

# Agriculture industry linkage and development



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The macroeconomic linkage between the agricultural sector and industrial growth has been one of the most widely investigated in the development literature. In the early stages, researchers paid great attention in studying the relationship between the agricultural and industrial sectors, and how these sectors were inter-related. They argued that agriculture only plays a passive role; which is to be the most important source of resources (food, fiber, and raw material) for the development of industry and other nonagricultural sectors (Rosenstein-Rodan, 1943; Lewis, 1954; Ranis and Fei, 1961). Many of these analysts highlighted agriculture for its resource abundance, and its ability to transfer surpluses to the more important industrial sector (Subramaniam 2010: 26).

This paper reviews one chapter of a book, one article and one report. They are “ Agriculture during Industrialization” in “ The economic Development of Japan” by Ryoshin Minami (1986), “ Trends in Agriculture-Industry Interlinkages in India: Pre and Post-Reform Scenario” by Dilip Saikia (2011) and “ Joint ventures in agriculture: Lessons from land reform projects in South Africa” by Edward Lahiff, Nerhene Davis and Tshilili Manenzhe (2012). This paper first shows the analysis of their theoretical frameworks, and then how those articles define the linkages of agriculture and other sectors.

## **Economic development in Japan**

Minami (1986: 82-84) starts his analyze of the relationship between agriculture and industry in Japan by answering three questions. First, he looks at the agricultural growth rate before industrialization (Minami 1986: 82-83). He emphasizes that the beginning of stable growth in agriculture in Tokugawa Period (1603-1867) can be verified and continued to the Meiji

period and that “ agriculture before industrialization could hardly be described as stagnant” (Minami 1986: 83). Second, he mentions about the agricultural productivity before industrialization (Minami 1986: 83-84). Third, it refers to the agricultural growth from 1886 to 1920, the early period of industrialization (Minami 1986: 84). He does not clearly answer the second and third questions, but what he wants to emphasize through answering those three questions is that “[a]griculture had expanded considerably before industrialization began and that growth continued into the early period of industrialization; this was the key to its success” (Minami 1986: 84). Minami (1986: 89-99) continues to argue how agricultural surplus contributed to industrialization in Japan. Minami also mentions the role of government in terms of tax and expenditure on different sectors (1986: 97-98). The surplus of agriculture contributed well to the industrialization because the tax extracted from agricultural sector was spent to industrialization (ibid.).

He refers to three points of how agriculture contributed to industrialization (Minami 1986: 99).

First, it provided an abundant supply of foodstuffs. This prevented an increase in the relative price of agricultural products and the occurrence of a pattern of rising wages inducing reduced profits, and in turn leading to a falling growth rate. Second, its contribution to exports helped provide the necessary foreign currency. Third, the agricultural surplus was an important source of funds for the non-agricultural sector. These funds were transferred via two channels: farmers’ savings and taxes on farmers. The former do not seem to have been as great as has been believed in the past. (99)

Minami (1986) concludes this chapter by emphasizing that the agriculture-industry linkage was not one-sided at all (99). It is because “ industry provided large amounts of increasingly cheap fertilizers and reduced the prices of agricultural machinery and implements” (Minami 1986: 9). From labour market perspective, industry “ also drew more and more labour away from agriculture” (ibid.).

### **Agriculture-industry interlinkages in India**

Saikia (2011) argues the growth of the economy in India through three sectors; agriculture, industry and service sectors. He says that the studies in India have done through only agriculture-industry linkages, and the services sector had been kept away from analysis, but since the three sectors are interrelated to each other in the real world, he claims the importance of considering about services sector (Saikia 2011: 2-3). Saikia starts his argument with reexamining the agriculture-industry linkages. He says that “ agriculture and industry being integral component of development process due to their mutual interdependence and symbiotic relationship, the contribution of agriculture to the economy in general and to industry in particular is well known in almost all the developing countries” (Saikia 2011: 4). It was also the same in Japan. Saikia also points out that the level of how much they depend on each other may change over time (Saikia 2011: 4). Then, he overviews the theoretical literatures of early writers, which mainly emphasized the importance of increase in agricultural productivity for modern economic growth from supply-side, or production linkages, and other literatures after mid-1970s, which argued that agriculture’s possibilities of creating sufficient demand to stimulate industrialization (Saikia 2011: 5-6),

and he pointed out that those scholars have mostly looked at only one side of the agriculture-industry linkages, and that considering both sides was important since the supply-side and demand-side linkages both work together (Saikia 2011: 6).

Through these two linkages, Saikia (2011) analyses the trends of inter-sectoral linkages in India. First, he argues for the production linkages, which “ basically arise from the interdependence of agriculture on industry and industry on agriculture for meeting the needs of their productive inputs” (Saikia 2011: 9), like “ the output of agriculture provides inputs for many industries, such as sugar, cotton textiles, jute textiles, sugarcane, and tobacco. Similarly, agriculture also absorbs the outputs of other sectors as inputs required in the production process...[which] are fertilizers, pesticides, machine tools and electricity” (ibid.). He points out that we can see the increase of the agriculture’s purchase from the non-agriculture sector, and he says that this increase shows the idea of the increase of the agriculture’s dependence on industry for modern inputs (Saikia 2011: 10). On the other hand, he also mentions that the decline of the importance of the agro-based industries suggests a weak production linkage (ibid.). He looks at the production linkages of service sector with agriculture and industry (Saikia 2011: 11). He revealed that the service sector’s linkage with industry is strong, and industry and service sector’s linkages are interdependent (ibid.). However, looking at the post-reform period (post 1991), the production linkages has become weaker (Saikia 2011: 11-12). Second, Saikia (2011) looks at the demand linkage (12). “ The demand linkage between agriculture and industry operates through agriculture income” because the increase of

agriculture income “ brings about an increase in the demand for industrial consumer goods and some producer goods, such as pumps, tractors, fertilizers, pesticides, etc.” (ibid.). He focuses on the terms of trade (TOT) between agriculture and industrial products (Saikia 2011: 13) He says it is important since “ a favourable [sic] TOT for agriculture leads to higher income of the agricultural sector, and thus, creates more demand for industrial goods” (ibid.). Through this discussion, he indicates that “ while agriculture’s dependence on industry for modern inputs has increased, industry’s dependence on agriculture for inputs has declined during the same period” (Saikia 2011, 16).

### **Joint ventures in agriculture in South Africa**

Lahiff et al. (2012) is a report about the strategic partnership of agricultural sector and companies. Although it does not clearly mention about the linkage between agriculture and industry, and is not clear what theoretical framework is applied, this report also mentions the importance of the agriculture. This report contains case studies in two areas, Levubu and Moletele in South Africa. In both sites, “ large areas of high-value irrigated land have been restored to relatively poor communities. In order to maintain the productivity of commercial farming enterprises, and to maximise long-term benefits for their members, these communities have entered into contractual arrangements with so-called ‘ strategic partners’, most of which take the form of joint ventures” (Lahiff et al. 2012: 1). This report analyzes these two case studies that these joint ventures are to date not meeting the expectations. It refers to three reasons (Lahiff et al. 2012: 50-52). First, although it is needed to involve community members in the key decisions,

joint ventures are too complicated for inexperienced members. Second, it is the failure of commercial partners; they make the enterprises unattractive. Third is the finance, which “ hampered farming operations from the very start, exacerbated the lack of creditworthiness of the operations and undoubtedly led to the failure of many of the ventures” (Lahiff et al. 2012: 51). So, while it emphasizes the finance is not the only problem to be tackled, “ financial difficulties ... were certainly the major concern” (ibid.). Then, after describing the joint ventures’ failures, it also mentions the lack of state support and refers to the failure of land reform (Lahiff et al. 2012; 52). Although it implies the importance of relationship between agriculture and other sectors, this report is not clear what theoretical framework was applied to analyze those cases.

### **“ Synergetic development strategy” and three literatures**

Kay (Kay 2009) set an alarm that development economists tend to think about just one sector’s development, i. e. agricultural development or industrial development, and he argues that the “ synergetic” development strategy is the most successful development strategy. Contrasting East Asia (South Korea and Taiwan) and Latin America, he argues the development strategies pursued in each region through four points (Kay 2009: 117-124). First, he looked at the state capacity and policy performance. He pointed out that, comparing to Latin America, “ what is remarkable about the South Korean and Taiwanese case is that the State managed not only to squeeze agriculture but that it did so while at the same time ensuring agriculture’s sustained growth and thus the production of a large economic surplus” (Kay 2009: 118). South Korea and Taiwan both had enlightened political

leaderships with a developmentalist vision for the whole society. It worked well for both agricultural sector and industrial sector “ via such mechanisms as taxation and manipulation of the terms of trade in favour of industry” (Kay 2009: 117). Plus, the State also worked well to change the class relationship by dispossessing landlord class’s lands and political power in an earlier agrarian reform (Kay 2009: 118). Industries expanded rapidly by these State actions.

Second point is the agriculture-industry linkage (Kay 2009: 119). Kay reveals that South Korea and Taiwan knew the necessity of interdependent agriculture-industry linkage, and so “ ensured that the conditions were conducive to the adoption of new technologies and stimulated shifts in production patterns to higher value crops over the whole of the farming community” (Oshima 1987, cited in Kay 2009: 119). He also refers that both governments paid attention to the industry which would improve agriculture, such as chemical fertilizer, farm machinery and equipment industries (ibid.).

Third, Kay (2009) refers to the agrarian reform (120). He cited White (1987) and emphasizes that the agrarian reforms in South Korea and Taiwan were major, while that in Latin America was relatively limited (Kay 2009: 120). He also mentions the timing of agrarian reform in Latin America was after industrialization (ibid.).

Finally, Kay (2009) argues the sequence of industrialization (120-121). Kay pointed out that the reason Latin America did not develop well was because “ it failed to shift in time from an ISI [import-substituting-industrialization] to EOI [export-oriented-industrialization] development strategy” (ibid.).



Industrialization in Latin America went through a dynamic phase of ISI (1960s). South Korea and Taiwan also went through a similar process, but the difference was that “ both countries were able to continue with, as well as deepen, this shift to a more capital-intensive, labour-skill-intensive, foreign-exchange-intensive and large-scale industrialization process, while Latin America was unable to do” (ibid.). He summarizes the difference between the performance of South Korea and Taiwan, and that of Latin America in three key points;

The first is South Korea’s and Taiwan’s superior State capacity and policy performance. The second is Latin America’s failure to create an agrarian structure more conducive to growth with equity. The third is South Korea’s and Taiwan’s greater ability to design an appropriate industrial policy as well as developing the synergies between agriculture and industry. (121)

This paper has overviewed three cases of development paths of Japan, India and South Africa. Minami (1986) argues about how the economic development in Japan was achieved. Minami mentioned the role of government, which was about transferring agricultural surplus to industry sector (1986: 97). Minami also mentioned the importance of interdependent and synergetic agriculture-industry linkages (ibid.). Japan implemented the agricultural land reform, which led to the stimulation of technical progress since many farmers were liberated from the landlord-tenant relationship just after the Second World War (ibid.: 70). As Kay’s theory indicated, Japan also took those three paths, and the economic development achieved.

Saikia's analysis of the India's sectoral linkages (2011) gives the other perspective which Kay (2009) did not mention in his article. Actually, Kay admits that he did not include the services sector in his analysis (2009: 129). Kay also admits that the services sector has a vital role in sectoral linkages, and " provides a bridge between agriculture and industry thereby facilitating the development of synergies between them" (ibid.). Saikia tried to involve the services sector in the relationship between agriculture and industry sectors.

Lahiff et al. (2012) analyzes the land reform projects in South Africa. It focuses on the strategic partnership with commercial operators with two case studies. It mentions some points which are related to Kay's theory. First, in the two case studies, "(t)he role of state agencies such as the provincial Department of Agriculture and the Commission on Restitution of Land Rights has been critical throughout the restitution process, in terms of restoring the land, promoting the strategic partnership model and, most problematically, in the provision of grants" (Lahiff et al. 2012: 62). State capacity is not high enough, and " the prospects for further land transfers or grant support is unpromising for the foreseeable future" (ibid.). There are strategic partnership programs with commercial operators, but because of lack of state capacity, and of weak land reform, development cannot be sustained.

These three articles and chapter are all focusing on the importance of agriculture. In Japan, the agriculture-industry linkage was not a one-way relationship (Minami 1986: 99): the synergetic agriculture-industry strategy worked well before, and during industrialization process. In the study of India

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(Saikia 2011), since the role of services sector has been huge these days, he included the tertiary sector, and tried to explain how the services sector can strengthen the relationship of agriculture-industry linkage, and readdressed the importance of agriculture-industry linkage. Minami (1986) did not mention the importance of the services sector, and the relationship of the tertiary sector to the other sectors should be considered in this area, but both have clearly showed the importance of agriculture. In South Africa (Lahiff et al. 2012), on the other hand, the agriculture-industry linkage has been weak. Looking at South Africa through Kay's theory, South Africa does not fulfill the necessary conditions for development. Although since 1994 the state has implemented land reform, the land reform is not enough "in terms of economic development, poverty alleviation or redress for past injustice" (Greenberg 2010, Centre for Development and Enterprise 2008; cited in Lahiff et al. 2012; 7). It says that the challenge of joint ventures, the community-company linkage, has some positive signs of development despite many problems (Lahiff et al. 2012: 63), but looking at it through the synergetic development strategy, it is still not clear how three sectors interrelate with each other; it does not clearly show how the synergetic development strategy fit to the joint ventures.

The three sectors, agricultural, industry and services sectors, depend on each other, so "(p)roposals for prioritizing agriculture over industry or vice-versa will not be able to achieve the productivity and growth enhancing outcomes that are desirable and possible through a more comprehensive understanding of the relations between agriculture and industry in the development process" (Kay 2009: 129). Plus, it is now more and more

required to take the services sector when we think about synergetic strategy, since “(s)ervices play an increasingly vital part of new technologies and management practices as well as in the diffusion of knowledge and information which will raise productivity in agriculture and industry” (ibid.). The role of companies itself should not be ignored, as the examples of joint ventures in South Africa show. However, without the support from the state, the ventures seem to be unable to work well for development. It should be discussed more what kind of relations of three sectors and the state are effective and really work for eradicating poverty today.