

From Public to Private Governance in the Food Supply Chains of Emerging Economies

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Abstract

Food and agricultural commodity value chains in developing and transition countries have undergone tremendous changes in the past decades. Companies and property rights have been privatized, markets liberalized, and economies integrated into global food systems. The liberalization and privatization initially caused the collapse of state-controlled vertical integration. More recently, private vertical coordination systems have emerged and are growing rapidly as a response to consumer demand for food quality and safety on the one hand and the farms' production constraints caused by factor market imperfections. In this paper we (a) demonstrate the importance of these changes, (b) discuss the implications for efficiency and equity and (c) provide empirical evidence on the effects in several developing and transition countries.

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Privatization

Twenty-five years ago, a vast share of the poor and middle income countries, covering a large share of the world's agricultural areas and farmers, were characterized by state-controlled supply chains for agricultural and food commodities. This was most extreme in the Communist world, spreading from Central Europe to East Asia, where the entire agri-food system was under strict control of the state. However, also in many African, Latin-American and South Asian countries the state played a very important role in the agri-food chains. For example, in Brazil and Mexico, wholesale markets were run by the state; in South Asia the state heavily regulated food markets and many African commodity markets and trade regimes were controlled by (para-)state organizations. In many of these countries, the state played an important role in agricultural production and marketing in the decades after independence from colonial power. Governments in Sub Sahara Africa (SSA) and South Asia were heavily involved in agricultural marketing and food processing through the creation of marketing boards, government-controlled cooperatives and parastatal processing units. These government institutions were often monopoly buyers of agricultural products, especially for basic food crops and important export crops.

This system of state intervention and control has undergone tremendous changes in the 1980s and the 1990s as a global process of liberalization induced dramatic changes in many of these regions. In the transition world, the liberalization of prices, trade and exchanges, the privatization of the state enterprises etc. removed much of the state control over the commodity chains as well as the vertical coordination in the

chains. Similar processes of privatization and liberalization of domestic and international commodity and financial markets reduced the control of the state over the food and agricultural chains in many developing and emerging economies.

Globalization

Globalization of the food chains in transition and developing countries has been driven by several factors. Some factors are not specific to these countries, such as the global process of increased international trade and investment, and the structural changes in the global food markets. Specific factors are the liberalization of the trade and investment regimes in transition and developing countries – policy reforms which often accompanied the privatization and domestic price reforms. Here we focus on four factors which are of special importance.

First, trade liberalization caused major changes in trade of agri-food products. For example in Central and Eastern Europe it caused a major reorientation of the agri-food trade from “east to west”, i.e. from trade with the former Soviet countries to trade with western Europe, and a shift of the agri-food trade position from net exporters to net importers.

Second, the liberalization of the investment regimes induced foreign investments in agribusiness, food industry, and further down the chain, with major implications for farmers (Dries and Swinnen, 2004). Several food sectors in Eastern Europe, such as the sugar, dairy, and retail sector, have received massive amounts of foreign investment, which now holds dominant market shares. An example is the rapid growth of modern retail chains (“supermarkets”) in transition and developing countries which was triggered by the reform process in former state-controlled economies (Reardon and Swinnen, 2004).

Third, in addition to increasing trade, also the structure of this trade changed considerably. There has been an increase in the share of high-value products – mainly fish and fishery products, and fruits and vegetables – in world agricultural trade. Especially developing countries experienced a sharp increase in such high-value exports while the importance of their traditional tropical export commodities – such as coffee, cocoa, and tea – has decreased.

Fourth, associated with these changes is the spread of (private and public) food standards. Consumers are increasingly demanding specific quality attributes of processed and fresh food products and are increasingly aware of food safety issues. These food quality and safety demands are most pronounced in western markets (and increasingly in urban markets of low-income countries) and affect traders and producers in transition and developing countries through international trade.

From Public to Private Governance

State-controlled vertical coordination

Vertical coordination (VC) was widespread in state-controlled food supply chains. Again this was most extreme in the Communist system where production at various stages and the exchange of inputs and outputs along the chain was coordinated and determined by the central command system (Rozelle and Swinnen, 2004). However also in other regions where the state played an important role in food chains vertical coordination was widespread. Government marketing organizations and parastatal processing companies used VC systems with upstream suppliers. The dominant form of state-controlled VC was that of seasonal input and credit provisions

to small farmers in return for supplies of primary produce.¹ In fact, state-controlled VC was often the only source of input and credit for peasant farmers (IFAD, 2003).

Most analyses point at the deficiencies and inefficiencies of these systems. State-controlled VC in centralized agricultural marketing systems in developing and Communist countries was often motivated by political motives and by objectives to provide cheap food for urban markets, the maximization of foreign exchange earnings, the creation of rural employment, ascertaining the viability of certain businesses, etc. This is considered one of the primary causes of the inefficiency of the Soviet farming complex (Johnson and Brooks, 1983; Swinnen and Rozelle, 2006). Also in Africa, several studies conclude that state-controlled outgrower schemes were inefficient and poorly managed, which manifested itself, among other things, in low credit repayment rates (Warning and Key 2002).²

Liberalization, privatization, and the break-down of vertical coordination

This system of vertical coordination has undergone tremendous changes in the 1980s and the 1990s. In the transition world, the liberalization of exchange and prices, and the privatization of farms and enterprises caused the collapse of vertical coordination and caused major disruptions in the food chain.

The disruptions in relationships of farms with input suppliers and food companies also resulted in many farms facing serious constraints in accessing essential inputs (feed, fertilizer, seeds, capital, etc.). Also in many developing countries

¹ For example, the government marketing boards ADMARC in Malawi and NAMBOARD in Zambia provided seasonal inputs to peasant farmers deducting the value of the inputs from the payment made for marketed output at harvest time. Also parastatal cotton companies such as CMDT in Mali, SODECOTON in Cameroon and the Ghana Cotton Development Board in Ghana provided credit and inputs to cotton farmers (Poulton et al., 1998).

² Some studies also point at successful state-controlled VC. For example, Poulton et al. (1998) argue that some large government outgrower schemes in Malawi were successful in achieving very high repayment rates. Also the outgrower schemes of the Kenyan Tea Development Authority are referred to as a success story, which is attributed to its extensive form of VC (Bauman, 2000).

privatization and market liberalization led to the decline of input and credit supply to farms as it disrupted the working of various government-controlled agricultural institutions, cooperative unions and parastatal processing companies.³ As government marketing boards and cooperatives have ceased to play a major role in the procurement of agricultural produce, so has the provision of credit and agricultural inputs through state-controlled VC. In addition, market liberalization led to the removal of price supports and input subsidies, a reduction in government research and extension services, and a decline in government (subsidized) credit to the agricultural sector.

The emergence of private vertical coordination

However, following privatization and liberalization, new forms of VC have emerged and are growing (Swinnen, 2006; World Bank, 2005). These are no longer state-controlled but are introduced by private companies. Private traders, retailers, agribusinesses and food processing companies increasingly contract with farms and rural households to whom they provide inputs and services in return for guaranteed and quality supplies. This process of interlinked contracts is growing rapidly in the transition and developing world.

The emergence and spread of private VC is caused by the combination of, on the one hand, an increasing demand for products of high quality and safety standards with private sector investments and increasing consumer incomes and demands (both domestically and through trade) and, on the other hand, the problems which farms face to supply such products reliably, consistently and timely to processors and traders due to a variety of market imperfections and poor public institutions.

³ For example in Kenya, the economic reforms have led to the collapse of the National Cereals and Produce Marketing Board, the Cotton Lint and Seed Marketing Board, the Kenya Grain Growers Cooperative Union, etc. (IFAD, 2003).

Farmers in developing and transition countries face major constraints in realizing high-quality, consistent supplies. These include financial constraints as well as difficulties in input markets, lack of technical and managerial capacity etc. Specifically for high-standards products, farmers might lack the expertise and have no access to crucial inputs such as improved seeds. To guarantee consistent and quality supplies, traders and processors engage in VC to overcome farmers' constraints.

The importance of VC in developing and transition countries is further explained by the lack of efficient institutions and infrastructure to assure consistent, reliable, quality and timely supply through spot market arrangements. VC is in fact a private institutional response to the above described market constraints. To overcome problems of enforcement and constraints on quality supplies, private VC systems are set up by processors, traders, retailers and input suppliers.

Increasing consumer demand for quality and food safety is another driving force behind private VC in transition and developing countries. Investment by modern processors and retailers (supermarket chains) reinforces the need for supplying large and consistent volumes by their use of private standards and requirements of extensive supervision and control of production processes.

Emerging empirical evidence suggests that these new forms of private VC can be an engine of economic growth, rural development and poverty reduction. The next section presents evidence on its effects in transition and developing countries.

The importance of private vertical coordination

The importance of private VC is increasing in developing and transition countries. At the end of the 1990s, in the Czech Republic, Slovakia and Hungary, 80% of corporate farms sold crops on contract, and 60-85% sold animal products on contract

(Swinnen 2005). A survey of agri-food processors in five CIS countries found that food companies which used contracts with suppliers grew from slightly more than one-third in 1997 to almost three-quarters by 2003 (White and Gorton, 2004). There is also significant growth of supplier support measures – including credit, inputs, prompt payments, transportation, and quality control – as part of these contracts. Over 40% of processors in the CIS sample offer credit to at least some of the farms that supply them; and 36% offered inputs, in 2003.

In developing countries private VC is emerging and growing in many sectors. Traditional tropical export products (coffee, tea, cocoa, rubber and oil palm) are increasingly grown by smallholders under contract farming arrangements, often with the provision of inputs, new technologies, and credit and extension services to farmers. For example in Kenya, half to the coffee is produced by smallholders (Baumann, 2000). In South and Southeast Asia, there has been a sharp increase in VC, especially in animal farming and dairy processing (Gulati et al., 2005). In SSA, private VC has become a dominant system of rural financing. For example, in Mozambique and Zambia it is virtually the only source of finance for agricultural households (IFAD, 2003). Also in Latin-America, VC is widespread over many different agricultural commodities and includes various contractual arrangements ranging from purely marketing contracts to production contracts with provision of inputs, credit, technical assistance and marketing assistance (Dirven, 1996).

Effects of Private Vertical Coordination

The emergence of private VC is often mentioned as a new engine for economic growth, rural development and poverty reduction. In this section we summarize the

empirical evidence on the impact of VC in transition and developing countries. We distinguish between efficiency effects and equity effects.

Efficiency effects

The impact of private VC systems on productivity is difficult to quantify as several other factors affect output simultaneously and as company level information is difficult to obtain. Still, the evidence suggests that successful private VC has important positive effects, both direct and indirect.

The direct impact is on the output and productivity of the processing company that initiates vertical contracting and of its suppliers involved in VC schemes. Supplying farmers have experienced beneficial effects on output, productivity, and product quality – and ultimately on incomes – through better access to inputs, timely payments, and improved productivity with new investments. Case studies indicate that private VC programs can lead to strong growth in output, quality and productivity. For example, case studies of the sugar and dairy sectors in East Europe show how new private contracts and farm assistance programs caused output, yields, and investments to grow dramatically (Gow et al, 2000; Dries and Swinnen, 2004; Swinnen, 2006). A major IFPRI-FAO study finds that contract broiler farmers are significantly more efficient and produce higher profits than independent farms in the Philippines and Thailand (Gulati et al., 2005). Maertens and Swinnen (2006) find that the benefits from contract-farming in horticulture production in Senegal in terms of higher rural incomes are substantial. In the case of Polish dairy farms, milk quality rose rapidly following contract innovations by dairy processors in the mid 1990s. The share of the market held by highest quality milk increased from less than 30% on average in 1996 to around 80% on average in 2001 (Dries and Swinnen, 2004).

Indirect effects emerge through household and farm spillovers as households' risk reduces; their access to capital increases and the productivity of non-contracted activities increases. Next to farm assistance VC also implies guaranteed sales, often at guaranteed prices, which comes down to decreased marketing risk for farmers. Coordinating firms also share in the production risk of farmers through ex ante provision of inputs and credit. Moreover, credit arrangements and prompt cash payments after harvest in VC programs improves farmer's cash flow and access to capital. Reduced risks, improved income stability and access to capital are particularly important effects in the case of capital and insurance market imperfections. In addition, contract-farming can lead to productivity spillovers on other crops, resulting from management advice, access to improved technologies, better input use, etc.

A number of empirical studies provide evidence for these household spillover effects. For example, Gulati et al. (2005) show that there is significantly less variation in yields and prices during the year for contract broiler farmers in India. Henson (2004) shows that contracted vegetable farmers in Uganda benefit from reduced risk and improved access to credit. Another illustrative example comes from Minten et al. (2006) on the FFV sector in Madagascar. A large number of very small farms benefit from vegetable contract farming through more stable incomes, shorter lean periods, and technology and productivity spillovers on rice. There are a number of studies specifically examining the motivations of farmers to engage in contract-production. These show that guaranteed sales and prices, access to inputs and credit are the most important motivations rather than direct income effects (e.g. Maertens et al., 2006; Minten et al., 2006; Swinnen, 2005).

Equity Effects

There are two potential equity issues with VC processes. The first concerns the distribution of rents in vertically coordinated food supply chains. The second concerns the participation and exclusion of smallholders and poorer farmers in contract-farming.

Vertical coordination implies sharing risks, costs and benefits between the coordinating firm – mostly food processors, exporters and retail chains – and farmers / suppliers. By introducing an interlinked contract, farms can access credit, inputs, etc. which were unavailable before and processing companies can have access to higher quality and timely supplies. Productivity and therefore income increases for the supply chain as a whole. However, a key question is who benefits from this increase in efficiency and total income? If the supplier and the processor benefit, both parties share in the gains from the institutional innovation, and everybody is better off. However, if the processing firm can set the terms of the contract such that it captures most or all of the rents, the productivity growth may not benefit the farms; and interlinking may even bestow additional monopoly power upon the processing company. Contract-farming has often been criticized as being a tool for agro-industrial firms and food multinationals to exploit unequal power relationships with farmers and extract rents from the chain (Warning and Key, 2002). However, our review of empirical evidence on the effects of VC presented above indicates that farmers do share importantly in the benefits of contract-farming and VC.

The capacity of emerging VC in agri-food supply chains to serve as an engine of pro-poor economic growth critically depends on the types of farmers that are included in contract schemes. VC has the potential to affect the way income is distributed within a rural economy and can exacerbate existing patterns of economic stratification (Warning and Key, 2002). If agro-industrial firms prefer to contract with

wealthier farmers, then poorer households will be excluded from direct benefits. There are three important reasons why this might be so. First, transaction costs favour larger farms in supply chains. Second, when some amount of investment is needed in order to contract with or supply to the company, small farms are often more constrained in their financial means for making necessary investments. Third, small farms typically require more assistance from the company per unit of output.

However, there are also reasons why agro-industrial firms do contract with smallholders and poorer farmers. First, the most straightforward reason is that companies have no choice. In some cases, small farmers represent the vast majority of the potential supply base. Second, while processors may prefer to deal with large farms because of lower transaction costs in *e.g.* collection and administration, contract enforcement may be more problematic, and hence costly, with larger farms. Processors repeatedly emphasized that farms' willingness to learn and a professional attitude were more important than size in establishing fruitful farm-processor relationships. Third, in some cases small farms may have substantive cost advantages. This is particularly the case in labour intensive, high maintenance, production activities with relatively small economies of scale. Fourth, processors may prefer a mix of suppliers in order not to become too dependent on a few large suppliers.

Empirical observations show a very mixed picture of actual contracting, with much more small farms being contracted than predicted based on the arguments above. In fact, surveys in Poland, Romania and CIS find no evidence that small farmers have been excluded over the past six years in developing supply chains. In the CIS, the vast majority of companies have the same or more small suppliers in 2003 than in 1997 (Swinnen, 2006; World Bank, 2005). Also for the peanut sector in Senegal, no evidence was found for a bias in the participation of farmers in contract-schemes towards better-

off households (Warning and Key, 2002). Moreover, studies on the FFV export sector in Madagascar by Minten et al (2006) and in Senegal by Maertens et al. (2006) find that there are important effects on poverty reduction from vertical coordination in high-value supply chains.

References

- Bauman, P. 2000, Equity and Efficiency in Contract Farming Schemes: the Experience of Agricultural Tree Crops. Working Paper 139. Overseas Development Institute. London.
- Dirven, M., 1996. "Agroindustria y pequeña agricultura. Síntesis comparativa de distintas experiencias (LC/R.1663)" Santiago de Chile, CEPAL.
- Dries, L. and J. Swinnen, 2004, "Foreign Direct Investment, Vertical Integration and Local Suppliers: Evidence from the Polish Dairy Sector" *World Development*, 32(9), pp. 1525-1544
- Gow, H., D.H. Streeter, and J. Swinnen, 2000, "How private contract enforcement mechanisms can succeed where public institutions fail: the case of Juhocukor a.s.", *Agricultural Economics*, (23) 3: 253-265.
- Gulati, A, Minot N., Delgado, C and S. Bora, 2005. "Growth in High-Value Agriculture in Asia and the Emergence of Vertical Links with Farmers". Paper presented at the workshop *Linking Small-scale Producers to Markets: Old and New Challenges*, The World Bank, Washington D.C.
- Henson S.J., 2004 "National Laws, Regulations, and Institutional Capabilities for Standards Development." Paper prepared for World Bank training seminar on Standards and Trade, January 27-28, 2004. Washington, D.C.
- IFAD, 2003, Agricultural Marketing Companies as Sources of Smallholder Credit in Eastern and Southern Africa. Experiences, Insights and Potential Donor Role, Rome, December 2003

- Johnson, D.G. and K.M. Brooks (eds.). 1983. *Prospects for Soviet Agriculture in the 1980s*. Bloomington: Indiana University Press.
- Maertens, M., Dries, L., Dedehouanou F.A, and J.F.M. Swinnen, 2006. “High-value Global Supply Chains, EU Food Safety Policy and Smallholders in Developing Countries. A Case-study from the Green Bean Sector in Senegal” In: Swinnen, J.F.M (ed) *Global Supply Chains, Standards and the Poor*, CABI publishing.
- Maertens, M. and J.F.M. Swinnen, 2006 “Trade, Standards and Poverty: Evidence from Senegal” LICOS Discussion Paper 177/2006, Leuven, Belgium (<http://www.econ.kuleuven.be/LICOS/DP/dp.htm>)
- Minten, B., Randrianarison, L., Swinnen, J., 2006, “Global Retail Chains and Poor Farmers: Evidence from Madagascar”, LICOS Discussion Papers 164/2006, Leuven, Belgium (<http://www.econ.kuleuven.be/LICOS/DP/dp.htm>)
- Poulton et al.,1998. A New Institutional Economics Perspective on Current Policy Debates (eds) *Smallholder Cash Crop Production under Market Liberalisation: A New Institutional Economics Perspective*. CAB International, Oxon, pp. 56–112.
- Reardon, T. and J. Swinnen, 2004, “Agrifood Sector Liberalization and the Rise of Supermarkets in Former State-Controlled Economies: Comparison with Other Developing Countries”, *Development Policy Review* 22(4): 317-334
- Rozelle, S. and J. Swinnen, 2004, “Success and Failure of Reforms: Insights from Transition Agriculture”, *Journal of Economic Literature* 42(2): 404-56.
- Swinnen, J. (ed.), 2006a, *Global Supply Chains, Standards and the Poor*, CAB International Publishing.
- Swinnen, J. (ed.), 2006b, *The Dynamics of Vertical Coordination in Agrifood Chains in Eastern Europe and Central Asia: Case Studies*, The World Bank, Washington D.C.
- Warning M. and N. Key, 2002. The Social Performance and Distributional Impact of Contract Farming: An Equilibrium Analysis of the Arachide de Bouche Program in Senegal. *World Development*, 30(2): 255-263.

White, J. and M. Gorton, 2004, *Vertical Coordination in TC Agrifood Chains as an Engine of Private Sector Development: Implications for Policy and Bank Operations*, Worldbank, Washington DC.

World Bank, 2005, *The Dynamics of Vertical Coordination in Agrifood Chains in Eastern Europe and Central Asia. Implications for Policy Making and World Bank Operations*, The World Bank, Washington D.C.