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Market Institutions: Enhancing the Value of Rural-Urban Links

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Abstract

This paper examines how market institutions can affect links between urban and rural areas with specific emphasis on goods market integration in the national context. Traditionally, development researchers and practitioners have focused either on rural market development or on urban market development without considering the interdependencies and synergies between the two. However, more than ever before, emerging local and global patterns such as the modern food value-chain led by supermarkets and food processors, rapid urbanization, changes in dietary composition, and enhanced information and communication technologies point to the need to pay close attention to the role of markets both in linking rural areas with intermediate cities and market towns and promotion of economic development and poverty reduction.

This paper begins with a presentation of a conceptual framework of market integration and then identifies five major factors that increase the transfer costs that subsequently hinder market integration between rural and urban areas: information asymmetry, transaction costs, transport and communication costs, policy induced barriers, and social and noneconomic factors. Five specific cases in five developing countries are examined in this study to demonstrate the primary sources of transfer costs and the aspects of market institutions that are important to market integration and promotion of rural-urban linkages.

While emerging institutions such as modern intermediaries linked to supermarkets and food processors can reduce information asymmetries between rural producers and urban consumers, existing institutions such as producers' cooperatives can pool the risks, increase the bargaining power of small producers, reduce enforcement costs, and thereby reduce transaction costs. In addition, new types of partnerships between businesses and NGOs, and between public and private sectors, can improve infrastructure provision which, in turn, can reduce transport and communication costs. To the contrary, the presence of inappropriate policies or noneconomic factors such as those that involve social exclusion take on a negative role in linking urban and rural markets.

Key words: market, institution, value, urban, rural, Bangladesh, Ethiopia, Indonesia, Kenya, Peru

Contents

Tables

Appendix Table

Figures

Acknowledgments

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1. Introduction

The relative emphasis placed on rural versus urban areas in the development policies of developing countries has shown considerable variation over time. Generally, these development strategies have addressed either urban or rural areas rather than the interdependencies between the two. This situation is very well known in the literature of rural-urban linkages as the "rural-urban divide." Recently, however, there is a growing recognition of the importance of focusing on the mutual interdependencies, rather than the "separateness," of rural and urban areas because the livelihoods of rural and urban households rely on both "rural-based" and "urban-based" resources as well as the exchanges between the two areas.[1]

Emerging local and global patterns such as increased urbanization, agro-industrialization, and the rise of supermarkets and globalization also favor the synergy rather than the division between rural and urban areas. For instance, rapid urbanization necessitates improving rural-urban linkages in order to assure an adequate food supply at affordable prices. On the other hand, rural markets may also serve as outlets for goods produced in urban areas and abroad and link rural consumers with national and international markets. This implies that in the absence of strong rural-urban linkages, urban areas might face food shortages and rural areas might be left out of globalization. The emergence of new institutions such as the rapid rise of supermarkets in developing countries also requires major changes in food supply chains and stronger rural-urban linkages (Dries, Reardon, and Swinnen 2004; Hu et al. 2004; Weatherspoon and Reardon 2003; Reardon and Berdegue 2002).

In general, there are two important types of interactions between rural and urban areas (Tacoli 1998). The first one involves the spatial interactions that take place between urban and rural areas. These include the flows of people, goods, money, information, and wastes. The second type of interaction is concerned with a sectoral

[1] For recent reviews and further discussion, see Ashley and Maxwell 2001; Douglass 1998; Ellis and Biggs 2001; de Janvry, Murgai, and Sadoulet 2002; Start 2001; Tacoli 1998.

interaction, including traditionally "rural" activities taking place in urban and peri-urban areas (such as agriculture) and traditionally "urban" activities (such as manufacturing and services) taking place in rural areas.

Different markets, such as goods, factor, and financial markets, link rural and urban areas. Thus, the efficiency and effectiveness of infrastructure and market and nonmarket institutions are important in linking rural and urban areas.[2] Key research questions, then, include: What are the critical infrastructural and institutional barriers to greater links between urban and rural areas? What are the policy and program interventions needed to create infrastructure and to facilitate or strengthen institutions to forge dynamic links between businesses, sectors, and geographic areas?

This study focuses on how institutions promote or inhibit market exchanges for goods, a key link between urban and rural areas. After providing a review of the concepts on how certain institutional barriers prevent trade, a number of case studies are presented to provide real-world illustrations of how institutions work, or do not, to overcome these barriers and connect urban and rural areas.

The paper is organized as follows. The next section, Section 2, develops a conceptual framework for understanding spatial relationships between rural, intermediate towns and cities, and metropolitan areas in goods markets. Section 3 describes specific factors affecting the functioning of goods markets and their effects on rural-urban linkages. In Section 4, the study presents some developing-country examples of ways to address these factors when they present barriers to the efficient and effective functioning of the links in goods markets. Section 5 discusses lessons and policy alternatives that may address these factors and improve the benefits of urban-rural linkages.

[2] We adopt an inclusive view in which institutions are defined as the structure of relations between individuals within the system of market interactions and in which the players include producers, consumers, and the state. As well as the players, this definition includes the rules of the game (relations between the players). Nonmarket institutions are institutions created by societies where markets fail, to correct the resulting inefficiencies.

2. Spatial Rural-Urban Linkages: A Conceptual Framework

The literature on market integration and institutions is useful for analyzing the goods-market links between urban and rural areas. In a simplistic, yet nevertheless useful, way for highlighting issues surrounding market integration and trade, we assume that within the national context there are two areas: one is called "rural" and the other is called "urban." They are characterized by different factor endowments. Hence trade is beneficial between them since this can lead to gains linked to trade and specialization. However, the two areas are divided due to some exogenous factors.[3]

Though goods and factors can move from one area to the other, such movements involve costs. Such costs may be information costs, transport costs, or policy-induced costs.[4] Such costs may be the result of noneconomic or historical factors, or both. We will label all such costs under the general rubric of transfer costs[5] since all such costs involve the *transfer* of goods from one place to the other.

The spatial competitive model (SPE), a conceptual model used to analyze trade, helps to understand the role of these transfer costs in connecting rural and urban spaces. In the SPE, the quantities of goods supplied and demanded, the direction of trade flows, and prices are determined in a way that maximizes the net gains to producers and consumers (i.e., producer and consumer surplus net of transfer costs across all markets [Enke 1951; Samuelson 1964; Takayama and Judge 1964]).

The equilibrium conditions for the maximization problem that determines equilibrium prices and quantities lead to what is known as the spatial equilibrium

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[3] Note, then, that what we call these two areas is not important, nor does it matter what kinds of activities go on in these areas. The point is that the areas form different markets, in some way, and that they have different factor endowments. It does not affect the analysis even if "rural" activities occur in the urban area, or vice versa.

[4] Policy-induced costs are costs such as tariffs and restrictions on interregional movements of goods and factors. We separate policy induced costs from transport and information costs since any change in the latter usually involves reallocation/re-direction of public and private resources while policy induced costs do not necessarily require such actions.

[5] Here, transfer costs are defined as all costs (observable and unobservable) incurred in moving a given product from one market place to another market place. This definition is broader than the usual definition of transfer costs that equates it with transport costs alone.

arbitrage condition. The spatial equilibrium arbitrage condition states that the price difference for goods between regions that trade must be equal to transfer costs (Tomek and Robinson 1990). That is, the price in the higher-priced region must equal the price in the lower-priced region plus the transfer costs. In the short run, price differentials between the two regions could be greater than transfer costs, allowing a trader to make "extra" profit. However, in the long-run, traders will compete. This competition will reduce the price differential to just cover the costs of moving ("trading") goods from one region to the other. With such competitive arbitrage, there will be neither pure economic profit nor loss. On the other hand, if total transfer costs are larger than the price difference between the two regions, there will be no trade or links between them. That is because the costs of moving ("trading") goods exceed the price difference. Consequently, if a price difference persists over time, and is larger than the transfer costs between regions, there must be some market inefficiency. This model shows the importance of transfer costs in linking two spatially separated locations that, in this case, are rural and urban areas. Much of this paper will look at what factors affect the nature and magnitude of transfer costs, because if transfer costs can be reduced, trade can increase and the costs of goods will decline.

More formally, we can formulate this spatial equilibrium arbitrage condition as the complementary slackness condition between profits to spatial arbitrage and quantity of trade. Define the profits to arbitrage, R, as

$$R_{ijt} = P_{it} - TC_{jit}(P_{it}, P_{jt}, c_{jit}, i_{ijt}, \tau_{ijt}, \varphi_{it}, \varphi_{jt}) - P_{jt} \leq 0 ,$$

Where P_{it} is the price at location i in time t, and TC_{jit} are the transfer costs of spatial arbitrage from location j to location i in time t. Transfer costs may be a function of prices when ad valorem or variable rate tariffs exists; costs of transport between the two locations in time t, c_{jit}; information costs between the two locations, i_{ijt}; transaction costs for exchange between two locations (i.e., costs associated with finding partners, reaching and enforcing agreements, and monitoring information in the market place), τ_{jit}; and other

transfer costs such as interlocation taxes and social barriers specific to the locations, φ_{it} and φ_{jt}.

In SPE, two markets, *i* and *j*, are in long-run competitive equilibrium when the marginal profit of arbitrage equals zero, given that trade occurs that exhaust the rents to spatial arbitrage, i.e., $S_{ij} > 0$, and $(P_{it} - TC_{jit}(P_{it}, P_{jt}, c_{jit}, i_{ijt}, \tau_{ijt}, \varphi_{it}, \varphi_{jt}) - P_{jt})S_{jit} = 0$, where S_{jit} is the quantity of homogeneous good shipped from market *j* to market *i* at time period *t*.

The first-generation empirical literature on market integration focused primarily on price information and pair-wise correlations. The basic notion tested is the case that if two spatially separated markets are integrated, then one should observe a high degree of interdependence in price determination and a high degree of price correlation between them (Horowitz 1981; Stigler and Sherwin 1985). Later studies have added nuance to this notion.

Spiller and Huang (1986), for instance, showed that this can happen only if there is no arbitrage cost.[6] They consider a two-region model where arbitrage costs reflect the maximum price differential that can develop between the two regions' prices. If the price differential between the two regions is less than the arbitrage cost, prices may diverge yet the two markets may be integrated. The empirical findings reported in their paper show that, in the case of U.S. cities, nearby cities are more integrated than further-away cities.

Spatial price differentials may also prevail in the short-run but adjust in the long-run. Ravallion (1986) proposed a dynamic model of market integration that permits a distinction between short-run market integration and integration as a long-run tendency. He applied this to rice price data to examine market integration between Dhaka and the main surplus districts of Bangladesh. The set up could be viewed as a market integration test for a central urban market (Dhaka), which is a deficit area, with interlinked rural markets (district towns), which are surplus areas. His results indicate that the short-run

[6] Arbitrage costs are the costs of purchasing goods in one market for immediate resale in another.

integration is very weak and that only two of the five districts show a tendency to long-run integration.

Imperfect competition can also lead to less integration than expected. Faminow and Benson (1990) assumed that buyers and sellers are spatially dispersed and intraregional transport costs exist. In this case, producers and consumers consider only the nearest rivals. Hence, the market is characterized by oligopolistic (oligopsonistic) competition where the expected pricing response of rivals determines prices. Faminow and Benson applied this framework to test hog market integration in Canada for the period between 1965 and 1975. They found noncompetitive pricing for a subgroup of Canadian hog markets between 1965 and 1970. Later institutional changes led to more integration. In summary, the law of one price between two markets seems not to hold if there are transfer costs. In such a situation, the seemingly positive return from arbitrage may only reflect the existence of transfer costs.

This paper, on the other hand, recognizes that SPE is based on strong assumptions of the homogeneity of goods. This is a special case of perfect integration, i.e., when the two markets are both integrated and in competitive equilibrium. Actual market relationships are more complex, and the definition of market integration developed by Barrett and Li (2002) better reflects this complexity. According to Barret and Li, market integration is most usefully defined as tradability or contestability between markets. This definition will include the market clearance of flow of commodities behind SPE, as well as the transmission of price shocks from one market to another, or both. There are different states of market integration one can show based on economic rents and transfer costs. These are shown in Appendix Table 6.

Normally what we observe in reality between rural and urban areas is either a complete lack of integration, i.e., segmented equilibrium or segmented disequilibrium, or imperfect integration. The common case is one in which transfer costs are so large that trade will be nonexistent or discontinued so that the equilibrium conditions bind with equality in some periods and do not in others.

The argument we follow in this paper is that as we reduce transfer costs we will increase integration and therefore increase trade between rural and urban areas and, subsequently, the level of urban-rural linkages. The literature has focused substantially on one kind of transfer cost, namely, transportation costs, and has not given sufficient attention to other types of transfer costs. In this paper we will concentrate on other types of transfer costs as well, and especially on institutional costs that give rise to missing markets or imperfect markets. In the following two sections we will explain these in detail and present case studies where new types of institutional arrangements have helped to significantly reduce these costs while increasing the potential benefit of urban and rural linkages.

3. Transfer Costs and Rural-Urban Linkages

There are several interrelated factors that affect transfer costs and consequently the degree of rural-urban linkages in goods markets. As shown in the previous section, transfer costs may arise due to information asymmetry[7] or high costs of transportation; transaction costs; policy-induced costs, such as ad valorem or interregional taxes or tariffs; and noneconomic factors, such as ethnic and racial tensions, language and cultural barriers, and a colonial past. In the following subsections of this paper, we discuss how each of these factors affects urban-rural goods market linkages.

Information Asymmetry

The pervasive nature of information in every context of human interactions and decision making, growth, and economic development is very well known (Akelof 1970; Stiglitz 1988). It is argued that information affects not only decision making inside firms and households but also the political process and collective decision making. The availability of accurate, timely and appropriate information can enable producers to make

[7] Lack of information about prices and uncertainty about quality can prevent the development of markets for goods or factors that would otherwise enhance welfare (Akerlof 1970).

better decisions regarding what and how much to produce and where to sell. It helps traders make better decisions regarding where to buy and when and where to sell goods and at what prices. Information also assists policy makers and researchers in formulating and implementing effective development policies and in informing food security situations in their country. NGOs and donor agencies need information for effective coordination and execution of their development and humanitarian activities in developing countries.

In the context of rural-urban linkages, the type of information required to make the above decisions could be prices and quantities of goods supplied and demanded in the rural and urban markets. In addition, business investment decisions, whether in rural or urban areas, require information about local economic conditions such as labor market conditions, government polices, regulations and taxes, import and export market conditions, potential and current competition in the market, and the advantages and pitfalls of local business operation. Further, in the context of rural-urban linkages in goods markets, some of the uncertainty could be the degree or rate of perishability of the raw material in its harvested state, specificity of the quality standards for the raw material or commodity, and seasonal variability of raw material supply.

Traditionally, much of economic analysis assumed that markets are characterized by full information. However, in practice, many markets are characterized by asymmetric information whereby either the buyer or the seller has considerably more information about the good than does the person or firm on the other side of the transaction. Information imperfection has several serious economic and social consequences. For example, information gaps can lead to a situation where productive private and/or social investments may be ignored due to incomplete understanding of relative returns. It is also argued that even a small amount of information imperfection can have a profound effect on the nature of the equilibrium (Stiglitz 2002). Information bottlenecks hinder effective rural-urban linkages by raising transaction costs by increasing search, screening, and bargaining costs. The presence of information

imperfection gives rise to market power in the goods markets. As the saying goes, "Information is power."

Despite its well-acknowledged importance, the availability of market information is very limited in developing countries. There are several problems that are associated with the provision of market information. First, the acquisition and processing of market information can be a very costly activity beyond the reach of small farmers and producers in developing countries. As a result, it is argued that market information can be regarded as a public good in a situation where small farmers and producers cannot afford to pay for information (Shepherd 1997). Second, the possession of different levels and qualities of exchange-relevant information creates opportunities for some economic agents to behave in a strategic manner, increasing the transaction costs of exchange. In this paper, where we are concerned with goods markets between rural and urban areas, we can assume rural producers have better information than urban consumers for goods produced in rural areas, and urban producers have better information than rural consumers for goods produced in urban areas.

There are several reasons for the existence of asymmetric market information. First, the reliability of information may vary over time; information that was once correct may become dated and therefore inaccurate. Second, collecting information may involve costs; it does not pay for consumers to collect information beyond a point where the marginal benefit equals the marginal cost of collecting it. Third, consumers can remember and readily recall only a limited amount of information. Fourth, there is a "reasonable" limit to the amount of information processed, a "bounded" rationality: consumers process information up to the point where the marginal benefit of obtaining information equals the marginal cost of processing it. Fifth, consumers do not have sufficient knowledge to process the available information on all goods correctly.

The lack or differential access to market information can create direct barriers to mutually beneficial exchange and greatly increase the costs associated with trade. The consequences of asymmetric information are that equilibrium may not exist, or if equilibrium exists, resources are used less efficiently than they would be if there were

perfect, symmetric information. Thus, the availability of efficient and reliable market information is a key ingredient in fostering rural-urban linkages.

Transaction Costs

Transaction costs are costs associated with reaching and enforcing agreements (Williamson 1979, 1985). An extended description of the various components of transaction costs is given in Jaffee (1995). The various components of transaction costs include costs of searching for exchange opportunities and partners, screening information about the goods and prices, bargaining over the terms of trade, transferring the goods, services, titles, cash, etc., monitoring the exchange to assess whether the agreed terms are complied with, and enforcing the contract.

Williamson (1985) cites two factors that give rise to transaction costs: human factors and the quality of transaction. The human factors are concerned with the bounded rationality and "opportunistic" behavior of the individuals undertaking the transaction. Bounded rationality means that it will be costly for individuals to contemplate and contract for every contingency that might arise over the course of the transaction. An individual who acts "opportunistically" is one who takes advantage of opportunities or circumstances, often with little regard for principles or consequences.

In terms of the quality of transaction, there are three important characteristics that affect transaction costs (Williamson 1985): asset specificity, uncertainty, and market structure. Asset specificity is defined as a situation where the extent to which physical and other assets required for the production and exchange of a particular good or trading relationship is durable and specialized. Once specific assets are locked into a relationship, they can be redeployed only at a great loss in good value.

The divergence between the acquisition and resale or salvage value of an asset gives rise to rents that are potentially appropriable through market transactions if insufficient competition in the market permits one of the parties to the transaction to act opportunistically. Hence, the combination of few buyers in the good market combined

with asset specificity can lead to situations where producers in rural areas are at considerable risk in dealing with their trading partners in the urban areas, and vice versa. The consequences of asset specificity is that if the investor cannot be assured of realizing the full value of the transaction-specific investment, efficient investment that reduces the cost of exchange or production may not be made, resulting in higher costs for both parties, and the weakening of the linkage.

Uncertainty is related to the overall degree of unknowns surrounding the exchange, and may involve the availability and quality of goods, the assurance of market outlets, and the operating "rules of the game." The greater the uncertainty surrounding a transaction the less likely the transaction is to be efficiently mediated by the spot market, which requires an immediate transaction. As uncertainty increases, so does the cost of renegotiating contracts; as unforeseen contingencies arise, so does the potential for opportunistic behavior. An increase in uncertainty, therefore, creates incentives to shift away from institutions like the spot market towards contingency contracts and vertical integration as a way of dealing with uncertainty. The market fails to evolve when the uncertainty that surrounds the transaction causes costs to outweigh the benefits of exchange (Davidson and Weersink 2000).

The key insight here from transactional costs economics is that rural-urban linkages may be very weak or cease to exist when the transaction costs are so high relative to the benefits of the transaction that the exchange does not occur between rural and urban areas. Thus, central research challenges include (1) determining the primary transaction costs and (2) deciphering what type of policies, institutions, and business organization can minimize these costs in order to enhance rural-urban linkages.

Transport and Communication Costs

The development of transport infrastructure and the network and the availability of means of transport are important to integrate rural areas into the rest of the economy. In particular, in situations were there is a wide dispersion of production and consumption

centers, transport costs account for a significant proportion of total transfer costs. An improvement in rural road quantity (length or density) and quality lowers travel time and reduces vehicle running and maintenance costs, which in turn lower the actual costs of marketing produce and reduce the costs of delivering inputs. Some have argued that improved rural road networks that reduce these costs could actually abate motives to meet food needs through domestic production and, rather, promote specialization that raises farm income (Omamo 1998a, 1998b). In contrast, the absence or poor quality of roads raises marketing costs, reduces producer incentives, and restrains rural-urban linkages.

Similarly, the role of communications infrastructure in promoting economic development has been very well established. The telephone is one of the most important means of communications used by traders in developing countries to obtain information needed for trade. Of course, in rural areas, in particular, many also still rely on informal means of obtaining information such as visiting markets or talking with nearby neighbors and friends. The availability and quality of the telephone system affects marketing costs by influencing producers' and traders' timely access to market information, and by enhancing the ability to find and negotiate transactions with trading partners.

Other means of communication, such as fax, courier services, and email, can also each play a significant role in price discovery and trade. Radio, television, and internet services can also help to disseminate price and other information. Limited telephone service restricts access to information, impeding long-distance trade and raising transaction costs of traders by necessitating alternative, more expensive methods of communications such as frequent direct visits to the buyers or sellers. Bottlenecks in communication, by restricting the access to information, limit the ability of traders to respond to new market opportunities and therefore limit the extent of urban-rural linkages.

Policy-Induced Barriers

Government policies and regulations affect the linkages between urban and rural areas in several ways. For example, during the period before market reform, the governments of most developing countries fixed grain prices; determined quantities of grain marketed; restricted regional grain movements; and restricted private sector participation in agricultural marketing through the issuing of licenses. As a result, private traders were not able to exploit the potential spatial arbitrage opportunities by moving grain from surplus regions to deficit regions or from rural areas to urban areas. Such government interventions created artificial surpluses and deficits in the grain marketing system and ultimately reduced the linkages between rural and urban markets. More recently, governments in many developing countries have embarked on governance reforms like fiscal decentralization. Although decentralization has many institutional advantages, it can have potential disadvantages as well. For instance, policy changes may give local and regional governments the authority to make autonomous decisions and to impose tariffs on interregional trades, potentially increasing costs and time spent on transfers, and raising additional barriers to trade.

Noneconomic Factors

Many noneconomic factors can increase transfer costs and therefore reduce the probability of urban-rural linkages. A very important factor, although subtle in many cases, is social exclusion. Many groups in society are subject to economic, political, or cultural exclusion through different mechanisms and institutions; this phenomenon substantially decreases their access to various markets and further adds to transfer costs.

Social exclusion from different markets—labor, credit, access to education—is a crucial issue in multiracial and multilingual countries, and it can diminish rural–urban linkages. Discrimination and exclusion related to ethnicity, culture, physical appearance and religion take place in ways both obvious and subtle. For instance, indigenous or ethnic minorities are more likely to be poor than other groups, and historically, they, as

well as associations of rural farmers, have been excluded from decision processes of local government organizations. These marginalized groups are characterized by their organizational weaknesses such as lack of capacity and poverty. From an economic perspective their exclusion from certain markets affects their economic outcomes and can restrict their potential to migrate or to access goods and services in nearby markets. The exclusion from public and private assets such as education, and physical, financial, or organizational capital can restrict their current and future economic opportunities and confine them to a rural poverty trap. Exclusion may also affect the rate of return on the assets they do posses: for instance, when occupational segregation exists—i.e., certain groups do not have access to better paid-jobs—then there may be differences in the economic returns to education for similarly educated people.

4. Policies and Institutions for Enhancing Rural-Urban Linkages

The previous two sections presented a conceptual framework for understanding transfers of goods between rural and urban areas, and identified and described five factors that affect transfer costs and, ultimately, the degree of rural-urban linkages. In this section we look into specific case studies and examples of these factors to show how the evolution and design of institutions can decrease imperfections and reduce transfer costs.

Institutions play a critical part in strengthening markets for the commodities that are produced, bought, and sold in rural as well as in urban areas and therefore in linking rural areas to urban areas and vice versa. Effective institutions can reduce information asymmetries, minimize transaction costs, reduce transport and communication costs, coordinate policies, and address noneconomic barriers. When a market does not exist or does not work efficiently, market information is costly; markets themselves are not accessible; producers capture little of the value that they create; demand and supply are highly unstable; and distribution costs are very high. All of these costs reduce the possibilities of market integration.

Table 1 puts forth some of the roles and types of market institutions that can be reduce transfer costs, corresponding to the five barriers previously identified. In this section, lessons from the various roles of market institutions are analyzed through specific case studies. Specifically, we look at (1) how the creation of new food value-chains and types of market intermediation by supermarkets in Indonesia can address problems of asymmetric information; (2) how cooperatives in Ethiopia and Kenya can reduce transactions costs; (3) how investments in rural telecommunications in Bangladesh and Peru can reduce communications costs; (4) how policy reforms of previously controlled grain markets can substantially *increase* transfer costs; and (5) how ethnic discrimination in Peru can create noneconomic barriers that inhibit access to human capital and financial markets.

Table 1—Role and type of institutions for urban-rural linkages, and case studies

Role of institutions	Type of institutions/intervention
1. Reduce information asymmetry	• Group-based contract • Peer monitoring mechanisms • Modern intermediaries/new value-chains • Public codes on standards and safety
2. Reduce transaction costs	• Vertical coordination • Vertical integration • Farmers' groups and cooperatives • Producers marketing associations • Firm-farm partnerships
3. Reduce transport and communication costs	• Community-based management • Public private partnerships • Business-NGO partnerships
4. Reduce policy induced barriers	• Coordination among jurisdictions • Local, regional, and central policy alignments • Reducing policy biases
5. Reduce noneconomic barriers	• Minority rights, legal institutions, organizations for minorities • Affirmative actions

These case studies offer examples of the main sources of transfer costs, but some cases involve multiple sources of transfer costs, thus illustrating how these factors are not mutually exclusive but rather frequently occur simultaneously.

Reducing Information Costs: Intermediation, Supermarkets, and the New Value-Chain in Indonesia

This section focuses on how information asymmetry between urban and rural areas hinders urban-rural linkages. If information is asymmetrically distributed between buyers and sellers, then there may be rationing in the credit market, and certain goods markets may be severely limited or even break down (a form of the "lemon" problem shown by Akerlof 1970). The asymmetric information can make negotiations protracted, costly and unsuccessful (Farrel 1987), and there is almost always a public intervention that can improve welfare (Greenwald and Stiglitz 1986). The asymmetry of information has been used as a cause in rationalizing the existence of many agrarian institutions and production relations in developing countries.[8] There is also literature that argues that information asymmetry *between* groups is high compared to information asymmetry *within* a group and new institutions are devised based on this assumption.[9]

Transactions can take place directly between producers based in rural areas and consumers based in urban areas and vice versa, when each group has perfect information about the other. Such information could be economic, involving demand for a particular good or knowledge about default risk or payment regularity; or could be about own behaviors such as preferences, tastes, or trustworthiness, among others. However, due to the information asymmetry between producers and consumers based in two spatially separated locations, intermediaries emerge who facilitate the transaction between urban and rural areas. Better known as middlemen in the context of developing countries, they mediate selling between the producer of a good and its potential consumers. Economic literature rationalizes the intermediation by arguing that intermediaries emerge because they are reducing information asymmetries.[10]

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[8] See, for instance, Stiglitz (1986) and Bardhan (1989) for an overview of the literature on agrarian institutions.

[9] See, for instance, the literature on group-based lending and peer-monitoring to overcome information asymmetry such as Besley, Coate, and Loury (1993), and Stiglitz (1990).

[10] See Freixas and Rochet (1997) for information asymmetries in the context of financial intermediaries and Chowdhury (2004) in the context of product market intermediaries.

Since intermediaries exist due to information asymmetry, any change in information asymmetry can lead to a change in the intermediation process and can lead to the demise of existing (traditional) intermediaries and the rise of new (modern) intermediaries. The case of the food value-chain in fresh fruits and vegetables (FFV) in Indonesia shows how asymmetric information can lead to the emergence of a long chain of intermediaries and that a change in information can bring about a change in the intermediation process. For the sake of simplicity, we will refer to the existing intermediation process as the "traditional food value-chain," and the emerging intermediation process as the "modern food value-chain."[11]

Figure 1 shows the traditional value-chain that has persisted in Indonesia in FFV for decades. In a typical setting of a traditional value-chain, a producer based in a rural area produces fruits or vegetables for self-consumption and for the urban market with little or no information about product quality, grades and standards, or food safety demanded by urban consumers. The producer sells part of the goods remaining after self-consumption to a vendor. After transactions in multiple spot markets—rural market, wholesale market, wet market, retail market—involving multiple intermediaries—vendors, wholesalers, wet marketers, traditional retailers—goods reach the final consumers in urban areas.

Figure 1—Traditional value-chain

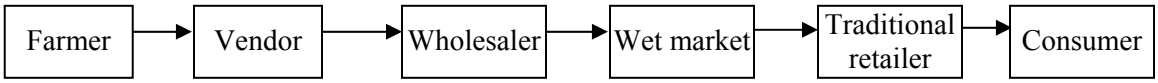
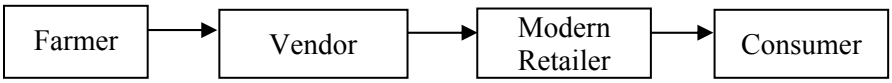


Figure 2 depicts the modern value-chain now emerging in the Indonesian food sector. In contrast to the traditional value-chain, the modern value-chain reduces several of the spot markets and begins at the retailer's end. As a result the farmer and vendor have more information on consumers' preferences in urban areas. Such modern retailers, frequently supermarkets, establish contractual relationships with vendors, and the

[11] This case is based on Chowdhury, Gulati, and Gumbira-Sa'id (2004).

vendors establish similar contractual relationships with farmers. In comparison to traditional vendors, vendors working within the modern value-chain possess superior information on consumers' preferences, on the quality of goods, and technology. They receive guidelines on grades, standards, and goods quality. As part of the supply agreement, vendors implement guidelines on farming. For each fruit and vegetable, the supermarket specifies a grade and standard requirement, to which each fruit or vegetable must conform. To ensure that the goods produced in rural areas meet the quality desired in urban areas, supermarkets usually monitor both on-farm and off-farm activities by controlling fertilizer applications, quality of seeds, harvesting, and postharvesting handling techniques.

Figure 2—Modern value-chain



Modern vendors play a very important role in the modern value-chain by minimizing the information gap between urban consumers and rural producers and improving information on urban consumers' preferences. They also supply necessary seeds, technology and other inputs, and train farmers on how to achieve the required standards.

A real-world example can help to visualize this new intermediation process. Consider a consumer based in Jakarta who wants to consume fresh green pepper of a particular size and taste. With traditional intermediation, farmers who produce do not know what color, size, and taste is demanded in Jakarta. Without knowing any of the attributes demanded by consumers, peppers are produced by farmers, sold in spot markets, purchased by middlemen and other traders, and sold to wet markets, where they are purchased by retailers, who in turn sell them to consumers in Jakarta. Since the whole value-chain involves many nonintegrated agents without any type of coordination, there are two major problems: first, products, in this case, green pepper, may not be

produced according to the preferences of end consumers since rural farmers based in villages may lack information about the preference of urban consumers based in cities. Second, there may be high transactions costs due to the search as well as monitoring and enforcement involved at each stage of the spot market. In a market characterized by imperfect competition, a high transaction cost is not unlikely.

The emergence of the new intermediation process can be considered a response to meet urban demand for FFV and reduce transactions costs. Reduction of intermediaries to a few vertically integrated agents is a way to meet the changed demand in urban areas. Since integration can also reduce the need for farmers and supermarkets to search for market transactions, it is also a way to reduce transaction costs.[12]

Reducing Transactions Costs: Dairy Cooperatives in Ethiopia and Kenya

Cooperatives can potentially enhance rural-urban linkages by reducing the level of transaction costs affecting market participation of small-holders. In terms of employment, human welfare, and political stability, smallholder agriculture is a very important economic sector in Sub-Saharan Africa (Delgado 1999). Despite its importance, historically this sector has not been linked to urban areas and to the market economy due to the lack of appropriate polices and institutions. Recently, many developing countries have embarked on a series of policy changes in order to increase smallholder and private-sector participation in the market economy. However, smallholders may still not be able to take advantage of market opportunities created by recent macroeconomic reforms, structural adjustments, and market liberalization policies (Jayne 1998; Kherallah et al. 2002). The emerging lesson from recent market reforms and policy changes is that, in addition to market reform and policy changes, there is a need for *institutional* development that can increase the access and responsiveness of smallholders to market opportunities (Delgado 1999; Kherallah et al. 2002; Jayne 1998).

[12] Note that there is a general concern that the new intermediation process described here favors large producers over small ones. However, in this discussion we have not distinguished between large and small producers.

The constraints facing smallholder agriculture in Sub-Saharan Africa arise from high transaction costs, among others. The risk of unstable marketing margins, market thinness, uncertainty concerning government policies, theft and storage spoilage, and unenforceability of contracts, along with high transportation and storage costs, result in large and unstable transaction costs. The magnitude of transactions costs is found to be negatively related to smallholders' decision to participate in the market (Goetz 1992; de Janvry 1991; Key, Sadoulet, and de Janvry 2000). In this regard, the principal tools for reducing transactions costs are institutional innovations such as contract farming, out-grower schemes, cooperatives, and vertical integration. The case studies of dairy cooperatives in Ethiopia (Holloway et al. 2000) and Kenya (Staal, Delgado, and Charles 1997) illustrate how cooperatives can enhance rural-urban linkages.

Part of the reason for high transaction costs is the nature of milk as a commodity (Staal, Delgado, and Charles 1997; Holloway et al. 2000). First, raw milk is highly perishable, which requires not only timely transportation to either consumption or processing centers but also a reliable market outlet. Second, milk production is a year-round activity and, as a result, dairy producers are concerned with securing stable market outlets for their year-round milk production. Third, raw milk is a "bulky" commodity, which implies relatively high transportation costs per unit. Fourth, the composition and quality of milk are highly variable and not easily verifiable. This implies higher costs of monitoring milk quality and potential losses by producers, traders, processors, and consumers when milk is spoiled or adulterated. The lack of easily measurable quality standards may allow agents who purchase raw milk from producers to behave opportunistically, such as by rejecting milk without genuine justification. By the same token, dairy producers may try to opportunistically sell adulterated or poor quality milk to buyers.

Thus, small-scale dairy production and marketing involve high transaction costs that make spot market coordination less efficient or nonexistent. Under such circumstances, dairy cooperatives can play a critical role in enabling the participation of smallholder producers in the formal urban milk market by reducing the transactions costs.

There are several ways cooperatives can reduce transaction costs and support commodity market development and coordination (Jaffee 1995; Staatz 1987). First, cooperatives counter the problem of needed "lumpy" investments in marketing infrastructure and services since the fixed costs of such investments can be shared among group members. In this way cooperatives can overcome smallholders' barriers of access to assets, information, and services. Second, cooperatives allow for the provision of certain public goods like product promotion that may be neither possible nor profitable on an individual basis. Third, cooperatives reduce or pool member risks by guaranteeing commodity purchases and sales on behalf of members and provide insurance, credit, or both to members. Fourth, cooperatives lower transaction costs for both members and for nonmembers trading with members by settling disputes and obtaining, interpreting and disseminating information about production, markets, and farmer and trader competence and creditworthiness. Fifth, cooperatives provide for the exercise of market power by their members through collective negotiations with suppliers or buyers, by controlling or withholding member supply into the market, and by informing members about prevailing terms of trade.

In Ethiopia, the majority of milk produced by smallholders outside urban centers is processed into products by the farm household and then sold to traders or other households in local markets (Holloway et al. 2000). Sales of fresh milk by smallholder farmers are significant only when they are close to formal milk marketing facilities such as those run by the government. Recently, however, "milk groups," which are milk marketing cooperatives, were established by the Ethiopian government with the support of the Finnish International Development Association. The milk groups buy milk from both members and nonmembers, process it, and sell the processed goods to traders and local consumers. Thus, the milk marketing cooperatives provide an alternative market outlet for the sale of fluid milk by the producers and link the smallholder dairy producers to the formal urban milk market. Prior to the formation of the milk groups nearly all locally produced milk was processed into butter and a local form of cottage cheese by the households. The cooperatives have thus expanded the market for the dairy producers.

The introduction of these milk groups also has the potential to significantly reduce transaction costs by minimizing the time required to market milk.

In Kenya, the dairy cooperatives enable the participation of smallholder producers in the formal urban milk market by reducing their transaction costs through pooling risk, lowering unit collection costs, making inputs available, and enhancing bargaining power. Cooperatives improve the stability of the market outlet for both milk processors and smallholders. Dairy cooperatives may lower search costs for processors and make milk supplies more reliable while also providing a guaranteed market outlet that provides stable prices for smallholder producers. The resulting lower search costs and lower risk to smallholders who invested in specialized dairy production has probably contributed to the success of smallholder dairying in Kenya. Significant price increases were also observed for producers using the dairy cooperatives' marketing channel for milk because the dairy cooperatives allowed the members to explore alternative market outlets.

Nonetheless, the success of cooperatives in the cases described above should be noted with caution. These success stories are both product and country specific and may not be applicable to other circumstances. As one caveat, the historical experience of many producer cooperatives suggests a tendency to deviate from the initial objective of maximizing members' profit, and, rather, to be captured by managers. Therefore, it is necessary to design the governance structure in a fashion that renders the cooperative continually effective for its members.

Reducing Communication Costs: Rural Telecommunications in Bangladesh and Peru

The availability of telecommunication services in rural areas in developing countries can break the isolation for communities and households living there by connecting them to urban areas and to the rest of the country and world. The main benefit of such a service could be a reduction in the cost of communications for the rural communities as well for urban communities. This might result in changes in the production structure, labor allocation, and consumption composition, and increase overall

welfare. For urban communities, this can increase the link with rural areas by reducing search costs, and providing faster and cheaper communications than before. In addition, rural communities can use their access to telecommunications to access information and communication technologies (ICT). This can further reduce the so called rural-urban divide and connect rural communities beyond their national geographic boundary to a wider global community.

Two recent examples (Chowdhury 2005 in Bangladesh; Galdo and Torero 2005 in Peru) demonstrate the impact of rural telecommunication projects. Until recently, rural households both in Bangladesh and Peru only had limited access to telephone services. However two recent projects, the village pay phone program (VPP) in Bangladesh and FITEL (after its Spanish acronym, Fondo de Inversion en Telecommunicaciones) in Peru were instrumental in increasing rural households' access to publicly accessible phones.

Table 2 shows the relationship between the distance to the nearest public telephone and its use. As expected, in both cases, among other factors, rural households' public telephone use depends on travel time: the longer the travel time to the nearest telephone, the lower the use. Thus, holding tariff rates and other factors constant, the higher the nontariff cost to the nearest telephone, the lower the use. This suggests that a

Table 2—One-way travel time to the nearest public telephone and usage rate

One-way travel time	Percentage of sample in category	Usage rate (%)
Bangladesh		
Within the village[a]	15.85	64.44
Within 30 minutes distance	45.07	26.56
Within one hour distance	27.82	21.52
More than one hour distance	11.27	18.75
Total	100.00	30.28
Peru		
Within the village[a]	21.60	90.27
Within 30 minutes distance	44.00	88.12
Within one hour distance	7.70	76.62
More than one hour distance	26.70	66.41
Total	100.00	83.00

Source: Chowdhury (2005), and Galdo and Torero (2005).

[a] Zero or negligible distance.

reduction in travel time and travel costs to a public telephone may increase rural households' use of telecommunications services and therefore improve links to intermediate and big cities.

More than 30 percent of households surveyed in Bangladesh and 76 percent of households surveyed in Peru have at least one or more members who use the public telephone. Table 2 suggests that the availability of a telephone at the village level has some impact on telephone use as households from villages with a telephone have a higher usage rate than households from villages without a telephone. This remains unchanged across income groups (not shown in the table).

Households in rural areas use the telephone both as a production input and a consumption good. They collect information that has immediate economic benefits and contributes to family well-being. Table 3 indicates that households in rural areas in Bangladesh and Peru use the telephone for both economic and social purposes. The destination of almost all telephone calls generated in the rural areas is to urban areas. Approximately one-third of the telephone calls were carried out for business purposes, including searching for market information, prices, and transactions. The second most important reason for the use of the telephone is talking with family and friends. The third most prevalent reason for calling is to gather information about employment opportunities, both domestic and abroad. In Bangladesh, personal and family networks usually play an important role in job-matching, and the availability of a telephone at the

Table 3—Main reason for telephone calling in Bangladesh and Peru

Reasons for calling	Percent of households in Bangladesh	Percent of households in Peru
	(percent)	
Business	31.3	43
Health	8.3	4
Employment	10.4	5
Land	2.1	0
Family	27.1	35
Remittance	2.1	0
Others	18.8	13

Source: Chowdhury (2005) and Galdo and Torero (2005).

village level can be a cost-saving method for job-seeking. Other important reasons for calling include health and medical purposes.

Similarly, Table 4 presents the benefits to households from the use of public telephones in rural areas of Peru. Rural households are aware that telecommunication services provide a faster communication and save them from having to physically retrieve the necessary information. It is important to note that over a quarter of the households believe that the availability of public telephones breaks the isolation that rural households otherwise face. Moreover, they save both money and time due to the availability of public telephones.

Table 4—Perceived benefits in Peru

Benefits[a]	Percent of households
	(percent)
Fast communication	55.0
Avoid trips	32.9
Avoid isolation	25.7
Save money	19.5
Save time	24.2
Emergencies	34.2

Source: Galdo and Torero (2005).

[a] Households can manifest to have more than one benefit.

However, these benefits have costs, including the direct costs of tariffs and the indirect costs of traveling time and costs. To examine the welfare improvements of rural households due to rural telecommunication services, Chowdhury (2005) and Galdo and Torero (2005) have measured the Hicksian compensating variation associated with telephone use. The compensating variation (CV) is how much money a household would be willing to give up to obtain a given item (in this case, technological change: a telephone), and still consider itself at the same level of utility (i.e., neither worse nor better off than before giving up the money).

Table 5 shows the estimated CVs over traditional alternatives to telephone use. The alternatives are: sending a letter (public postal services, couriers, and transport agencies), sending a physical person (travel), and radio communication. In Bangladesh,

alternatives also include telephoning from the second-nearest place. The estimated CVs show that, for all income groups (arranged in four expenditure quartiles) and for both countries, the rural telephone projects are welfare-improving. This improvement in welfare could be attributed in part to the better access to information by rural households and consequent better access to markets in intermediate and major towns.

Table 5—Estimated compensating variation: Alternative to the service of rural telephony[a]

	Quartile of expenditure			
	Bottom 25 percent			Top 25 percent
Alternatives	I	II	III	IV
	Compensating Variation (CV) per call (US$)			
Bangladesh				
Telephone from other place	0.15	0.21	0.20	0.20
Sending letter (post office)	0.11	0.14	0.13	0.13
Travel	0.65	0.84	0.78	0.81
Others	1.19	1.59	1.44	1.56
Peru				
Sending letter (mail office)	2.01	1.93	1.81	1.72
Sending letter (transport agency)	1.62	1.57	1.51	1.47
Radio	1.67	1.58	1.52	1.45
Travel	2.91	2.74	2.52	2.07

Source: Chowdhury (2005), and Galdo and Torero (2005).

[a] Compensated variation following Small and Rosen (1981); exchange rate $US1 = tk 56 (2001); US$1 = S/3.38 (1999).

Policy-Induced Barriers: Governance Reforms and the Rise of Interregional Taxation in Ethiopia

The case of grain marketing in Ethiopia illustrates how policy-induced barriers can substantially increase transfer costs and restrict the possibilities of rural-urban and rural-rural integration. In the past, the central government of Ethiopia fixed grain prices, determined quantities of grain marketed, restricted regional grain movements, and restricted private-sector participation in agricultural marketing by controlling operating licenses. As a result, private traders were not able to exploit the potential spatial arbitrage opportunities by moving grain from surplus regions to deficit regions or from rural areas to urban areas. However, in recent years, there has been a shift from the centrally controlled grain-marketing system to a decentralized and more liberalized one.

In 1992, as part of measures to strengthen fiscal decentralization policy, local and regional authorities were allowed to could impose taxes on grain trade as a way to raise revenue. As a result, a number of local and regional governments established grain checkpoints ("kella") at several locations in the country.[13] The number of checkpoints on a given grain trading route varied from one to 18 while the total time spent for checkpoint inspections varied from one to three hours. The amount of tax charged at each checkpoint also varied from 1.50 to 15.00 birr/100 kg.,[14] which accounted for 5 to 10 percent of the price received by producers. In addition, the checkpoint tax collection also created a lot of risk and uncertainty in the grain trade because of lack of complete information on the exact amount of checkpoint charges and lack of clarity in the directives, which allowed arbitrariness in charges by the controllers to suit their own individual situations.

While the taxes on grain could serve the fiscal objectives of the regional governments, they also increased grain transfer costs and negatively affected rural-urban linkages. In a survey of 220 traders in 26 markets across the country, about 35 percent of the traders ranked checkpoint control as the number one constraint to doing grain business (Dessalegn, Jayne, and Shaffer 1998).

Similar restrictions exist on grain movement in India, and Indonesian authorities have imposed interprovincial taxes on trade. These, too, increase transfer costs and reduce the possibility of market integration.

Noneconomic Factors: Ethnicity in Peru[15]

Finally, social barriers (e.g., ethnicity, race, culture, and language), and historical factors (e.g., colonial past) can also add to transfer costs. Social exclusion can impede access to specific markets, the acquisition of specific assets, or the securing of specific

[13] Several studies document the effects of such checkpoints on grain movements (Tirfe and Abraham 1995; Gabre-Madhin 2001; Diskin and Molla 1995; Negassa and Jayne 1997; Dessalegn, Jayne, and Shaffer 1998).

[14] The exchange rate is approximately US$1 = 8 Ethiopian birr.

[15] This section is based on Torero et al. (2004).

jobs. Social exclusion, particularly involving ethnicity and income class, is a prominent phenomenon in Peru where exclusion isolates marginalized groups, often restricting their potential to migrate and their access to services and goods in market towns.

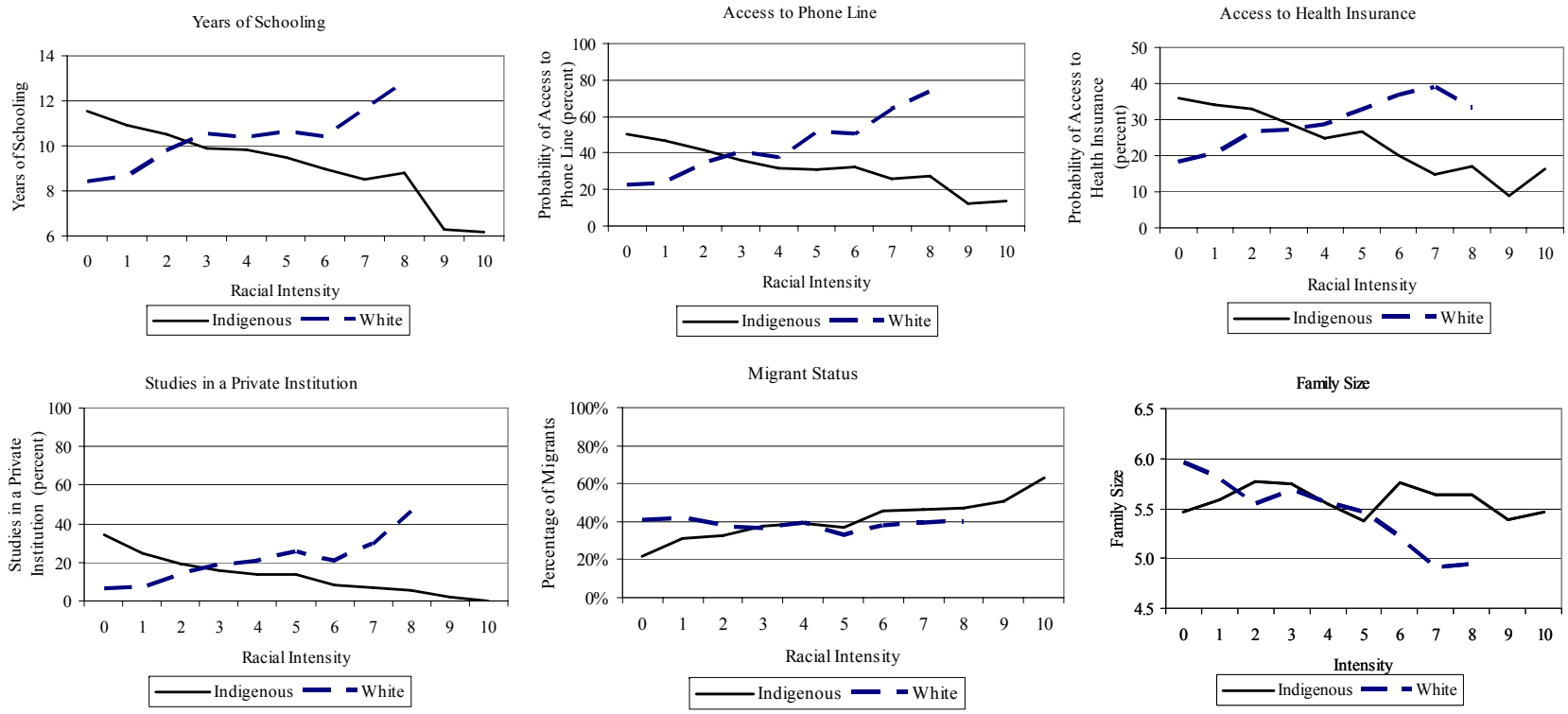
Torero et al. (2004) used a score-based procedure to capture the impact of ethnicity and "social groupings," and consequently of social exclusion, on access to education, health, and phone services. Explanatory variables in this analysis included mother tongue, religion, and parental background, in addition to the racial-ethnic score. Given the multi-ethnic heritage of many Peruvians, a trained interviewer assigned each survey respondent an independent score of 1 to 10 in each of four categories: Asian, White, Indigenous, and Black—groups that people readily recognize as distinct racial groups.[16] Zero indicated no physical characteristics associated with a particular group (i.e., either Asian, White, Indigenous, or Black) and 10 indicating the individual had most features associated with that particular group. Thus, for example, an individual with intensities of 2 (White), 8 (Indigenous), 0 (Black), and 1 (Asian), would be considered predominantly indigenous. With these continuous racial-intensity indicators, it was possible to characterize a person as a mestizo, but there was still racial variance within the category.

As shown in Figure 3, years of schooling, study at a private institution, access to phone lines, and access to health insurance were all positively related to score intensity in the White group and negatively related to score intensity in the Indigenous group. Similarly, migrant status and family size were positively correlated with Indigenous intensity and negatively correlated with White intensity.

In the case of education, Diaz et al. (2004) modeled education attainment using a hazard model that controlled for gender, cohort, religion, mother tongue, and race. The results showed a negative relationship between indigenous intensity and years of

[16] Most of the Peruvian population tends to define itself as "mestizo," which includes people with widely varying characteristics who also perceive themselves as being different from others and who others perceive as being different. While several studies support the approach used in the study, criticism of this method led to intensive pre-fieldwork training designed to reduce the problems associated with the reliability of interviewers' observations of race and ethnicity (Torero et al. 2004).

Figure 3—Relationships between racial intensity and other characteristics



Source: Torero et al. (2004).

education, whereas a positive relationship between white intensity and education still held. Individuals with White racial characteristics were more likely to stay longer in the educational system than their Indigenous peers.

Mirroring the case of educational attainment generally, Diaz et al. (2004) also found a similar pattern regarding participation in private education. Attendance at private schools was higher among "White" groups than among those with indigenous characteristics, with attendance highest among the youngest. For the cohort born during the 1940s, 16 percent of the individuals in the highest White quintile attended a private institution, while no individuals in the lowest White quintile did so. The spread increased for the cohort born in the late 1970s with the respective percentages 9 and 34 percent. Similar results were found when comparing the lowest and highest quintiles in the distribution of Indigenous intensity, although the difference between the extreme White quintiles was higher than the one between the extreme indigenous quintiles.[17]

With respect to access to credit, Torero et al. (2004) found "reasonable" discrimination in the sense that lenders may discriminate by applying stricter credit standards, charging higher interest rates, or requiring more collateral on loans from less creditworthy borrowers.[18] Nevertheless, no major direct effect of ethnicity on access to credit was identified once financial assets and other private assets of the household (household ownership, value of assets, possession of financial savings) were controlled for. This does not suggest that discrimination does not exist in credit markets but rather that ethnic differences in access to credit are correlated with observable and likely indirect characteristics that explain differences in access.

With respect to the labor market in Peru, Moreno et al. (2004) conducted a pseudo-audit study of three selected occupations. They found systematic (and significant) differences in the expected wages of individuals conducting job searches according to their racial groups.

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[17] Similar results were found when controlling for other differences within each racial quintile by using matching techniques.

[18] This result is similar to similar to Elliehausen and Lawrence (1990).

Torero et al. (2004) found significant differences in earnings between predominantly white and predominantly indigenous workers after controlling for personal, labor market (occupation, sector and firm size), and ethnic characteristics. These differences were not observed among the self-employed. However, a decomposition technique showed that a large part of the apparent earnings gap among racial and ethnic groups for the self-employed was explained by differences in individual characteristics, which suggests that exclusion mechanisms operate not only in the labor market but also when individuals are in the process of acquiring skills.

5. Conclusions and Policy Implications

Markets link rural and urban areas by providing space, form and time utility for goods and factors, and ensure their efficient movement across space. The efficiency and effectiveness of markets in linking rural and urban areas are very important to economic growth and development. Changes at home and abroad, such as rapid urbanization, changes in dietary composition, emergence of large supermarkets and agro-processors, globalization, and the spread of information and communication technologies, call for urban-rural market integration.

However, in many developing countries, markets across rural and urban space may be integrated only partially, and in extreme cases, not at all. Transfer costs can become significant obstacles to market integration and include: information asymmetries, transaction costs, transport and communication costs, policy-induced barriers, and social and noneconomic barriers. Our review of the experiences of supermarkets, dairy cooperatives, and rural telephony demonstrates that institutional innovations can play a catalytic role in reducing transfer costs and, consequently, enhancing rural-urban linkages. Accordingly, the presence of inappropriate policies, such as price controls in Ethiopia, or noneconomic factors, such as social exclusion in Peru, can inhibit links between urban and rural markets.

New institutions such as modern intermediaries linked to supermarkets and food processors can reduce information asymmetries between urban consumers and rural producers. Producers' cooperatives can pool the risks, increase bargaining power, and reduce transaction costs for small producers and reduce the supply variability for urban processors and consumers. New types of partnerships such as business-NGO partnerships or public-private partnerships can help to provide access to infrastructure such as telecommunications thereby reducing communication costs for rural communities and improving their connection to urban areas.

The issues surrounding transfer costs hindering market integration deserve priority attention by policymakers and development agencies in developing countries. Experience from Africa and other developing countries clearly show that mere market liberalization may not be sufficient to integrate rural and urban markets when information asymmetries, transaction costs, transport and communication costs, and other barriers inhibit efficient integration. Policy reforms to reduce transfer costs and promote urban-rural links will require not only further investment in infrastructure or removing controls on market prices but also a focus on the development of sound *institutional* arrangements.

Appendix Table

Table 6—Barret and Li concepts of spatial equilibrium and market integration

Consistent with SPE	Inconsistent with SPE
(1) Perfect integration: $R_{jit} = 0$ and $S_{jit} \geq 0$	*(3) Imperfect integration*: $R_{jit} \neq 0$ and $S_{jit} > 0$
(2) Segmented equilibrium: $R_{jit} < 0$ and $S_{jit} = 0$	*(4) Segmented disequilibrium*: $R_{jit} > 0$ and $S_{jit} = 0$

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