

"Agriculture and development"

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Section 1 Introduction

Economists have long been aware of the strategic role of agriculture into development (Lewis, 1954, Johnston et Mellor, 1961, Rostow, 1962, Bairoch, 1963). More recently, policies to reduce poverty and undernourishment have emphasized on agriculture again. That's why the World Bank's development report for 2007 is about agriculture and development (World Bank, 2007).

Today roughly one half of the world inhabitant lives in rural areas and poverty is more important there: we estimate that the third quart of poor people lives there (World Bank, 2007). In addition agriculture provides a big part of rural incomes and is determinant for the satisfaction of food human needs. For all this reasons, agriculture is a key determinant for the achievement of the first millennium development goal. Therefore, agriculture has to be at the centre of development programs.

Nevertheless there is not a universal agricultural development model. In each nation, according to the natural, cultural and political context one specific development model prevails and in this one, agriculture plays a particular role. In order to understand the links between one particular kind of agricultural model and broader development model, it is interesting to try to characterize these models. Following this idea, the World Bank (2007) proposes a classification taking into account the agricultural part in the GDP, the part of the rural population and the poverty ratio. However this classification is based on a narrow vision of agricultural and rural development. Particularly, it omits the complex relations between agents that progressively build a specific development model.

In this work, the aim is to synthesise the literature about the links between agriculture and development in a way that permit to identify such development models.

In the second section we will present these links as they are explained by economist at the national level. Here the main actor identified is the state. In the third section, we will work about agro-economics and economics literature in order to understand the change dynamic of the rural societies and its impact on agricultural national models. We will see that private actors and social structures contribute to agricultural development too. In the fourth section we will conclude by identifying lines of force in order to characterize agricultural development model and guide the forthcoming quantitative analyse.

Section 2 Agriculture, a strategic sector for development policies

The theory of structural change emphasizes the determinant role of agriculture in development because both agricultural and industrial sectors are dependent on each other. It is true at early as well as later state of development (Szirmai, 2005). So, balanced development politics are needed. The first subsection will briefly present the mechanism of structural transformation when the second one will expose the different kinds of unbalanced models of development which exist.

1- The mechanism of structural transformation: the interdependence between agriculture and industry

Economic theory shows that development of industrial sector is stimulated by the transfer of surplus workers and capital from agriculture (thanks to improved productivity in

agriculture). Then, agriculture sustains growth by providing raw materials and food at better prices and the national market is enlarged thanks to the improvement of rural standard of living. What's more, agriculture development enables poverty reduction, food security and political stability. Industry and urban growth is a vector of change for rural society and agriculture (Pourtier, 2003).

Both sectors are dependants on each other and public policies can operate transfers from one to the other in order to guarantee a balanced development. According to Szirmai (2005), there are two transfer strategies: resources are transferred directly from one sector to another (like in the Lewis model) or primary exports and international trade provide the resources for structural change. In both strategies, state plays a main role.

At first, state has to realize agrarian investment that is needed to develop rural areas. He can also. Economics teach us that such agrarian investments can not be realized by individuals. Bezemer et Headey (2008) identify two theoretical arguments. Agricultural development is associated with important external effects (which explain multiplier effects of the sector on broader growth and its impact on poverty reduction). So private investor will under-invest relative to the social optimum and public actor has an important role to play in the development of the sector. What's more market failure is pervasive in underdeveloped agriculture. Binswanger and Deininger (1997) provide numerous examples of market distortions at all the levels of production and commercialisation process (information asymmetry, high transaction costs, labour market distortions, extreme volatility and covariance of incomes when agricultural insurance markets are missing, distorted land markets, the indivisibility of many rural investments). It can also adopt an incentive politic in order to stimulate smallholder's production (production subsidies, for example).

Secondly, transfers can be operated thanks to fiscal policies (taxes on agricultural exports or on agricultural production), price politics (maintaining low price to agricultural producers in order to control consumption prices). These kinds of politics can favoured one of the sector or balanced them. There is no mechanical positive effect of transfers and in se second subsection; we will provide examples of unbalanced development.

2- Unbalanced models of development

Historical analyses confirm the main role of agriculture in development. Nevertheless, it provides a lot of examples of unbalanced development. We will stress two main issues: firstly the problem of urban bias and secondly the potential problem of food dependence in a model based on cash agriculture.

a- Urban bias and others spatial inequalities

Confirming theoretical writings, Alderman et Morris (1988) observe that agrarian revolution precedes industrial revolution in occidental Europe, in United-States, in Japan, and in East-Asia. Nevertheless, this link is not universal: in the case of colonised countries, Rioux (1971) shows that the development of a modern agriculture has not induced the industrialisation of the countries. So, the existence of transfers from agriculture to industry inside the country is necessary.

Nevertheless, if the transfers are made while there is no surplus in agriculture, the consequences can be dramatic. This condition was realized in Europe, where we can observe an improvement of agricultural surplus before the industrial revolution. But Bairoch (1963) shows that, during the fifties and the sixties, transfers to industry have been realised while the agricultural sector was static. In this period, the thought that modern growth was overall industrial and urban has induced such transfers. This mechanism is describes under the name of urban bias (Myrdal, 1958 and Lipton, 1977). It is defined by Bezemer et Hedeay (2008) as

a price system, an international trade system, public expenditures and subsidies that favour industry and urban area in the detriment of rural areas. This kind of unbalanced development can contribute to explain the dramatic situation of the less developed countries.

Spatial and social inequalities contribute also to characterize development models. For an example of spatial inequalities between rural areas, we can refer to Thery's study on Bresil: the Sudeste is the more developed rural area with modern agricultural technology and high productivity; the Nordeste is a disfavoured area by any standard (Thery, 1995). In rural China, we can see similar problems. What's more, inside the rural society two classes coexist: a little class of richer farmers which innovate and are supported by the state and a class of smallholders which are not able to adapt themselves to market economy. This issue is generalized in all developing countries like we will show in the second section.

Agricultural growth can be associated with unbalanced development or "misdevelopment". This is also noticeable in the agricultural model based on cash economy.

b- Strength and weakness of the model based on cash agriculture

The model based on cash agriculture and international trade is adopted by almost all developing countries because it provides devises and consistent incomes. We are used to opposite cash agriculture and food-producing agriculture and it is not always a good distinction. The matter is to know if cash agriculture prevents from food safety or not.

The economic foundation of this agricultural and trade model can be found in the theory on comparative advantages and international division of labour. Historically, this model has been a good provider of development between 1870 and 1913 (Lewis, 1969 et 1978, Maddison, 1989, Szirmai, 2005). Actually, for Pourtier (2003) cash agriculture have permit country planning and construct the basis of development in Sub-Saharan Africa.

However, this model suffers from the deterioration of barter terms of trade of primary exports combined with the volatility of agricultural prices and the demographic pressure. Actually the national food needs are increased by demographic growth and the cash corps prevents from extend land exploited to produce food. In such a context, there is an increased food dependence of national economies. This is a key element of food security issues.

As a conclusion, we can say that public policies play a central role to create balanced or unbalanced development models. Now, we have to study the effects of these policies at the local level. Rural societies are directly concerned by these policies and we have to analyse their process of transformation because it influences national agricultural models too.

Section 3 The transformation of peasant economy: dynamism of local actors and structural rigidity

Following the Chayanov's works on little Russian exploitations (Chayanov, 1966), the literature on peasant economy has been developed. It describes the specific but rational economic behaviour of smallholdings. Nevertheless, the peasant economy is said to be an obstacle to development in a context of demographic pressure, especially because of nutritional problems and productive capacities. In the first sub-section, we will describe peasant economy and present the terms of the debate concerning demographic pressure. In the second one, we will show that the evolution of agricultural systems is the output of a contradictory process in which several rural actors and structures can stimulate the change when others one put a brake on it.

1- Specificities of peasant economy and demographic pressure

Chayanov's work has inspired numerous studies about the peasant economy which called for a specific theoretical analysis. The peasant family is a unit of both production and consumption with low specialisation levels and little capital. The peasant economy is embedded in the rural society: land rights are not systematically individual and a part of production is dedicated to the satisfaction of social obligations. The peasant economy is midway between hunting-gathering systems and fully integrated market economies.

Even if, their economic behaviour is different from the capitalistic farms one's, it is rational and, what's more, efficient (Schultz, 1964) and more productive (Chayanov, 1966, Berry and Cline, 1979), other things being equal. Peasant Smallholders are dynamic and produce not only for the subsistence of their family. They use agricultural technologies which are very sophisticated and adapted to their environment and aims (Hill, 1986). They do not hesitate to adopt new productions in order to meet the urban demand (Raison, 1984). Even if the yields per hectare for each output appear to be worse in smallholdings than in capitalist farms, on the whole the first ones produce a bigger value from the same land (Cochet, Mazoyer, Dufumier).

Nevertheless, for several authors, these agricultural models are not able to produce enough food in a context of demographic pressure. Especially in Africa, it is said that agricultural productivity is too low: while 70% of workers is employed in agriculture, food production do not meet the population needs. In this continent, demographic pressure, combined with insecurity because of wars and climatic problems, creates food dependence. Therefore, the rural development program of the World Bank (2007) recommends transforming the agricultural model based on work intensive smallholdings into an industrial agricultural model based on commercial and capitalistic farms using few workers and a lot of agricultural inputs. However, measure difficulties of smallholdings production puts things into perspective. Using study case data instead of the FAO ones, Wiggins (2000) shows that production levels are nearer to meet food needs than we thought.

It is an expression of the Malthusian debate. Following Boserup's idea (Boserup, 1990), we will emphasize on the evolution potential of agrarian systems. When we observe the dynamic of agrarian systems evolution, we can see the influence of all the actors (the public ones and the local ones) in way which can be contradictory.

2- Evolution of agricultural systems

The demographic growth is a big pressure on agrarian systems: in the absence of substantive agrarian investments and innovativeness, the production growth will deteriorate land. Is the rural society able to make these changes? Is it ready to change and innovativeness? In this subsection we will identify that rural society is a complex society in which transformation forces and brake forces coexist.

A central element is given by the fact that smallholders are risk adverse. Households live close to subsistence level and risks are high. So, security is valued higher than innovativeness. Scott's case study in South Asia (Scott, 1976) shows how rural society is structured around this aversion to the risk. Social institutions and relations between smallholders and powerful landlords reflect that (communal lands, partial collective work, norms of reciprocity is very important, redistributive social obligations for the richer villagers; rent is a fixed share of the harvest, etc.). Such a society is resistant to innovativeness. But this conception has been discussed by several authors. For Popkin (1979), Scott idealised tradition peasant societies and power structures. He says peasants are engaged in the pursuit of their own interests and are ready to invest in order to improve their welfare. They are ready to take risks but it depends on the potential loss. As a synthesis we can say that rural society is not homogenous but socially structured and organized into a hierarchy (Ellis, 1988). When some

actors are resistant to innovativeness, other ones can be ready to take new opportunities. As an example, the social organisation based on patronage can put a brake on change not because all actors would rather security than innovativeness (like in the Scott's conception) but because the patrons risk losing their dominant position (Popkin 1979). Capitalistic farms are seen to be a better way of innovativeness diffusion. Nevertheless, taking into account the above analysis, we can say that public policies which reduce exposure to risk and improve risk management and insurance will facilitate it.

In each context, these different elements are combined in a specific way which influences the form of rural transformation.

Section 4 Characterize the models of agricultural development

This synthesis aims to be a base of a necessary quantification work that will help us to identify different agricultural models. So it does not deal with closing the debate but rather to put the accent on several lines of force that permit to characterize the diversity of the agricultural systems. Even if our presentation follows a binary structure we can never talk of a real opposition: each situation is a mix of the different situations enounced. This is true for all the agricultural systems and far more that statistic analysis demands a national scale base.

1- Agricultural public policies: structural change and urban bias

During the development process, agriculture has a key function and State plays a crucial role in it. It can participate directly (road construction, agricultural invests, agricultural reforms) or indirectly (price incitement policies, taxation, subventions). Nevertheless public policies can produce unbalanced development and even "mis-development". A particular attention will be paid on the agriculture weight in the national economy, on the State efforts in direction of rural areas and on the existence of a urban bias.

2- Food producing agriculture, exportation agriculture and food security

Primary exportations are a way to reach higher economic wealth and structural changes, but they can also have a negative impact on the food security objective. An important literature emphasizes that this compartment implies a risk, especially in a context marked by the deterioration of terms of trade, primary goods price volatility and demographic increase. However it would be a mistake to oppose food producing agriculture and cash agriculture because they are closely linked. Moreover, urban development process involves a transformation of food producing agriculture into cash agriculture on a national or regional scale. Finally, it appears more efficient to focus on the State's food dependence level and on national malnutrition rates.

3- The general form of production system

It deals with the so called distinction between traditional and modern agriculture which we saw that it was not obvious at all. Here, we must take into account several elements like the dimension of the farms, the innovativeness incorporation into the production process, the irrigated lands presence, etc.

Each one of the great lines of force here presented will constitute a dimension of the future statistic study. The kept variables have been built in order to reveal theses different dimensions.