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Introduction

This brief concept note deals with the linkages between the agricultural sector, the industrialization process and effective industrial policies. Why is this important? In essence, the reason is that it is not advisable to analyse industrial policy and its effects on industrialization and structural change in isolation from economy-wide dynamics and specifically from trends in agrarian change. Intersectoral relations and dynamics are inherent in the process of structural change and agriculture-industry linkages can be either dynamic or constrained.

This paper is organised around two basic ideas. First, successful industrialization and the success of industrial policies at least partly, and sometimes largely, depend on the success of agricultural development and agrarian transitions, a process that has also been dubbed the ‘agrarian question’¹. Just as almost no country has grown wealthy without industrialising, no country has ever successfully industrialised without transforming its agricultural sector at the same time. This link is reflected in the various roles that a dynamic agricultural sector can play in facilitating the process of industrialization and broader structural change. Second, the achievement of these dynamic linkages is neither automatic nor inevitable. It depends on the nature of agrarian change, i.e., of an agrarian structural change within a broader economic structural change, and on the agro-ecological, technical, social and political conditions underpinning such changes. In this regard, the nature, speed and

¹ See, for some explanations of the classic ‘agrarian questions’, T.J. Byres, ‘The Agrarian Question and the Peasantry’, in B. Fine and A. Saad-Filho (eds), *The Elgar Companion to Marxist Economics*, Cheltenham: Edward Elgar, 2012, pp. 10-15; H Bernstein, ‘Agrarian questions from transition to globalisation’, in H. Akram-Lodhi and C. Kay (eds) *Peasants and Globalisation*, London: Routledge, 2009, pp. 239-261; H. Bernstein *Class Dynamics of Agrarian Change*, 2012; H. Akram-Lodhi and C. Kay, ‘Surveying the agrarian question (Part 2): current debates and beyond’, *Journal of Peasant Studies*, 37(2), 2010, pp. 255–284.

dynamics of agrarian transitions are diverse and historically contingent, even if some general laws of motion can be discerned, namely, the growth of agricultural productivity and the diversification of agricultural production in the long run.

The first section of this paper addresses the first set of arguments whereas the second section tackles the questions concerning agrarian transformations and their historical determinants.

The role of agriculture in development and its contributions to industrialization

A crucial aspect of the process of structural transformation is the role of agriculture in industrialization and structural change and the variety of agrarian transitions that give rise to and accompany structural transformations (Johnston and Mellor 1961). At a basic and static level, agriculture in a low-income country is a crucial sector because it contributes a significant share of value added, a much higher share of employment and often a very large proportion of total exports. Ethiopia is a case in point. More broadly, however, the combination of direct and indirect impacts on the rest of the economy underscores the multifaceted role that agriculture can play in the industrialization process. This multifaceted role can be organized in a combination of different types of linkages as well as through a number of macroeconomic, social and political connections. The list below provides a summary of the diverse constellation of relevant linkages, broadly understood as 'one thing leading to another' in Hirschman's terms (1981):

- ✓ **Labour surplus linkage:** agriculture can provide cheap labour for industrialization in a context of low agricultural productivity, rural-urban migration and emerging opportunities in new industrial and service activities. This linkage can also apply to processes of rural industrialization, entailing a transfer of labour from agriculture to rural industries, as in the paradigmatic case of Township and Village Enterprises (TVEs) in China (Bramall 2008).
- ✓ **Agriculture as employment creator:** this can affect the livelihoods of large proportions of the population and socio-political stability in both rural and urban areas. Agriculture may free up a labour surplus to be used in other activities more

productively but, during long transitions towards industrialization and urbanization, the agricultural sector tends to absorb an increasing pool of labour supply in absolute terms, even if its share of employment may gradually decline (see **Figures 1 and 2** in the annex).

- ✓ **Food linkage:** food may be produced domestically and supplemented by imports and constitutes the wage good *par excellence*. Food prices, which are largely determined by regional and local supply-demand balances, market failures and shocks (internal and external) are a key determinant of trends in real wages. Real wages, in turn, are a key factor in the process of industrialization. A reliable and growing supply of food as well as stable and low food prices are therefore key elements in a strategy of socio-economic transformation.

- ✓ **Production linkages**, i.e., the direct and indirect links that connect different production activities, or ‘investment-generating forces that are set in motion through input-output relations’ (Hirschman 1981, 65), which can be subdivided into two classic types of linkages (from the point of view of linkages stemming from agriculture):
 - **Forward linkage** → Agricultural production generates opportunities to process raw materials in emerging industries, e.g., food processing and cotton-textiles.
 - **Backward linkage** → Agricultural production creates demand for manufactured goods, e.g., intermediate inputs such as fertilizers and pesticides, and agricultural equipment and tools.

- ✓ **Consumption linkage:** surplus generated in the agricultural sector and the resulting higher rural incomes can generate demand for manufactured consumer goods, but also can lead to higher imports and a loss of artisanal/handicraft production in favour of imported goods, depending on the relationship between agricultural production and rural non-agricultural activities. Overall, however, as incomes rise through agricultural growth, the demand for manufactured goods rises more than proportionately in the long-run.

- ✓ **Fiscal linkage:** the staple sector (agriculture) and, in general, any natural resource sector, can be a significant source of financial transferable surplus, via (explicit or implicit) taxation and inter-sector resource transfers mediated by the state through productive investments that result in the acceleration or emergence of industrial activities. According to Hirschman, the more of an 'enclave' the staple sector is, the more important the fiscal linkage becomes as this compensates for the lack of other production linkages. By contrast, a sector that is characterised by substantial production and consumption linkages with other sectors and/or is dominated by a dense and large network of producers, traders and townspeople, perhaps with connection with the state, is less likely to be taxed and to transfer financial resources to other sectors via fiscal policy (Hirschman 1981, 67).

- ✓ **Foreign exchange linkage:** the industrialization process and industrial policy success hinge on the capacity to import the technologies and equipment required for the early stages of industrial development. This capacity and, more broadly, the potential long-run rate of economic growth, may be constrained by the availability of foreign exchange (e.g., Thirlwall (2011) drawing on Kaldor, and Kalecki (1976)). While forex can be imported via foreign capital inflows (including aid), a more sustainable and less debt-driven mechanism is the generation of export revenues from activities and products that are internationally competitive. The 'staple' thesis precisely suggests that agricultural production is critical and can contribute to industrial development by generating a sustained increase in foreign exchange earnings. Both 'traditional' and non-traditional agricultural export commodities thus can play a vital role in financing the structural transformation of the economy.

As argued by Hirschman, a broader approach to linkages opens up a variety of possibilities in terms of 'linkage constellations' that may be more or less weak or strong depending on the characteristics of the agricultural ('staple') sector, existing production relations, the nature of the state and the dominant political settlements. Ideally, a staple would be simultaneously endowed with strong linkages of various types. In reality, a few of them may dominate and some may offset the effects of others, as argued above in relation to the interaction between fiscal and production linkages.

Labour linkages are also possibly contradictory, since, on the one hand, the labour surplus transfer derived from the lower productivity of agriculture may contribute to creating a pool of cheap labour available to newly emerging (industrial) activities, following Lewis's dual sector thesis. On the other hand, for extended periods as industrialization proceeds, a substantial labour surplus must still be absorbed by agriculture. A critical challenge is making sure a rapidly transforming agricultural sector still generates a substantial volume of employment, especially of higher quality wage employment that can provide more stable and higher incomes to new rural labour market entrants.

As shown in **Figure 2** below, World Bank estimates suggest that the absolute numbers of new rural labour market entrants in sub-Saharan Africa will keep increasing well into 2050. Indeed, in the early and intermediate stages of the industrialization process, emerging dynamic sectors (manufacturing and services) may not be able to absorb the substantial expansion of the rural labour force, particularly given the high levels of productivity that some of these sub-sectors display nowadays. This makes the role of agriculture in generating employment absolutely crucial.

Moreover, a dynamic synergy between farm production and the manufacturing-agricultural complex (MAC) (MERG 1993, 172) is critical in relation to job creation since this complex, including a variety of manufacturing sub-sectors, has the potential to generate large numbers of higher quality jobs, as well as the potential of generating sufficient production and service linkages with immediate impact on the rural economy. Most of these activities tend to be highly labour intensive. This condition matches the kind of challenge that countries such as Ethiopia face with regard to ever increasing labour supplies, especially from rural areas. In this respect, it makes sense to target sufficient investment in the manufacturing-agricultural complex since such a strategy can yield more impact in terms of the wellbeing of the poorest and most vulnerable labour market entrants in the country.

In addition to the direct investment in the manufacturing-agricultural complex discussed above, individual (and collective) rural microenterprises in rural towns (e.g., wood and metal works, and handicrafts) play a role in absorbing the labour. In the case of Ethiopia, such enterprises are expected to mushroom as a result of the increasing rural electrification (which makes machine-use possible) and technical and vocational education (which is a

source of technical skill) on the supply side as well as increasing demand from rural and urban households on the demand side. More importantly than playing a role in absorbing labour, the engagement in rural non-farm activities eases crop land fragmentation, which paves the way to increase the scale (e.g., share cropping and contract)² and the efficiency of agriculture. As a result of improved farm scale, if efficient farmers are linked to credit, they are more likely to buy and use modern inputs, which enhance yields and lead to more output per rural labour.

Unless such investments occur at massive scales, however, it is unlikely that the rapid growth of the labour force, driven by demographic factors, can be fully absorbed in productive wage employment, be it agricultural or not. The prolonged transition period therefore requires a dual strategy which, in addition to undertaking investment in new activities and creating new rural jobs, supports incomes in the smallholder-dominated sub-sector. This initiative can be advanced through direct support for productivity-enhancing measures, including a sensible framework that allows for the targeting of the areas and smallholder farmers with the highest potential for accumulation.

In the case of Ethiopia, additional support mechanisms could be, for instance, targeted at improved access to irrigation in both staple and high value crops (Faurès et al. 2007), and credit provision and help with marketing for emerging capitalists engaging in agro-processing. Only about 10% of all irrigable land in Ethiopia is currently actually being irrigated, indicating a huge potential for growth, as long as environmental safeguards against adverse effects, such as larger vectors for water-borne diseases, are maintained. A growth in agro-processing could not only be a source of rural non-farm income, but could also supply additional opportunities for smallholder farmers to sell their output, potentially increasing competition and raising prices, if, however, local cartels can be overcome. All other actions to specifically support struggling smallholders, who are less likely to be economically viable in the long-term, would be within the realm of social protection, which is obviously necessary given the employment challenges facing many low-income countries such as Ethiopia.

² An alternative to increased farm scale could be joint farm operation based on kinship, for example. This is one aspect of the suggestions by Collier and Dercon (2014), but such an option requires further study.

Kalecki (1955, 1976), in relation to the issue of **food linkage**, provided seminal contributions on the centrality of food production in the process of development, particularly in light of its importance in avoiding the inflationary pressures that erode real wages, negatively affecting thereby effective (aggregate) demand and constraining rapid capital accumulation. It is worth reproducing his key insights in his own words:

“It may be shown that in some cases the rigidity of the supply of food may lead to the underutilisation of productive facilities in non-food consumption goods. This will not be the case if the peasants profit from the increases in food prices, because then they buy more industrial consumption goods out of their higher incomes. However, if the benefits of higher food prices accrue to landlords, merchants or moneylenders, then the reduction in real wages due to the increase in food prices will not have as a counterpart an increased demand for mass consumption goods on the part of the countryside; for increased profits will not be spent at all, or will be spent on luxuries. In this case, the high demand generated by a rapid development involving large-scale investment will not create a market for industrial mass consumption goods.” (Kalecki 1955, 7).

Different mechanisms can affect food price trends, which in turn can affect prospects for poverty reduction via increasing real wages and real rural incomes. Stable and increasing food supplies in a context of well-functioning markets may indeed be an important factor. However, there are other institutional mechanisms that can be devised to control the trends and levels of key staple prices. Price stabilization mechanisms, buffer stocks and food subsidies have historically been used by governments aiming to avoid the dangers of food-driven inflationary processes, which result in serious obstacles to a rapid and sustained industrialization process as well as agrarian transformations (Hirschman 1981, Kalecki 1955, Chang 2009).

Production linkages (which are backward and forward) normally receive most of the attention with regard to this topic and often deservedly so. Potentially a large proportion of agricultural output may take the form of intermediate products and directly impact on manufacturing development as long as new agro-processing factories arise (through forward linkages from agriculture or backward linkages from industry). Following Andreoni and Gregory (2013), given the importance of the production machine sector for technological catching up and future manufacturing potential, an obvious target to prioritise

within this linkage constellation would be the production of agricultural equipment for those sectors that are of highest value and potential in the country (e.g., coffee, floriculture, sesame and cotton in the case of Ethiopia).

That is, the development of manufacturing capabilities and production services that serve the needs of an increasingly technologically dynamic agricultural sector can have far-reaching consequences for the prospects of industrialization. These linkages can be 'inside' or 'outside' linkages, following Hirschman's distinction, depending on whether vertical integration between different layers of activities takes place and who the actors in the new emerging activities are. While inside linkages have some advantages in terms of spurring industrial entrepreneurial growth (e.g., flower producers investing in packing, transportation logistics and production services), 'outside' linkages may be inevitable due to technological gaps (with different operators linked to existing staple operators, similar in this respect to the case of NICs) and they are not necessarily bad for further industrial development as long as potential coordination failures are avoided.

The **fiscal linkage** has been discussed above and is further developed in the diagram shown in **Figure 3**. A key question, as argued by Hirschman, is the ability and willingness of the state to (a) tax the agricultural sector, i.e., extract a financial surplus to be transferred to other sectors, and (b) invest productively in favour of dynamic activities with long-term potential (whether in industry or modern services), usually through the development of critical infrastructure or other forms of direct support (such as subsidies and research and innovation). The diagram illustrates different mechanisms of fiscal surplus extraction and allocation, via price and exchange rate policies, direct taxation, transfers (subsidies) and public investment.

A key issue is the extent to which the process of state-driven intersectoral resource transfers constrains or advances agricultural growth, or, in other words, whether excessive taxation of the agricultural sector ends up being self-defeating. Another important factor is political, i.e., whether the interests of rural elites act as an effective obstacle to the fiscal linkage and constrain the volume of surplus transferred to industry. This is illustrated by Kay (2002) in his contrast between successful experiences in East Asia, where agrarian reforms paved the way for substantial fiscal linkages without compromising agricultural growth, and Latin

America, where powerful landed elites prevented a more sustainable and effective resource transfer to industry, leading to more FDI-dependent industrialization processes.

Therefore, key factors in determining different outcomes of the mechanisms of fiscal linkages are existing agrarian structures and power relations in the countryside, and the relative bargaining power of landed elites, on the one hand, and the vision, ideology and configurations of interests that determine agricultural and industrial policies on the other hand.

The **foreign exchange linkage** is also affected by complex combinations of factors that affect the capacity of agriculture to generate a sufficient volume of export revenues without creating forex leakages through increases in the demand for food imports. In most cases, successful industrialization strategies in East Asia have displayed a virtuous combination of adequate supplies of key staples, usually produced domestically (e.g., rice), and rapid increases in agricultural exports to generate the foreign exchange necessary to finance imports needed for industrial development.

Thus, China and Southeast Asian countries such as Vietnam and Malaysia have made impressive progress in the development of manufacturing capabilities at the same time as becoming leading exporters of an increasing range of primary agricultural commodities (such as coffee and cashew nuts in Vietnam, oilseeds, citrus and tea in China, and palm oil in Malaysia). In other words, the rapid development of industrial capabilities comes in tandem with substantial improvements in agricultural export performance, partly driven by rapid agrarian transformations and modernization.

Overall, the development of any of the above-mentioned linkages requires the generation of substantial agricultural surplus, dynamism and growth, often accompanied by important structural changes *within* agriculture itself, a theme explored below.

Agrarian change within structural change: agricultural policy and the imperative and unevenness of agrarian transformations

Structural change is not simply about the movement of resources and factors of production from low-productivity to high-productivity sectors. It is also about structural change within sectors. In this case, agrarian change and the transformation of agrarian structures and relations are central to long-term development and are strongly linked, in different ways, with the process of industrialization. A related theme in political economy is the 'agrarian question', i.e., how the transformation of agriculture and changes in property relations and the social division of labour *contribute to* or *impede* the process of industrialization and capitalist development (Byres 2003).

The most influential literature within agrarian political economy stresses the need for agrarian transformations to facilitate the necessary inter-sectoral resource transfers from agriculture to industry, which are critical for a successful process of industry-led structural change (Kay 2002; Byres 2003). However, the same literature acknowledges that historically there is no one single path or set of transformations (Byres 2003). Rather, different national trajectories are consistent with different successful stories of structural transformation, although in all cases a judicious *balance* is required for inter-sectoral resource transfers, with some going back to agriculture in order to spur agricultural modernisation and productivity growth.

The size of the surplus and the level of export revenues from agriculture certainly require sustained growth in agricultural output and productivity and, in most cases, a process of diversification of agricultural production. This process historically entails social, productive and technical transformations that are then reflected in the massive productivity gaps observed between agricultural sectors across developing countries

History illustrates the variety of paths that different countries have taken at different times in the transformation of their agricultural systems. Scholars of economic development have debated the different ways in which agriculture can support industrialisation processes and the different pathways to the development of industry at least since Marx postulated his 'two paths' to the development of capitalism. One of the first detailed empirical applications of these ideas comes from Lenin (1964 [1889]), who analysed the agrarian transformations of Prussia and the US up to the late 19th century, and postulated that capitalism could either develop through the transformation of agriculture 'from above' or 'from below'. The former

case reflects the experience of the Prussian state, where an aristocratic class (the *Junkers*) slowly turned themselves into large-scale capitalist farmers. In the US case, agrarian transformation came 'from below' as independent small farmers settled the land frontier and developed a dynamic agricultural sector. Lenin favoured the second path, considering transformation 'from above' reactionary.

One of the reasons for this preference, as clearly described by Byres (1996), was that the US path 'from below', facilitated by vast amounts of free land being available³, avoided attempts at imposing feudal-type social relations and contributed to a rapid expansion in the effective demand for tools and consumption goods generated by the mass of small farmers. Notwithstanding the value of these 'stylized' paths, Byres (1996) rightly warns against simplistic interpretations of history that seek to impose a limited number of 'models' for countries to follow and stresses instead the indeterminate and contingent nature of agrarian transformation⁴. Indeed other variants of 'paths' are plausible.

It is difficult to establish a single path of agrarian transition in Africa, given the wide variety of historical trajectories of state and social formations before, during and after colonialism. Thus there are instances of large-scale agriculture of settler colonies, as well as many examples of indigenous accumulation from below, through the slow differentiation of small farmers who increasingly transact in market exchanges (e.g., Berry 1993), the entrepreneurial drive of migrant populations in setting up commercial farms in new areas (e.g., Hill 1970) or the accumulation of investible funds outside of agriculture by urban formal-sector employees, who then start new farms (e.g. Iliffe 1983).

The long history of agrarian change in Africa has seen the uneven survival of fractions of the peasantry, the ones that manage to accumulate and 'modernise' either by investing in more extensive or intensive methods or by moving into crops and activities that generate more surplus, along with others who cannot survive by agriculture alone and regularly engage in wage labour to survive. While a scenario of 'accumulation from below' may be more

³ Byres differentiates between a dynamic agricultural region in the north of the US and the plantations of the south, run first with slave labour and later experimenting with the use of indentured labourers.

⁴ See also his discussion of other possible paths in East Asia and possibly Latin America (Byres 2003), as well as Bernstein's useful summary (2010, 27-32).

common in many African social formations, the reality is that in the long-term the bulk of poorer smallholder farmers end up being absorbed as wage-dependent labour in rural or urban activities or straddling both. An important aim for agricultural policy is to manage these long-term transitional dynamics in a way that increases agricultural productivity across the board while constraining the pace of change so that enough (rural and urban) jobs are created to avoid over-rapid urbanisation and the resulting growth of slum populations, not to mention wide-spread rural misery.

Policy certainly matters in shaping the direction and speed of agrarian transformations and their contribution to industrialization. Given that a dynamic agricultural sector is a key source of surplus for investment in industry, especially in the early phases of development, success in industrial development can be (only partly of course) explained by success in agrarian development. The contrast between Latin America and East Asia is instructive in illustrating the importance of agrarian reforms and their political underpinnings (Kay 2002).

While East Asia had enacted land reforms that broke the power of large landlords prior to its industrialisation drive after World War II, large landowners in Latin America were able to maintain their holdings until well into the Import Substitution industrialization period, with reforms only really beginning in the 1960s. The landowners then needed massive subsidies to begin to increase productivity, while the superior incentive structures in East Asia meant that the developmental states there could extract large surpluses from agriculture while maintaining a healthy growth in the sector. In other words, the 'crushing taxation' imposed on agriculture to favour industrialization, following Preobrazhensky's classic solution (Bernstein 2010), was possible because other interventions through public investment and incentives facilitated the achievement of substantial agricultural surplus in contexts of extreme labour intensities, as in Japan and South Korea.

There are also many other examples of successful agricultural interventions besides or without agrarian (land) reforms. These are policies that tend to increase the intensity and the technological dynamism of farming, a necessary requirement to be able to release labour into other sectors while raising agricultural output. Where feasible, new areas will also need to be brought under cultivation, using both extensive and intensive farming systems. As **Figure 4** in the annex makes clear, the sources of--and constraints on--increased agricultural

surplus form a dense and complex web of interrelated factors. Interventions to raise output and improve productivity need to be broad-based enough to tackle all of these at once or to identify key binding constraints. Indeed, constraints in particular aspects can become binding on the growth of the whole system, leading to vicious cycles of declining efficiency, falling profit and a lack of investment.

By contrast, the easing of binding constraints can lead to virtuous cycles of improving productivity, employment and wage growth and the strengthening of productive linkages. New infrastructure, in the form of rural (feeder) roads and storage facilities, is necessary to connect producers to markets, allow for the movement of agricultural machinery and other inputs, and open new areas to agricultural production. Further transport infrastructure is needed to link production to export markets. Irrigation is critical for leaps in productivity levels and growth, as well as for reducing uncertainty, be it in small, medium or large scale farms, but it requires substantial investment.

Therefore, modern farms also require reliable sources of power and improved sources of water, meaning new power lines and feeder canals. Increasing productivity also however requires the application of improved techniques and the efficient use of new technologies. This effort requires significantly strengthening the capabilities of national agricultural research systems to develop new technologies, new crop varieties and improved seeds, as well as to adapt imported technologies to local requirements in order to avoid slow adoption. New technology has to be used, of course, to have any effect, meaning that extension services are needed to both convince farmers of their value and to train them in their use. Input distribution systems have to be put in place and be functional to make fertilizer available and affordable in remote areas.

History repeatedly shows that all of the sub-systems and related linkages above are subject to multiple market failures and thus require decisive and sustained government action (Chang 2009), which in turn means the development of a responsive and well-informed system of policy-making at local, regional and national level. All of these basic interventions cost money, so the evidence of low and declining public investment in agriculture in sub-Saharan Africa is certainly alarming, particularly compared to industrializing Asia (**Figure 5**). By any measure, sub-Saharan Africa as a region and most countries therein suffer from a

serious gap compared to other developing areas in terms of the relative effort in financing agricultural interventions (**Figure 5**), with obvious missed opportunities in terms of closing the massive yield gaps that still prevail, which are obviously associated with the paltry efforts in expanding irrigation (**Figure 6 and Table 1**).

In addition, new technologies, machines and other inputs are of no help to farmers who cannot afford them. The provision of agricultural credit is therefore a vital ingredient in agricultural transformations. Such system should be built around networks of dedicated rural banks, specialising in both seasonal and long-term loans to agriculture. Importantly, the provision of loans should not be dependent on factors such as the size of holding since different farming systems even for the same crop have differing efficient scales. Indeed, a key criterion is the degree of capitalization, which can vary a lot by crop for a similar farm size. Similarly, crop insurance can not only help protect farmers affected by the sudden loss of livelihood, but can also play a vital role in mitigating some of the risks inherent in adopting new technology, thereby increasing uptake of such technologies and contributing to greater dynamism. The most effective institutional mechanisms to deliver these public goods may also vary according to socio-political and historical context. Whereas in some cases, parastatal agencies may be needed, in other contexts well-organized cooperatives can play a role, while in still other instances hybrid systems including strong state agencies and private intermediaries can coexist and coordinate with success.

Historical experiences of now developed countries and new industrialized countries such as Taiwan and South Korea more recently, show remarkable similarities. They broke up feudal holding, but at the same time prevented land holding from becoming too small (Chang 2009). Government invested heavily in agricultural research and extension work. These systems relied heavily on state-owned or state-supported companies to distribute inputs. They controlled prices of both inputs and outputs in order to reduce the volatility faced by producers and to channel surplus into manufacturing. State marketing boards, which in poorer countries often fell victim to neo-liberal structural adjustment policies, played a key role here⁵. In many African countries, price stabilization schemes prevailed in the 1960s and 1970s, especially for commodities like cocoa (e.g., in Cote d'Ivoire) or groundnuts (in

⁵ Interestingly, Canada only abolished the monopsony power of its wheat marketing board in 2012.

Senegal), and successfully insulated small and large commercial farmers from the vagaries of international commodity prices, albeit at a fiscal cost that eventually proved unsustainable in the wake of the 1970s crisis. These experiences are now particularly relevant again in the current context of high commodity price volatility following the 2007-2008 food crisis (Ghosh 2010). Finally, without increasing agricultural productivity, land-scarce countries have hardly achieved industrialization (Adelman and Morris (1997).

There are certainly some caveats and challenges to these well-known lessons from the history of successful agricultural policies. First, as noted in the contrast between Latin America and East Asia (Kay 2002), the content, scope and focus of agricultural interventions were embedded in networks of social power relations, or 'political settlements'. Combinations of unintended and intended outcomes might result in unplanned disasters, whereas in other cases intervention failures might create conditions for future success in policy, as suggested by Hirschman on the basis of his principle of the 'hiding hand' (1967, 9-34).

Second, today's industrializers might face constraints that earlier industrializers did not have to face, thus the prospects for Amsden's learning-led industrialization (2001) could be constrained by the reduction in policy space, as noted by Gallagher (2005) among other authors. Indeed, the reduction in policy space in agriculture, and the demise of 'old' interventions, such as marketing boards and price stabilization mechanisms, may act as an impediment to the maximization of agriculture's contribution to industrialization in the current era. Nonetheless, policy space can be carved out of new bargaining settlements, as the story of maize subsidies in Malawi suggests (Dorward and Chirwa 2011).

Third, another major challenge is the control and ownership of agricultural technologies, in particular improved seeds and their (often matched) pesticides, and the extent to which 'national' policies matter in this regard. When technologies become the jealously guarded intellectual property of multinational corporations, potential improvements in yields may be offset by the current and future streams of royalties that have to be paid to these companies and the dependence on their services. Alternatively, publicly funded research aimed at creating common ownership of improved varieties could resist this tendency (Kloppenburger 2010).

Fourth, the threat of climate change can also shape agricultural policies towards focusing on building resilience to increasing climatic volatility, and towards trade-offs between 'old-style' high-input technologies and reducing carbon footprint. Global regulation may in fact render some old 'solutions' obsolete, so that new ones will have to be found to make the imperative of expansion of agricultural surplus compatible with that of environmental sustainability.

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Annex

Figure 1. Structural change and diverse trajectories (WB 2007, xx)

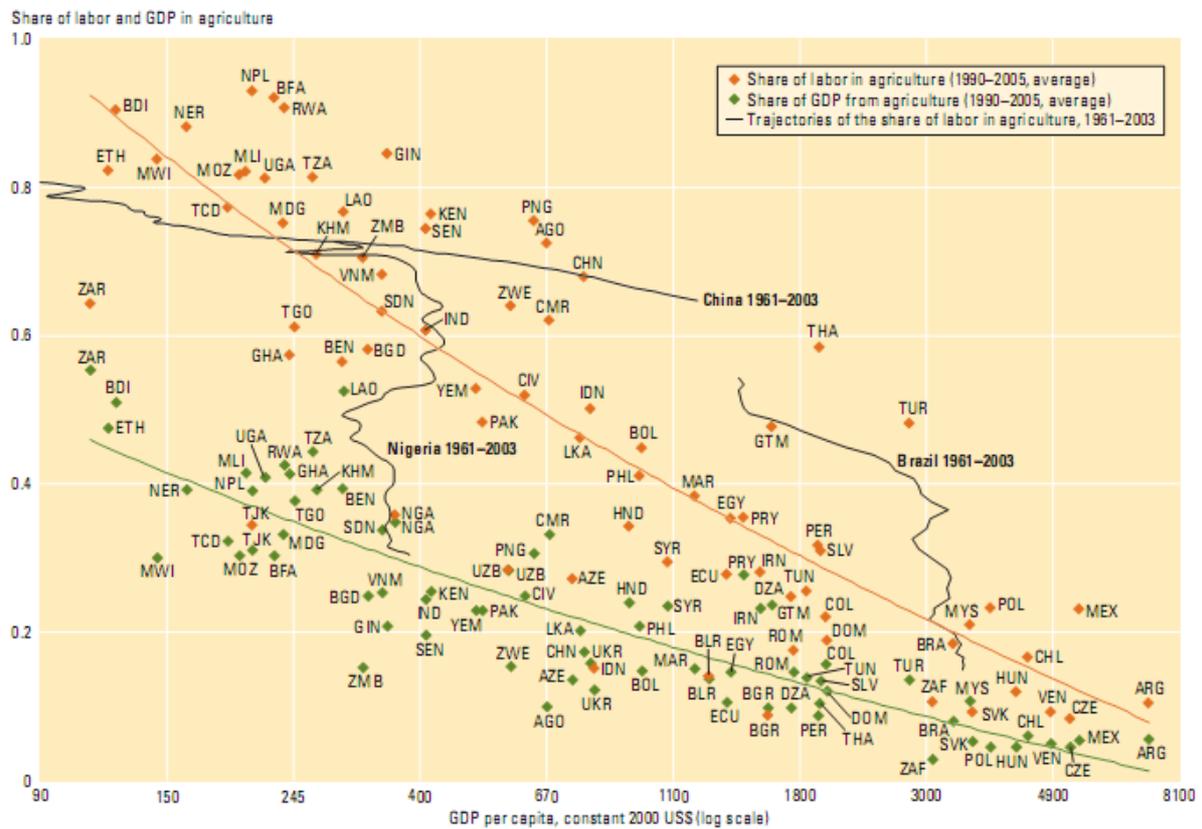
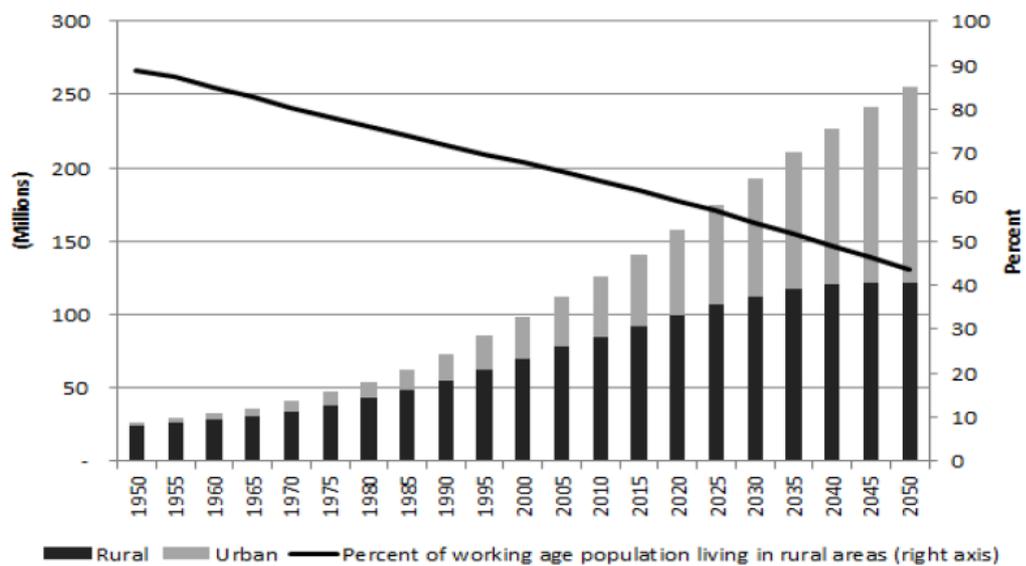
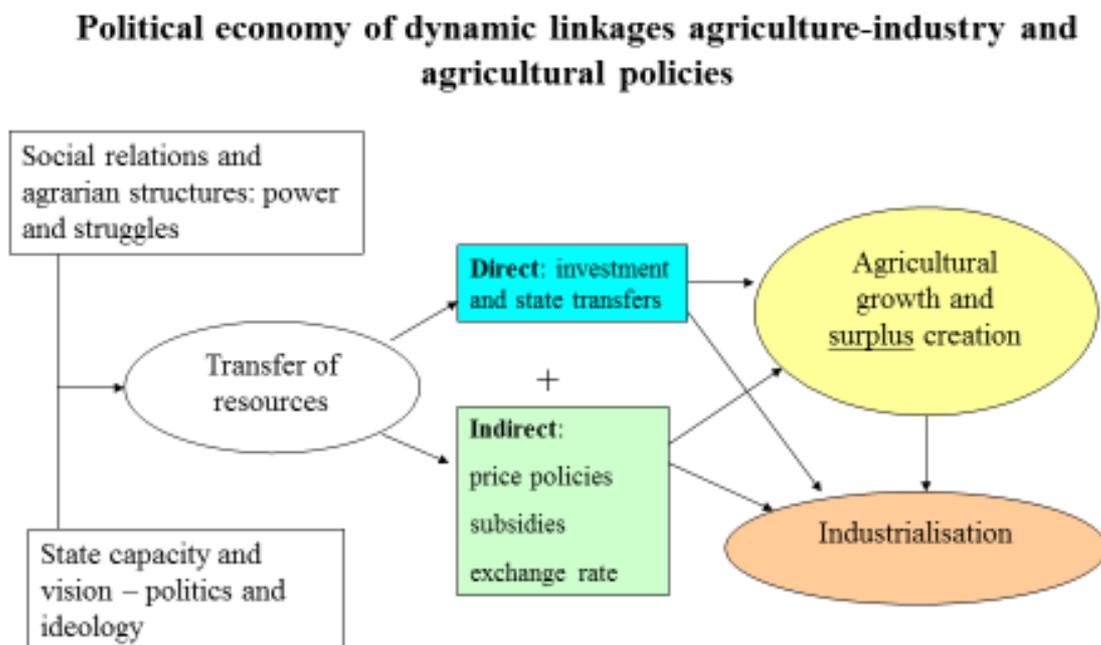


Figure 2. Cohorts entering rural and urban labour markets and rural population share in SSA



Source: World Bank estimates.

Figure 3. Intersectoral linkages and flows: a diagram



Contrast Taiwan/Korea vs Latin America or Tanzania (Kay and Sender/Smith)

Figure 4. Summary of sources and constraints on agricultural surplus

Sources of/ constraints on agricultural growth

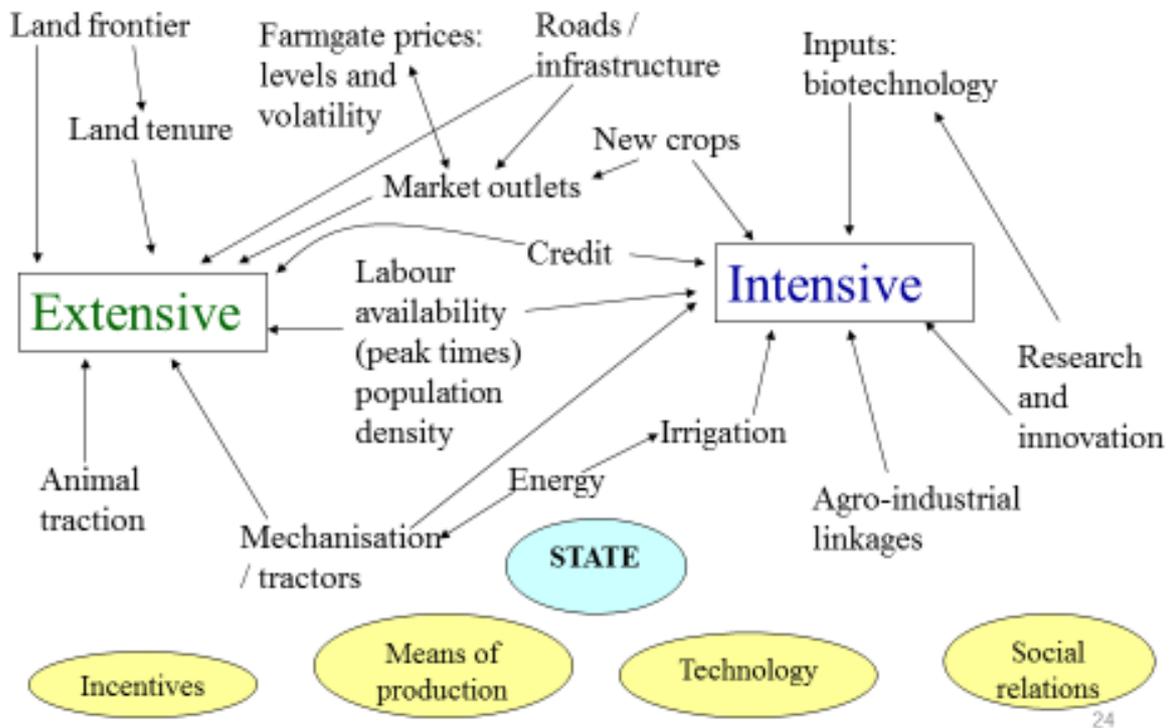
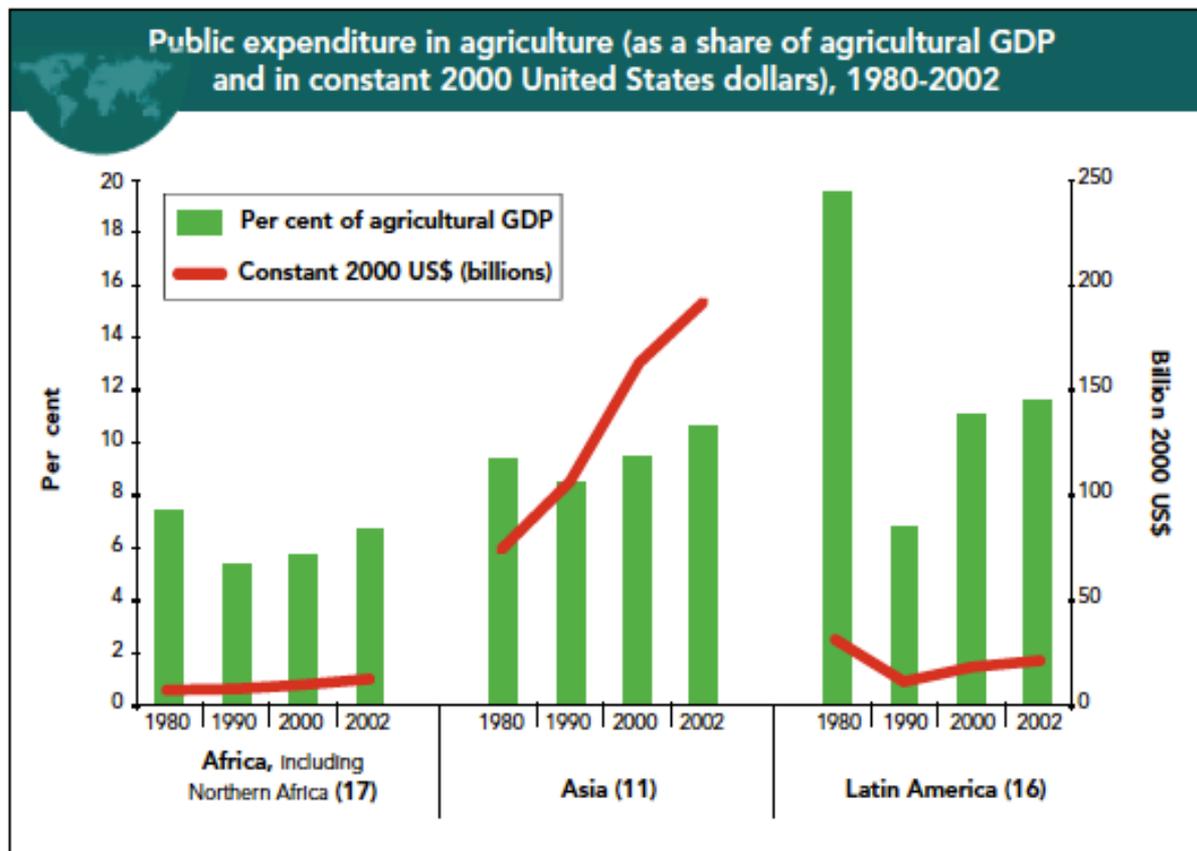


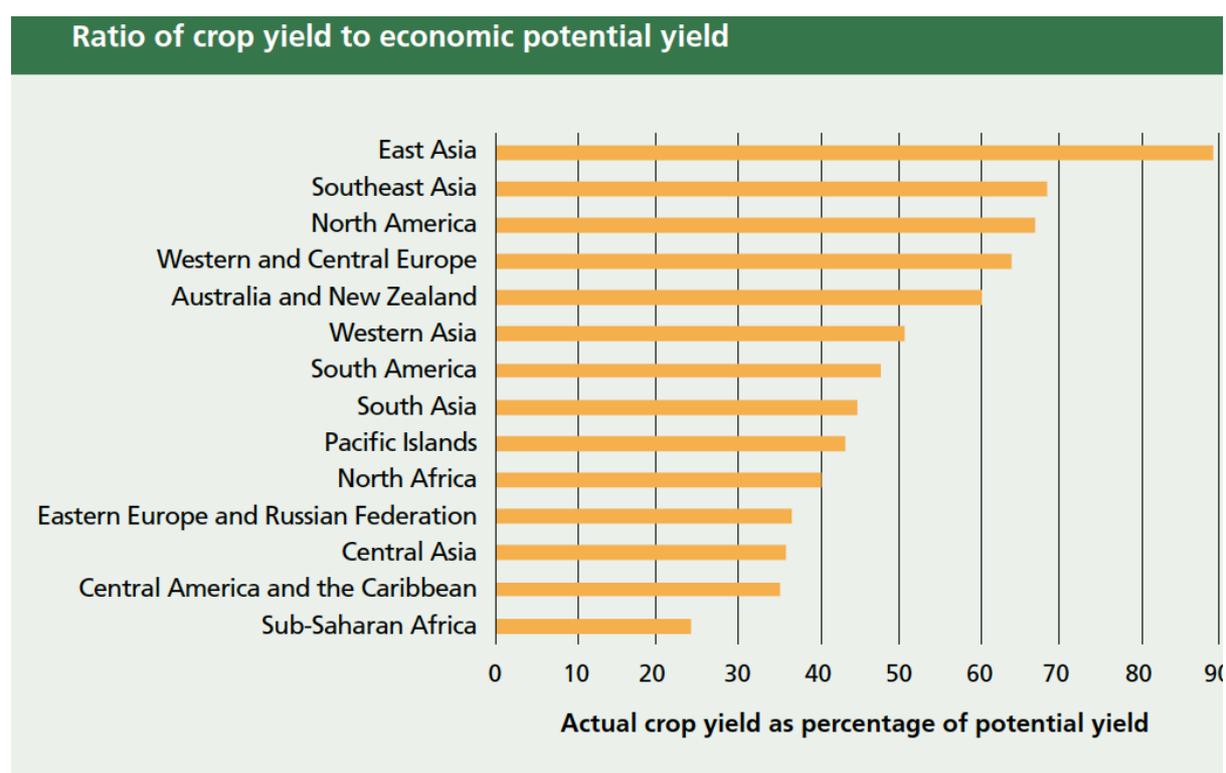
Figure 5. Africa lagging behind in public expenditure in agriculture



Source: Akroyd and Smith (2007) on the basis of data from Fan and Saurkar (2006).

Note: Numbers in parentheses correspond to number of countries in the sample for each region.

Figure 6. Crop yield gaps: contrasts between developing regions



Source: FAO, 2011h.

Table 1. Irrigation potential and currently irrigated area

	Potentially cultivatable area	Actual cultivated area	Potentially irrigable area	Actual irrigated area	Irrigated share of cultivatable area	Irrigated share of cultivated area	Irrigated share of irrigable area
	(000 ha)	(000 ha)	(000 ha)	(000 ha)	(%)	(%)	(%)
Mozambique	36,000	4,435	3,072	118	0.33	2.66	3.85
Nigeria	61,000	33,000	2,330	293	0.48	0.89	12.58
Zambia	16,350	5,289	523	156	0.95	2.95	29.81

Source: World Bank (2007). "Investment in Agricultural Water for Poverty Reduction and Economic Growth in Sub Saharan Africa" Synthesis Report

Figure 7. Crop choice and labour intensity: labour requirements by crop

