cropland yield divergence over Africa and its implication for mitigating food insecurity', *Mitigation and Adaptation Strategies for Global Change*, *24*, 707-734.

Marshall, E. P., M. Lyytikainen and N. Jones (2016) *Child marriage in Ethiopia: a review of the evidence and an analysis of the prevalence of child marriage in hotspot districts*. Addis Ababa: UNICEF Ethiopia. Available at: http://www.unicef.org/ethiopia/Evidence_Review.pdf (accessed 22 January 2025).

Marshall, A. 1920 [1890] *Principles of Economics*, 8th edn. London: Macmillan.

Mueller, N. D., Gerber, J. S., Johnston, M., Ray, D. K., Ramankutty, N., & Foley, J. A. (2012) 'Closing yield gaps through nutrient and water management', *Nature*, *490*(7419), 254-257.

Muyanga, M., D. Tschirley, T. Reardon, T. S. Jayne, F. Meyer, S. Liverpool-Tasie and T. Davids (2019) *Synthesis report III. Rural and agrifood systems in transforming*

economies in Africa and Asia. Feed the Future-Innovation Lab for Food Security Policy. Available at: https://www.canr.msu.edu/resources/synthesis_report_iii (accessed 22 January 2025).

OECD/FAO (2015), *OECD/FAO Agricultural Outlook 2015-2024*, Paris: OECD Publishing.

O'Laughlin, B. (2022) 'No separate spheres: the contingent reproduction of living labour in southern Africa', *Review of International Political Economy*, 29 (6) pp. 1827–46.

Oya, C. (2019) 'Building an industrial workforce in Ethiopia', in F. Cheru, C. Cramer and A. Oquba (eds) *The Oxford handbook of the Ethiopian economy*. Oxford: Oxford University Press, pp. 668–86.

Paus, E., Abugattas, L., & Cruz Saco, M. A. (2023) 'Global Value Chains in Agriculture and the Middle-income Trap: A Framework for Analysis Applied to Peru's Boom', *The Journal of Development Studies*, *59*(10), 1531-1548.

Perelman, M. (2000) The *invention of capitalism: classical political economy and the secret history of primitive accumulation*. Durham NC and London: Duke University Press.

Perez-Aleman, P. and F. Chaves Alves (2017) 'Reinventing industrial policy at the frontier: catalysing learning and innovation in Brazil', *Cambridge Journal of Regions, Economy and Society*, 10 (1), pp. 151–71.

Pinheiro, C. (2025) 'Relatedness and economic complexity as tools for industrial policy: insights and limitations', *Structural Change and Economic Dynamics*, 72, pp. 1–10.

Regmi, A. and B. Meade (2013) 'Demand side drivers of global food security', *Global Food Security*, 2 (3), pp. 166–71.

Rodrik, D. and R. Sandhu (2024) *Servicing development: productive upgrading of labor-absorbing services in developing economies*. Cambridge MA: National Bureau of Economic Research. Available at: https://www.nber.org/papers/w32738 (accessed 22 January 2025).

Safdar, M.T. (2015) *Agro-Industrial Value Chains in Developing Countries in the era of Globalisation – The case of Sugarcane in Punjab, Pakistan*. Centre of Development Studies, University of Cambridge. Unpublished PhD Thesis.

Sauer, C. M., T. Reardon, D. Tschirley, S. Liverpool-Tasie, T. Awokuse, R. Alphonce, D. Ndyetabula and B. Waized (2021) 'Consumption of processed food and food away from home in big cities, small towns, and rural areas of Tanzania', *Agricultural Economics*, 52 (5), pp. 749–70.

Sedgewick, A. (2021) *Coffeeland: one man's dark empire and the making of our favorite drug*. London: Penguin.

Sender, J., C. Oya and C. Cramer (2006) 'Women working for wages: putting flesh on the bones of a rural labour market survey in Mozambique', *Journal of Southern African Studies*, 32 (2), pp. 313–33.

Sender, J. (2016) 'Backward capitalism in rural South Africa: prospects for accelerating accumulation in the Eastern Cape', *Journal of Agrarian Change*, 16 (1), pp. 3–31.

Sender, J. and Cramer, C. (2022) 'Desperate, deceived and disappointed: women's lives and labour in rural Ethiopia and Uganda', *Journal of Contemporary African Studies*, 40 (2), pp. 153–71.

Serra, G. (2024) 'W. Arthur Lewis and economic development: a Manchester story', in S. Jones (ed.) *Manchester minds: a university history of ideas*. Manchester: Manchester University Press, pp. 202–21.

Smith, A. (1994) [1776] *The Wealth of Nations*. London: Random House.

Tignor, R. L. (2006) W. *Arthur Lewis and the birth of development economics*. Princeton: Princeton University Press.

Thompson, E. (2022) *Escape from model land: how mathematical models can lead us astray and what we can do about it*. London: Hachette.

Turan, J. M., Hatcher, A. M., Romito, P., Mangone, E., Durojaiye, M., Odero, M., & Camlin, C. S. (2016) 'Intimate partner violence and forced migration during pregnancy: Structural constraints to women's agency', *Global public health*, *11*(1-2), 153-168.

U.S. Department of Health and Human Services & Food and Drug Administration (2016) *Classification of activities as harvesting, packing, holding, or manufacturing/processing for farms and facilities: guidance for industry*. Available at: https://www.fda.gov/media/99911/download (accessed 22 January 2025).

Young, A. A. (1928) 'Increasing Returns and Economic Progress', *The Economic Journal*, *38*(152), 527–542.