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Transaction Costs, Institutional Arrangements and Inequality Outcomes: Potato Marketing by Small Producers in Rural Peru

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Summary. — We explore the distributional effects of lowering transaction costs to allow access to improved market opportunities for small farmers in the Peruvian Highlands. We find that when new marketing opportunities arise, those that have more land, are better educated and are well organized are able to deal with the complexities that the new contractual arrangements entail. Although this on average implies an increase in net income for small farmers, it also affects the distribution of earnings, generating a more polarized small farmer economy. To counteract this effect and reduce inequality in the opportunities of less endowed small farmers, complementary policies need to be put in place.

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1. INTRODUCTION

Peruvian national statistics indicate that the country has enjoyed sustained economic expansion in recent times (annual growth averaging over 5% during the last 15 years). However, this growth has not been accompanied by a substantial reduction in poverty, especially in rural areas. Further, within rural areas, growth-to-poverty elasticities are substantially higher in the better endowed coastal areas and lower in the highlands where poverty conditions affect two of every three inhabitants.

Although structural reforms and sound macroeconomic policies have improved prospects for long term growth in Peru, there is an urgent need for complementary policies to assure that growth will not enhance the already acute disparities in endowments, opportunities, and income that Peru has. Expanding local demand and increasing exports has open opportunities for new forms of contracting that link small farmers to rapidly increasing markets. These agroindustrial markets offer higher returns to small farmer's investments in comparison to traditional markets. However is not easy for poor farmers to overcome the transaction costs that these more complex markets entail. In mountainous areas, where access to public infrastructure (i.e., electricity, roads, telecommunication, etc.) is low, the transportation and transaction costs to reach regional and national markets are high. This may be one important reason why expansion in aggregate demand has not helped much to connect the small producers in the country's mountainous areas with more profitable markets.

In this context, the need to integrate small, poor producers into agroindustrial markets is quite pressing. One important question here is what constraints must small farmers overcome for this to come about? To address this question, this study draws on information provided by a sample of small potato producers from the Mantaro Valley in the rural highlands of Peru who sell to markets of differing complexity. In particular, we contrast the costs and benefits of selling potatoes to the industry to process them into chips, vis-à-vis selling potatoes to the traditional markets for direct consumption.¹ Although the chip market is very dynamic, in the sense that demand for potatoes is rapidly growing and prices growers receive for the

varieties that go into this market are much higher than the prices they received for traditional varieties, this market demands specific skills, fixed investments, and higher working capital that may constitute barriers to entry for the less endowed small farmers. Given the characteristics of the market for processed potatoes (very few firms with important local bargaining power) it is not surprising that the marketing channel decision and the decision around the adoption of the new potato variety needed to access this market are necessarily subordinated to the capacity of the farmers to establish some contractual relationship with the industry.

Focusing on the first segment of the marketing chain (farmer to industry), this paper provides evidence that some small farmers can overcome the barriers to produce and sell to this agroindustrial market. However, we also show that not everybody can access this new market opportunity. We show that high transaction costs can operate as an exclusion mechanism, restricting access to agroindustrial markets of the poorest farmers, generating unintended distributional outcomes.

The paper is organized as follows. In Section 2 we give a brief account of the literature around how transaction costs shape the capabilities of producers to engage in new and more profitable income opportunities. We also show how these transaction costs can be linked with how these gains are distributed among producers. To the best of our knowledge, this is the first empirical research that explores this link. Section 3 describes the area under study and the survey conducted. Next, in Section 4 we use this survey and secondary information to characterize potato marketing in the Mantaro Valley. Section 5 presents the relative net benefits of accessing agroindustrial and traditional markets and constructs a

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counterfactual scenario to explore the distributional impact of gaining access to more complex albeit more profitable markets. Finally Section 6 summarizes the findings and discusses complementary policies that may be needed to enhance equality of opportunities for a larger portion of small farmers in rural Peru.

2. BRIEF LITERATURE REVIEW

As agricultural products become more specialized, there is an increasing need for coordination along the value chain. As Sykuta and James (2004) and Menard and Valceschini (2005) highlight, under these circumstances transactions usually shift from traditional spot markets to more complex contractual or hierarchical arrangements.

A large body of empirical literature discusses the effects of transaction costs on the choice of marketing channels or the type of contracting arrangements that should be expected. Macher and Richman (2008) provide an overview of this literature with emphasis on marketing, finance, law, and political science. For agriculture economics, Masten (2000) reviews a number of cases studies that highlight the fact that locational and temporal specificities play an important role in shaping agricultural transactions. In particular, perishability generates contractual hazards that shape governance structures while geographical disparities between contracting parties generates coordination problems. The work of Boerner and Macher (2002) and to a lesser extent that of Macher and Richman (2008) presents a number of empirical papers that address the determinants of choosing different governance structure in agricultural marketing.

Taking into consideration that backward integration from processors into farming generates incentive problems for farmers and poses high supervision costs; and forward integration out of farms into processing is impossible in most situations due the inability of an individual farm to achieve the efficient scale, the room for alternative governance structures clearly exists. Collective organizations could fill that space, developing forward integration from production into processing and distribution (Williamson, 2003). Nongovernmental organizations (NGOs) may also fill that space and, under certain circumstances, may be considered the most efficient governance structure.

Hudson and Lusk (2004) show that both risk and transactions cost play a role in contracting decisions in agriculture. As the uncertainties affecting specific types of transactions increase, spot market becomes increasingly costly. Under this circumstance contractual arrangements that incorporate contingency contracting may be preferable (Cook, Iliopoulos, & Chaddad 2004). The literature on contract farming has shown the potential positive impact of this governance structure on small farmer incomes and their capacity to innovate when market failures are substantive (Key & Runsten, 1999). Contract farming can improve the linkages of small farmers with agroindustrial markets allowing them to get technical assistance, credit, or access to key inputs (Glover 1984; Goldsmith, 1985; Morrissey, 1974).

Hobbs (1997) studies the supply channel of the meat processors industry of the UK and shows that transaction costs (specifically monitoring costs) are an important factor to determine the governance structure and particularly the choice of vertical coordination. Jaffee (1992) and Masten (2000) show that in context where high asset specificity, high uncertainty, or noncompetitive markets prevail, vertical integration through direct planting or contract farming should develop.

Verhaegen and Van Huylenbroeck (2001) show how transaction costs are critical to understand the farmer's likelihood of switching from a common to an innovative marketing channel in Belgium. Contractual relationships that reduce uncertainties are shown as critical to induce farmers into these agroindustrial markets. As Schejtman (1998) has shown, contractual arrangements can help to by-pass imperfect markets and the lack of assets that small-scale farmers face.

Contract farming, however, can also generate undesirable outcomes. Possible negative effects may include market segmentation and exclusion (Glover & Kusterer, 1990; Little & Watts, 1994). Wu (2006), in the context of agriculture contracting, identifies at the theoretical level how inefficiencies associated with contractual arrangements—specifically, ways in which incomplete contracts can lead to sub-investment at the prior stage, or trigger rent-seeking behavior at the later stage at the expense of the farmer, who tends to be the weak party in the marketing chain.

As contractual inefficiencies in a market increases transaction costs, they may discourage farmers from entering that market. de Janvry, Fafchamps, and Sadoulet (1991) shows that many rural households avoid certain agricultural markets because of the existence of high transaction costs. The likelihood of overcoming such transaction costs may be affected by human capital constraints, physical and social factors – including capabilities for collective action, and the characteristics of the commercial relationships typical of each market.

Fixed transaction costs—those that are invariant to the quantity of the good traded—may be critical in determining the distributional impact of small farmer contracting opportunities. The importance of fixed as opposed as variable transaction costs has been highlighted as an important factor that explains also affect farmer's decision to participate in markets. Goetz (1992) has estimated a switching regression model in the context of buying, selling, or staying autarchic in the coarse grain markets in Sub-Saharan Africa showing that the higher the transaction costs the less likely that farmer will engage in market transactions. Key, Sadoulet, and Janvry (2000) has also shown that if some of the transactions costs are fixed, there are discontinuities in responding to market incentives. The implication of these results is that those that are not able to surmount these transaction costs may not participate in the market. Clearly high transaction cost can operate as an exclusion mechanism, affecting poorest farmers the most.

Chong and Calderon (2000) argue that an institutional reform may impose high transaction costs on the poorest and consequently may generate unintended distributional outcomes. As de Janvry and Sadoulet (2005) indicate, the fact that the poor have limited access to productive assets and they operate in unfavorable contexts where high levels of risk aversion and credit market failures prevail is not surprising that poverty is hard to escape. Guiso, Jappelli, and Terlizzese (1996) will indicate that if there are transaction costs needed for engaging in a more profitable activity, uninsurable income risk in the presence of credit constraints will induce individuals to keep a lower proportion of their wealth in the form risky assets. Fafchamps and Pender (1997) further show that under credit constraints uncertainty will further deter poor farmers from investing in more profitable albeit more risky options.

Despite the fact that the literature clearly shows that high transaction costs can deter poor farmers from entering more complex but at the same time more profitable agricultural markets, the literature has not provide empirical evidence on how contract farming under these circumstances—and without complementary interventions—may polarize a small farmer economy. This paper tries to overcome this deficiency by

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