The Dynamics of Vertical Coordination in ECA Agrifood Chains

Implications for Policy and World Bank Operations

Environmentally and Socially Sustainable Development Unit
Europe and Central Asia Region

THE WORLD BANK
Acknowledgment VII

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Acknowledgments

The main author of the report was Johan F. M. Swinnen. Background studies were prepared by Siemen van Berkum, John White, Matthew Gorton, Marc Sadler, Liesbeth Dries, E. Gataulina, V. Uzun, A. Petrikov, and Renate Yanbykh. The report made use of insights from other studies prepared by Tom Reardon, Hamish Gow, Daniele Giovanucci, Kees van der Meer, Steven Jaffee, Emmanuel Hidier, and Willi Meyers. William Sutton, Maria Amelina, and Maurizio Guadagni advised on the preparation of the study. Mark Ludwick, Karin Rosskopf, and Gail Lee provided editorial assistance.

Steven Jaffee, Richard Henry, Csaba Csaki, and Ali Mansoor reviewed the study proposal and the final report and provided very useful comments and suggestions. Rapeepun Jaisaard, Juergen Venema, Maria Amelina, Maurizio Guadagni, Iain Shuker, Kees van der Meer, Gotz Schreiber, Kym Anderson, and participants at seminars where the study findings were presented contributed with helpful comments at various stages of the project.

Finally, Benoit Blarel and Laura Tuck provided much appreciated encouragement and critical guidance throughout the duration of the study.
Vertical coordination (VC) in agrifood supply chains is an important and growing phenomenon in the transition countries of Europe and Central Asia (ECA). VC is more important and more widespread than generally recognized. These changes have significant implications for the role of public policy and for the World Bank. There is a need to explicitly integrate these VC developments into policy thinking and program strategies.

VC is more widespread in both scope and complexity in ECA than in Western economies. In the United States and Germany, around one-third of agricultural production is produced under contracts. However, VC in ECA differs significantly from rich and poor market economies. First, there is significant VC in sectors where we do not observe VC in other countries. Second, in sectors where VC exists in other countries, the forms of VC in transition countries are more extensive and complex. In the dairy and sugar sectors, extensive contracting arrangements have developed between processors and farms, including the provision of credit, investment loans, feed, inputs, extension services, bank loan guarantees, etc. In the cotton sector, gins typically contract farms to supply seed cotton and provide them with credit, seeds, fertilizer, etc. In fresh fruits and vegetables modern retail chains, quality and timeliness of delivery are required, along with developing supplier contracting with farm-assistance programs. In grains sector, there is strong vertical integration in Russia and Kazakhstan, where huge agroholdings produce a large share of the grain crop in some regions.

Private contractual initiatives have emerged to overcome disruptions of supply and poor public institutions for governing exchange. The privatization and restructuring of the agrifood chain caused major disruptions. Widespread contracting problems were long payment delays or
nonpayments for delivered products, causing drains on cash flow and constraints in accessing inputs and selling products. At the same time, food processing companies have problems obtaining quality supplies. The problems are worsened by the lack of public institutions necessary to support market-based transactions, such as for enforcing property rights and contracts.

**Traders, agribusinesses, and food companies contract with farms and provide inputs and assistance in return for guaranteed and quality supplies.** Successful vertical contracting typically includes conditions for product delivery, prompt payments, and farm-assistance programs for suppliers. Farm assistance can include input supply programs, investment assistance, trade credit, bank loan guarantees, extension and management advisory services, etc.

The search for quality is a key engine of VC. The shortage of quality supply, which is typical of transition countries, induces VC and spillover effects through farm support packages. The issue of quality has both efficiency and equity implications. Farms get a higher price for quality, but quality controls are not always transparent. Quality controls by independent institutions have both efficiency and equity benefits.

**Contracting requires access to finance.** Initiators of contracting with supplier assistance include foreign investors who can access international financial markets, companies who are investing profits from other sectors in the agrifood sector (e.g., financial-industrial groups [FIGs] in Russia), processors or traders who have liquidity by selling on international markets (e.g., grain traders in Kazakhstan), and processors who have contracts with international companies (e.g., cotton gins in Central Asia).

**Enforcement is an important problem.** Enforcement is problematic where public enforcement institutions are absent. Trust is also often lacking as a base for business exchanges in many transition countries. Companies try to create self-enforcing contracts by designing the terms of the contracts such that nobody has an incentive to breach the contract. They also try to enforce contracts by interlinking markets. The enforcement of the credit transaction (loan and repayment) occurs through the output market. However, there are many cases where enforcement failed. Even in successful cases it took considerable fine-tuning of the contracts or adjustments as circumstances changed. Creating the right conditions for successful and self-enforcing contracting requires extensive knowledge of the sector and of local conditions.

**Vertical coordination differs by the stage of transition.** In early stages, VC focuses on securing supplies by overcoming basic supply problems such as input (feed, seeds, etc.) and credit (working capital) constraints. An
important component of the early contracts is prompt payments. This is the case in some cotton supply chains in Central Asia and in emerging dairy and fruits and vegetables supply chains in countries such as Romania and the Caucasus. In more advanced situations, there is more emphasis on product quality. For this more sophisticated forms of VC are used, such as extension services and farm-level investments in technology and equipment, leasing, bank loan guarantees, investment assistance, etc. These programs require more complex implementation and enforcement systems.

**Contract forms reflect different constraints faced by farms.** For example, the dominant contract motivation for farms in Central Europe is guaranteed access to markets. The motivation for Central Asian cotton farmers is access to finance as credit constraints are most important.

**Successful vertical contracting has important positive effects, both direct and indirect.** The direct impact is on increased output and productivity of the processing company that initiates vertical contracting. Indirectly, contract support measures have positive effects on farm productivity and product quality. Measures with the greatest impact on yields were specialist storage (cooling equipment in dairy), veterinary support, and physical inputs. Prompt payments, guaranteed prices, and market access also had large positive effects. Quality of output improved strongly in response to specific programs. Direct loans and loan guarantee programs stimulated farm investments. Programs that assist farms in accessing inputs (mainly feed) enhance investment indirectly by lowering input costs, or reducing transaction costs in accessing inputs, improving profitability.

**Horizontal spillovers** occur as firms compete for suppliers and have to offer similar contractual arrangements. This has resulted in contractual convergence. Contractual spillovers are not limited to the same sector. Firms in adjacent commodity sectors, competing for the same farm resources, are sometimes forced to offer similar contractual arrangements that have led to similar results.

**Not all examples of VC are successful.** In particular, where governments are heavily and actively involved in the management of the vertical integration, the effects are dubious at best. In cotton supply chains in Central Asia where the government has allowed private gins to develop and to compete, such as in Kyrgyzstan and Kazakhstan, farms have benefited from VC, with relatively high prices and strong cotton growth. In Tajikistan and Uzbekistan, where governments actively control input supplies, production, processing, and marketing of cotton, VC resulted in major rent extraction of cotton farms, with depressed prices and stagnating cotton production.

In Russia, the government-led re-creation of huge agroholdings has contributed not only to more inputs for farms and strong growth in output and
yields, but also to poor financial results and substantial debts. Profits are worse than on nonintegrated farms. A key problem is the authorities’ interference with production plans and with decisions relating to which activities (and companies) should be maintained by a holding, sometimes imposing unprofitable activities and companies on the holding.

**Competition spreads equity and efficiency benefits.** Competition is very important in supply chains for equity and efficiency. First, competition induces VC spillover effects across the sector as other processors are forced to introduce similar supplier-assistance programs since suppliers may not want to deliver unless they get similar conditions. Second, competition prevents processing companies or input suppliers from exercising monopoly power in setting contract conditions with farms. Competition among cotton gins in Kazakhstan allowed small suppliers to get better conditions by changing gins, induced investment by gins in local cotton seed collection centers reducing farm transport costs, and lead to better prices.

**Foreign direct investment (FDI) drives successful contracting and supplier-assistance programs.** It is an initiator of change and institutional innovation. More sophisticated forms of vertical integration, with a greater emphasis on quality and standards, are often introduced by foreign companies because they tend to pay greater attention to quality standards. But we also find that spillover effects lead to convergence as domestic companies start copying the management practices of foreign affiliates.

A concern is that vertical coordination will exclude many farmers, in particular small farmers. First, transaction costs favor larger farms in supply chains. Second, small farms are more constrained for making necessary investments. Third, small farms typically require more assistance per unit of output. Therefore, companies prefer working with relatively fewer, larger, and more modern suppliers.

In reality, companies work with surprisingly large numbers of suppliers and of surprisingly small size. There are several reasons. Companies may have no choice if small farmers represent most of the supply base. Contract enforcement may be more problematic with larger farms. Farms’ willingness to learn and attitude are more important than size in farm-processor relationships. Small farms may have cost advantages in labor-intensive production activities. Processors may prefer a mix of suppliers. Cooperatives are more likely to work with small farms than corporate companies, either domestic or foreign.

**The farm assistance paradox.** Small poor farms may be best off (in the perspective of “supply-chain-driven development”) if they are in an environment that is dominated by small poor farms. If small farmers must depend on farm assistance packages to make necessary upgrades, then it...
will be a problem if sufficient (quality) supplies are available because the processor is unlikely to come up with VC packages.

ECA is a “supplier market,” for now. The collapse of farm output and livestock numbers created a gap between processing capacity and supply: hence there is excess demand based on processing capacity, especially for high quality. This makes it a “suppliers market” in most of ECA and this supports the farms’ bargaining position in the supply chain. However, an increase in competition among suppliers may lead to a consolidation of the supplier base. Supplier-assistance programs sometimes discriminate between farms with the focus of upgrading the better farms and ensuring a minimal supply base and quality from the rest as long as it is required. Hence, those who are concerned about the inclusion of small farms should not be complacent despite the observations of significant contracting with small suppliers right now.

Private vs. public: image and reality. The public policy debate (explicitly or implicitly) frames the issue of vertical integration and small farms in terms of how public policy can prevent (small) farms from being exploited by large, sometimes multinational, agribusinesses in their contractual relationships. However, reality suggests a much more nuanced picture. First, while profits are their primary concern for all agribusinesses, this does not seem to lead to exploitation of farms. In cases where sufficient competition exists there is more evidence that producers benefit from VC than that they are exploited. Second, farm exploitation resulted from governments either controlling input supplies and marketing or where authorities colluded with a private company, allowing and predating on the rent extraction by the private company in the cotton sectors of Tajikistan and Uzbekistan. Third, an important constraint on enterprise development in some countries is rent extraction by local governments, e.g., through taxation and ad hoc regulations. Only large corporations can withstand pressures from local authorities. This leads to a paradoxical situation that farms need to be large to withstand public pressures. Fourth, private supplier assistance schemes reach small farms that are left out of government programs. For them, the only source of credit and finance is supplier credit.

Implications for government policy and World Bank operations. The most important policy implication of this study is the recognition of the importance of the VC phenomena in ECA agrifood chains and the need to explicitly integrate these developments into policy thinking and program strategies. A government strategy to stimulate domestic growth in a supply-chain-driven development process while ensuring the inclusion of farms which face major constraints in this process, and an equitable distribution of rents in the chain, should include several policy components.
Enabling and Stimulating Vertical Coordination

- Create the right conditions for stimulating investment. A poor policy environment has a negative effect on investments in the agrifood industry and on VC programs. As such it constrains the beneficial effects of VC.

- Ensure macroeconomic stability, a key condition for investments and for supplier-assistance programs or chain-based finance. Since VC is importantly a financial activity, instability may undermine contract enforcement.

- Refrain from direct intervention: bad policies are worse than bad weather. Direct government intervention in the supply chains may crowd out alternative financing systems or cause defaults. Companies are willing to incorporate temporary VC defaults due to unforeseen shocks such as the weather but not systemic risks due to government interventions.

Improving Efficiency, Transparency, and Equity in Vertical Coordination

- Reduce transaction costs. The disadvantage of small suppliers is mostly due to transaction costs. Reducing transaction costs can be done in several ways:
  - Lower transport costs through improvements of rural infrastructure. Rural infrastructure is a serious constraint on VC, and particularly for integrating small producers in remote areas.
  - Reduce the number of transactions by investing in intermediary institutions. Intermediary institutions reduce the cost of exchange between farm and processor/input supplier. Invest in farm associations and collection points.
  - Investment in farmers associations has several advantages, such as reducing transaction costs, enhancing suppliers bargaining position vis-à-vis suppliers and governments, and improving information distribution.
  - Enforce competition. Competition in the supply chain is important for efficiency and equity. Competition induces more supplier-assistance programs and constrains rent extraction. Competition should be enforced through both domestic policies (e.g., competition policies, lower barriers of entry) as well as external policies (e.g., liberal trade policies).

- Stimulate and certify quality and safety standards and invest in projects, institutions, and technical assistance stimulating higher quality. Modern supply chains are based on quality. Preparing suppliers for quality-driven markets will make it easier for them to be integrated in the chains.
Empowering farmers is needed to strengthen their position in the chain and vis-à-vis governments in bargaining for better contract deals, better policies, etc. Policies include stimulating farmers associations, investing in quality control institutions, competition and trade policy, etc. Additional programs are to: invest in institutions to assist farms with contract negotiations and dispute settlements, invest in institutions for (independent) quality and safety control and certification, and encourage alternatives in input and output markets.

Rethinking the Role of the Government and Policy-Making

- **Policy analysis and information gathering.** Policy analysis is complicated by the emergence of VC. Traditional instruments of information collection do not include information on VC.
- **Rethinking traditional public investments.** Traditional areas of public investment such as research and extension, market information systems, veterinary services, and animal surveillance programs need to take into account the role that VC plays in these areas.
- **Public-private partnerships: consider supply chains part of the solution, not the problem.** Focus on collaborations between public authorities, non-governmental organizations, and private companies.
- **Innovative finance instruments.** Chain-based financing instruments can be very successful. Focus on innovations that use the supply chain as a structural aspect of the financing problem, while being critical on which role international organizations and the government should play.
- **Supply-chain development as part of a wider rural development strategy.** Countries with many small farmers are typically characterized by overemployment in agriculture. Integration of the farms in modern supply chains cannot solve all structural problems. Supply-chain development models, even inclusive ones, can be only one part of a broader development strategy.