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Long-term sustainability of third-party facilitated market linkages: Evidence from the USDA marketing assistance program in the Armenian dairy industry

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ABSTRACT

Public–private partnerships are increasingly seen as an important tool to build agri-food supply chains and develop markets for agri-food products in emerging economies. However, many of these initiatives fail when the public component of the program ends. One exception is the USDA Market Assistance Program (MAP) that facilitated the redevelopment of the Armenian dairy sector after privatization. This paper presents a case study of this initiative and hypothesize that the USDA MAP facilitated farmer investment in private enforcement capital. This investment resulted in sustainable market relationships between farmers and dairy processors even after the USDA MAP expired. We find empirical evidence to support this hypothesis using a panel dataset collected from 172 Armenian dairy farmers in 2004 and 2009.

Introduction

The agribusiness and development literature has clearly delineated the role of third-party external facilitation in creating market linkages through the provision of various assistance programs (Glover and Kusterer, 1990; Kirsten and Sartorius, 2002; Porter and Phillips-Howard, 1997; Shepherd, 2007; World Bank, 2007). One of the conclusions of this literature is that the withdrawal of third-party assistance very often results in a collapse of market linkages. Among the main reasons identified for the high failure rate of these initiatives are: inappropriate business models, artificial incentive structures, and inadequate contract enforcement mechanisms (Shepherd, 2007).

Recent empirical evidence from Central and Eastern European (CEE) countries shows that foreign direct investment (FDI) and entry of multinational enterprises (MNE) provided sufficient capital and reputation to establish private contract enforcement mechanisms and ensure productive contractual relationships between agri-food producers and processors, compensating for weak public enforcement (Gow and Swinnen, 2001, 1998; Dries and Swinnen, 2004; Noev et al., 2009; Dries and Swinnen, 2010; Dries et al., 2011). However, the FDI and MNE's are not present in many countries due to reasons such as unstable political–legal environments, an unattractive domestic market, and high transaction costs associated with local procurement (Busse and Hefeker, 2007).

This paper attempts to bridge the gap between these two bodies of literature by providing a mixed methods examination of a third-party market facilitation program that promoted investment in private enforcement capital in order to achieve sustainable market linkages in an agri-food supply chain after the end of their assistance program. It is grounded by a unique case study of the USDA Marketing Assistance Program (MAP) in the Armenian dairy industry. We use a qualitative case study and an empirical analysis to examine the effect of private enforcement mechanisms on the long-term sustainability of third-party facilitated linkages between producers and processors in the Armenian dairy sector during the transition period.

Interest in this question is motivated from several perspectives. At the food policy level, a better understanding of the role that private enforcement mechanisms play in improving the long-term sustainability of third-party facilitated supply chain linkages will assist in designing future policies and programs that are more effective in linking producers to the market. From a theoretical perspective, this study explores the predictive value of the probabilistic hold-up framework that was introduced by Klein (1996), and

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extended by Gow et al. (2000). This framework has been used to explain the underlying mechanisms that facilitate long-term contractual relationships (Klein, 1996; Gow et al., 2000). According to the hold-up framework, economic exchanges may be sustained by investments in private enforcement capital. Investments in private enforcement capital increase the self-enforcing range of contractual arrangements by increasing the costs of a contractual hold-up or breached contract. The level of private enforcement capital, and thus the size of the self-enforcing range of the contract, is a function of the value of relationship-specific assets in the transaction and the reputation of the transacting parties in the marketplace (Klein, 1996). Supported by a case analysis, it is hypothesized that the third-party facilitation strategy pursued by the USDA MAP influenced investment in private enforcement capital by dairy farmers and processors, and ultimately led to the creation of sustainable market linkages along the Armenian dairy supply chain. The study provides an empirical test of this hypothesis.

The data for testing our hypothesis was collected from two surveys of Armenian farmers conducted in 2004 and 2009, respectively. The dataset consists of balanced panel data with 344 total observations on milk production, marketing, and household characteristics of 172 dairy farms before (i.e. 2004) and after (i.e. 2009) the end of the USDA MAP facilitation. The long-term sustainability of the USDA MAP facilitated market linkages is examined by comparing the magnitude of farm-level investments in relationship-specific assets during and after the USDA MAP facilitation process. In this study, the difference in the percentage growth in number of dairy cows on farms in the formal (i.e. facilitated by the USDA MAP) and informal milk marketing channels during these two periods is used as a measure of the sustainability of the market linkages. A fixed effects estimation method is used to test our hypothesis that the USDA MAP facilitation process led to sustainable relationships between dairy producers and processors (i.e. the formal marketing channel) in Armenia through promotion of private enforcement capital investment.

The reminder of the paper is organized as follows. Section 2 further discusses the conceptual framework used in this paper. Section 3 provides a description of the case study including background information on the Armenian dairy sector during the transition period and USDA MAP's strategy for facilitating the development of the Armenian dairy supply chain. We further apply the conceptual framework outlined in Section 2 to develop the research hypothesis to be examined in this paper. Section 4 describes the data for testing the hypothesis, and the econometric methods used in the analysis. Section 5 reports and discusses the results of our analysis; and finally, Section 6 provides conclusions and implications for further research.

Theoretical framework

The conceptual framework used in this paper is based on a third-party facilitation model developed by Shanoyan (2011) and adapted from the contractual hold-up models introduced by Klein (1996) and Gow et al. (2000). Contractual hold-ups occur when the presence of relationship-specific assets give rise to potential quasi-rents in an economic exchange. Quasi-rents are profit opportunities equal to the difference between the value of the asset in its intended use and its second best alternative use (Klein, Crawford, and Alchian, 1978). Opportunistic transacting parties can be expected to extract that quasi-rent from trading partners that have invested in specific assets when *ex-post* shifts in market conditions make it profitable for them to do so. In other words, opportunistic trading parties will find it profitable to threaten to hold-up their trading partner (i.e. terminate a contract or renegotiate more favorable contract terms) when the loss of the quasi-rent to the trading partner is greater than their loss from accepting less favorable contract terms.

As Klein (1996) explains the potential for a contractual hold-up to occur is affected by changes in market conditions which alter the possible gains that may be achieved from breaching the terms of a contract. According to the Klein model, as long as the relationship remains within the self-enforcing range, where each party's potential gains from a hold-up are less than the costs that will be incurred from breaching the contract, a hold-up threat is not credible and is unlikely to occur (Klein 1996).

It has been shown that the presence of sufficient private enforcement capital can expand the self-enforcing range to reduce the probability of hold-up and lead to improved efficiency and reliability of business relationships (Klein, 1996; Gow et al., 2000).[1] Private enforcement capital is defined as the expected value that a firm would lose if a contractual relationship were to be terminated as a result of a hold-up. This value includes: (1) the discounted value of the future cash flows lost, plus (2) the additional costs imposed on a firm's future transactions due to reputational damage (Klein, 1996; Gow and Swinnen, 2001). Private enforcement capital, therefore, increases the self-enforcing range of the contract by increasing the costs of a hold-up relative to the benefits that may be obtained. In other words, the greater the magnitude of private enforcement capital in a contractual relationship between transacting parties, the less likely a party can credibly threaten to hold-up the contract, and thus, the greater the sustainability of the economic exchange. Shanoyan (2011) extends this model for the analysis of third-party facilitation of self-enforcing supply chain relationships. He shows that an increase in self-enforcing range can be facilitated by a third-party through market development programs that stimulate investments in and rearrange private enforcement capital (Shanoyan, 2011).

Case study: the Armenian dairy sector during transition and the USDA market assistance program

Transition in Armenian agriculture and the impact on the Armenian dairy industry

Due to series of shocks during the early 90s, Armenia faced one of the most difficult economic and social transitions of all the former Soviet Republics (World Bank, 2001). During this period, the Armenian economy was characterized by widespread poverty and financial distress with Armenian GDP dropping by 60% between 1991 and 1993 (FAO, 2000). One of the shocks that occurred was the privatization of the country's agricultural holdings. In 1991, ownership and control of agricultural production units were handed over to 300,000 inexperienced and resource constrained household farmers, and in 1995–1996, the agro-processing sector was privatized through restitution to employees or direct sales to local buyers (FAO, 2000).

As a result of these initiatives, the Armenian dairy sector had collapsed by the mid 1990s (World Bank, 1995). The government-controlled dairy supply chain had been dissolved and the sector was characterized by management that was ill-adapted to a market system, limited availability of financial capital, poor food safety practices, and a weak legal enforcement system. At the processor level, the failure to establish adequate procurement relationships with farmers left dairy processors with a supply of poor quality of milk that arrived in inconsistent quantities. These problems forced many dairy processors to either cease operations or to severely reduce output, and as a consequence, the utilized

[1] For more detailed description of the probabilistic hold-up model readers are referred to Klein (1996) and Gow et al. (2000).