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AGRICULTURAL COMPETITIVENESS: MARKET FORCES AND POLICY CHOICE

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Transaction Costs, Market Failures, Competitiveness and the State

Competitiveness is the ability of a firm or a country to produce a commodity at an average variable cost below its price. Should any producing unit fail to meet this test, its market position could not be sustained and it would eventually cease to produce for the market. Competitiveness is distinct from the ability to produce; a producer or a country may be able to sell or export by incurring a net social loss. As Krugman (1994) observed, it is also distinct from welfare. At the level of a competitive firm, competitiveness and welfare may be associated because producer surplus is tied to the volume of sales, though a country's level of welfare has little to do with its international competitiveness. In most countries, the major part of national output, particularly that of the large service sector, is not internationally traded. Many locally produced goods successfully compete with imports at home without necessarily being exported. In addition, the ability to sell abroad, and thus run a trade surplus, may be more a sign of weakness than of strength. When a country's foreign capital inflows are falling, for instance, it is forced to increase its exports. But competitiveness is increased as national welfare goes down. The main determinant of a country's welfare is not its international competitiveness; it is its productivity.

In this paper we show that the distinction between competitiveness and welfare is equally relevant for individual farm producers. The sustained production of a crop in a particular farm is an indicator of competitiveness in producing that crop. Just as countries do not trade all their output on international markets, farms do not necessarily sell all their crop production. In less developed parts of the world, in particular, farmers often consume a significant proportion of their crop production (Singh *et al.*, 1986). The competitiveness of farm producers is then revealed, not only by their ability to sell, but also by their ability to continue to produce in spite of not selling. Increased competitiveness need not be related to improved welfare, and they sometimes conflict.

For all producers, including self-sufficient households and net buyers, welfare remains determined by productivity in the use of scarce resources and by the severity of transaction costs and market failures. Part of this paper is devoted to a brief review of policies and interventions that foster competitiveness while promoting welfare. We go beyond the well documented need for

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technological innovation and discuss interventions by the state or civil society that help reduce transaction costs and mitigate market failures through the provision of public goods and market institutions.

COMPETITIVENESS IN THE PRESENCE OF TRANSACTION COSTS

Consider a situation where there are price bands; that is, where the perceived, farm-gate sale and purchase prices differ. The discrepancy between the perceived buying and selling prices may be due to the presence of transaction costs. Some of these costs are directly related to the physical details of the transaction, such as transport, marketing, packaging or haggling. Others result from information asymmetries and contract enforcement problems that induce economic agents to incur expenditures associated with search, recruitment, coordination, supervision, management and litigation. In the presence of transaction costs, not only do the observed sale and purchase price differ from each other, they also differ from the effective implicit price p^* on which producers base their decision. In effect, p^* includes transaction costs that are incurred by the producer directly; many of these costs are difficult to observe and quantify. Let p_s^* be the perceived sale price and p_b^* be the perceived purchase price. Figure 1 portrays the three types of equilibria that can obtain: the producer may be a net seller, a net buyer and self-sufficient. To each of these three regimes corresponds a different definition of competitiveness:

- Competitiveness as a net seller (S-competitiveness), when the minimum average cost $\leq p_s^*$. This is the standard notion of competitiveness.
- Competitiveness as a self-sufficient or autarky producer (A-competitiveness), when $p_s^* < p_a^* < p_b^*$ where p_a^* is the household shadow price at which home production equals household demand. Home-produced goods are less costly than, and therefore competitive with, purchased goods. But production costs are too high to justify producing for sale.
- Competitiveness as a net buyer (B-competitiveness) when the minimum average cost $\leq p_b^*$ and production competes with purchases. Production costs are rising too rapidly to justify complete reliance on home production for consumption purposes, but they do not rise so fast as to preclude any production at all. In this case, competitiveness is the ability to continue to produce in spite of being a net buyer.

In this perspective, subsistence producers and net buyers are competitive even though they do not sell their output. It is because they are not competitive for sale, but they are competitive against purchased goods, in particular foodstuffs. This apparent paradox is due to the fact that competitiveness is assessed against different benchmarks. When produced for sale, it is assessed against the low effective sale price p_s^* . By contrast, when produced for import substitution or self-sufficiency, competitiveness is assessed against the high effective purchase price p_b^* .

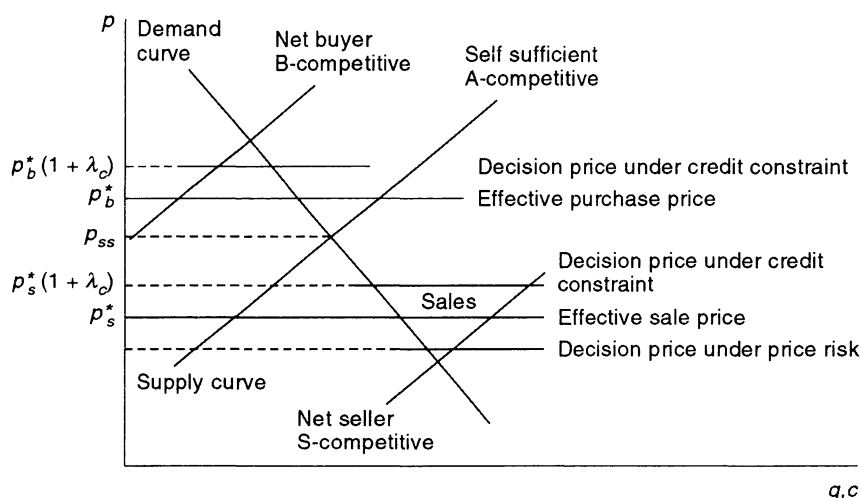


FIGURE 1 *Regimes of competitiveness*

Households producing for either self-sufficiency or import substitution can represent a large share of total households, even in countries where the market is well developed, such as Mexico. As an illustration, a 1990 survey of the ejito sector in three states gives data for corn producers (Table 1). In Africa, B- and A-competitiveness are typically higher. Data presented by Goetz (1992) for producers of coarse grains in south-eastern Senegal show that 34 per cent are net sellers, while 29 per cent are self-sufficient, and 37 per cent are net buyers.

The North American Free Trade Area (NAFTA) can be used to illustrate these different concepts of competitiveness. It is commonly recognized that opening Mexican markets to US grain exports will reduce the price that Mexican corn producers receive. Because of the physical and policy environment prevailing in Mexico, however, it is also commonly admitted that the price net

TABLE 1 *Self-sufficient corn producers in the Mexican ejito sector*

	States		
	Michoacan	Sinaloa	Veracruz
Share of households (%)	51	64	41
Share of total rainfed corn-producing land equivalent (%)	39	32	35
Share of total corn production (%)	27	16	17

Source: de Janvry *et al.* (1994).

buyers pay for corn will not change very much. It can then be said that NAFTA will reduce S-competitiveness, leave B-competitiveness unchanged, and increase the number of producers who are A-competitive. The welfare of B-competitive farmers will remain unaltered. By contrast, the production, sales and welfare of S-competitive farmers will be reduced. Among net sellers, the greater the share of home consumption in total production, the smaller the negative welfare effect. In response to the complaints of surplus corn producers, Mexican policy makers have initiated a scheme of direct income transfers (PROCAMPO).

DETERMINANTS OF COMPETITIVENESS UNDER MARKET FAILURE

Competitiveness is not only influenced by the presence of transaction costs in the market for the produced good; it is also affected by market failures in other markets. The absence of a market for food, for instance, may seriously hinder the competitiveness of a cash crop producer: resources that could have been used to produce more for the market have to be diverted to take care of the household consumption needs (de Janvry *et al.*, 1991). Similarly, the absence of labour markets may restrict producers' ability to produce for the market and thus may hurt their competitiveness. In both cases, the failure of another market hurts competitiveness as well as welfare. In situations in which crop production is the only avenue through which producers can generate cash, the imposition of a head tax may induce producers to increase output for sale. In this case, competitiveness has improved but producer welfare clearly has deteriorated.

Credit constraints are another case in point. All sales create liquidity and all purchases compete for liquidity. When producers are unable to borrow, cash sales and purchases are marked up by the shadow price l_c of the credit constraint (de Janvry *et al.*, 1992). The relevant production price on which producers base their sales and purchase decisions becomes $p^*(1 + l_c)$. The production of crops for sale relaxes the liquidity constraint; crop purchases compete for liquidity. The existence of a liquidity constraint thus makes production sale more desirable; it also increases the household's willingness to compete with crop purchases via import substitution. In both cases, however, welfare declines as a result of the presence of a liquidity constraint. Competitiveness is again achieved at the cost of a welfare loss. Liquidity constraints can also be detrimental to competitiveness whenever they increase the subjective cost of required inputs. In this case, constrained households react in the opposite direction, as they are prevented from taking advantage of the market because of their inability to purchase inputs or, more generally, of their unwillingness to part with scarce cash resources at a time of the year when they are needed for consumption.

The presence of uninsurable risk also alters competitiveness. It has long been noted that output risk reduces production for all categories of risk-averse producers and, by extension, for all producers unable to insure fully against risk (Sandmo, 1971). In this case, the absence of an insurance market hurts

competitiveness. More recently, it has been shown that, under certain circumstances, risk can also increase competitiveness. A case in point is that the response to price risk is not the same when producers are net sellers or net buyers. In the presence of price risk, the optimal allocation of resources to production is given by the following first-order condition (Finkelshtain and Chalfant, 1991; Fafchamps, 1992):

$$\bar{p}[1 - CV_p^2[R(s_q - s_c) + s_c\eta]] = MC$$

where

\bar{p} is the average price,

CV_p^2 is the coefficient of variation of price,

R is the coefficient of relative risk aversion in income,

s_q is the share of the food crop in total production,

s_c is the share of the food crop in total consumption,

η is the income elasticity of food,

MC is the marginal cost of producing food.

For net sellers, $s_q - s_c$ is positive and $\bar{p}[\cdot] < \bar{p}$, resulting in lower production than if there were no price risk: in this case, risk reduces competitiveness. The negative impact of price risk on production is, however, mitigated by the fact that self-consumption acts as an insurance against low prices: when prices are low, producers consume more of their own output, being partially compensated as consumers for their bad fortune as producers. For net buyers, on the other hand, the impact of price risk on production may be positive: $s_q - s_c$ is negative and the output level may increase if $(R/\eta)(s_c - s_q)/s_c > 1$. In this case, production for own consumption serves to insure against high prices. An increase in competitiveness as a result of price risk is thus more likely to hold for poor households with a high degree of risk aversion and a high consumption share of food (Fafchamps, 1992).

Price risk can be reduced by investing in infrastructure and favouring the geographical integration of markets. Consumption risk can also be reduced through greater access to credit or mutual insurance schemes. Either of these measures would improve the welfare of producers of staple food, but they would have differential effects on their competitiveness: they would increase the competitiveness of sellers (S-competitiveness) but lower that of buyers (B-competitiveness). The net effect on total output depends, among other things, on the relative proportions of net sellers and net buyers in the population of farmers. Technical change, on the other hand, in general improves both the competitiveness and welfare of all categories of producers. These different effects are summarized in Figure 2.

COMPETITIVENESS AND WELFARE: THE ROLE OF POLICY

From a normative standpoint, policy interventions aimed at enhancing competitiveness must be conditional upon improving welfare as well. As Tyson

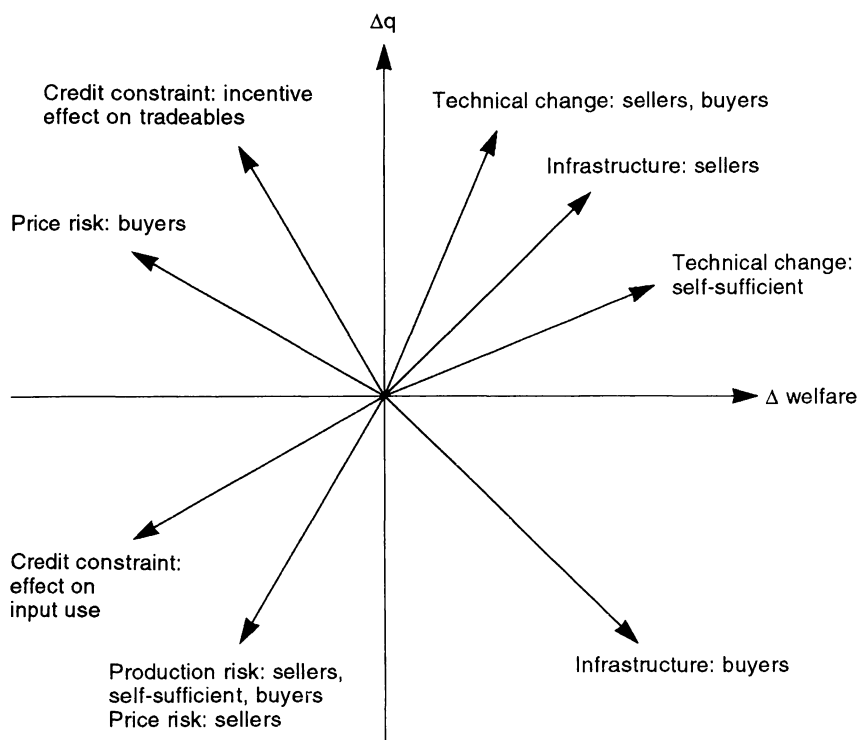


FIGURE 2 *Impact of risk, credit constraint and technical change on competitiveness and welfare*

(1993) put it, the competitiveness of a nation is 'our ability to produce goods and services that meet the test of international competition while our citizens enjoy a standard of living that is both rising and sustainable'. Otherwise, competitiveness can be achieved by squeezing welfare, for instance by instituting a head tax, reducing credit availability, increasing transactions costs for net buyers and increasing price risk for net buyers.

Policies that enhance the competitiveness and welfare of all producers alike include the promotion of technological change, the reduction in transactions costs for purchased inputs, lower credit costs and lesser credit constraints in buying inputs. Policies that reduce transactions costs in output markets may improve the welfare of all producers, but they may hurt the competitiveness of net buyers, while they help that of net sellers. Such policies fall into two broad categories: those that reduce the spread between market price and the farm-gate price; and those that reduce the transaction costs directly incurred by producers and consumers. In the first category we may put infrastructure, marketing services, private and public transport, the regional availability of marketing organizations and agroindustries, and the efficiency of the trade intermediation system. In the second we can place general education, informa-

tion services and contract enforcement institutions that enable producers to contract with traders and agroindustries. Focusing on transactions costs as a determinant of competitiveness and welfare thus opens up a vast array of instruments for policy intervention. It also raises the issue of the role of institutions in fostering competitiveness. To this we now turn.

COMPETITIVENESS, INSTITUTIONS AND THE STATE

Market failures and transaction costs are pervasive in the Third World, not only in product markets, but especially in labour, credit and insurance markets. As we have shown, competitiveness can only be understood in the context of these market failures and transaction costs. Missing markets and transaction costs sometimes benefit competitiveness while hurting welfare. In most circumstances, however, their effect is equally negative on both. The high costs of market failures and transaction costs in terms of efficiency, and often competitiveness, have induced two types of response. The first is at the level of civil society through multi-pronged attempts at coping with market failure; the second is through government intervention.

Understanding the first response has stimulated work not only on household decision with missing markets (for example, de Janvry *et al.*, 1992) but also in the vast fields of agrarian institutions (for example, Bardhan, 1989). In order to reduce their exposure to risk, households may, for instance, increase the quantity of assets that have collateral value (land area) or liquidity value (bullocks) and reduce investment with high returns but little collateral and insurance value, such as land quality (soil conservation practices) or pump sets (Rosenzweig and Wolpin, 1993). Individuals may similarly engage in contracts such as sharecropping which allow them to complete transactions (for example, access to management and supervision, or risk sharing) for which there are no markets (Eswaran and Kotwal, 1985). Access to credit may be gained through rotating savings and credit associations, group lending or credit cooperatives (Besley, 1992) which mitigate problems of adverse selection and moral hazard.

The second response, through government intervention, has historically taken the form of extensive interventions through protectionist trade policies, parastatals in product and factor markets, public insurance schemes, extensive input and credit subsidies, and fully public extension services. The failure of extensive state intervention has, however, led to a lot of disenchantment about the capacity of such policies to deal successfully with market failures and transaction costs. Today, many countries are emerging from command economies (Eastern Europe, Asia), from severe episodes of stabilization and adjustment associated with the debt crisis (Latin America) or from both (Africa). These countries have implemented reforms that expand the role of markets, curtail government budgets and scale down the role of the state. The withdrawal of the state, however, may rapidly become one of the main limiting factors to successful rural development because of the institutional gap that it has created. Large commercial farmers may still receive institutional support from commercial banks, private merchants, agroindustries and private techni-

cal assistance services when they exist. The very poor may have access to social funds and welfare-oriented services. Between these two, a large number of smallholders and family farms are all too often left without institutions to give them sufficient access to markets, credit, information and technology. One of the most urgent tasks, therefore, to avoid a rapid loss of competitiveness in the smallholder sector and prevent massive migrations to the cities, is to reconstruct a web of efficient supporting institutions. Such institutions should originate in grassroots initiatives and be assisted by government. Without these institutions, markets cannot perform, either efficiently or equitably. Institutional reconstruction should be at the top of the agenda for the promotion of welfare-enhancing competitiveness.

The economics profession is deeply divided over the process through which efficient institutions emerge: there is a division which pits advocates of the Coase theorem against advocates of state intervention. Some have argued that our better understanding of the causes of market failure (for example, private and asymmetrical information) leads to the conclusion that there is little scope for efficiency-enhancing government interventions (for example, Besley, 1994). To this pessimism is added the possibility of government failure when rent seeking is part of the policy response. Others have taken the opposite stand: that the recognition of transactions costs and imperfect information opens up richer perspectives for the role of government, extending the traditional scope of policy intervention (for example, Stiglitz, 1989; Binswanger and Rosenzweig, 1991). Both positions must be assessed, not in the context of an abstract first-best (as, for example, in Krueger's (1974) rent-seeking model) where information is presumed perfect, markets competitive and contracts can be enforced, but in the second-best world that has resulted in market failures in the first place.

What, then, are admissible forms of government intervention in the presence of transaction costs, asymmetric information and market failure? To answer this question one must first identify what distinguishes government intervention from actions by private agents. First and foremost, government intervention is a form of collective action. As such, it may be useful whenever decentralized actions by private agents fail to achieve an efficient outcome. The provision of public goods, the elimination of coordination failures and the correction of externalities are examples of situations where collective action is necessary. In theory, private agents can join forces and solve collective action problems through civil society and private leadership without the intervention of the state. If, however, private leadership fails to arise and civil society is unable to overcome the coordination failure inherent to any collective action problem, the intervention and leadership of the state may nevertheless be required. Furthermore, modern states often are in a better position to solve collective action problems than civil society thanks to their monopoly on the lawful use of force. States can tax, fine, condemn, seize assets and jail individuals. They can also credibly threaten to do all of the above, thereby forcing individuals to adopt behaviours which are (it is hoped) in the common interest and reducing the scope for 'free-riding'. Private agents, on their own or in unison, cannot – unless they are able to mobilize the state apparatus in their favour (for example, through courts or political militancy).

Civil society and government intervention are thus imperfect substitutes for each other. Thanks to its monopoly on the use of force, the state can often solve collective action problems more easily than civil society. But the power that is concentrated in the hands of the modern state can also fall into the wrong hands: the state apparatus may, indeed, be captured by a clique of individuals who divert it for their own private benefit (for example, through rent seeking). Also asymmetric information and transaction costs put limits on the ability of the state to design and implement its policies effectively. While not (ultimately) based on force, civil society may have greater power to enforce through social collateral and interlinked transactions. As a consequence, the balance in enforcement capacity and implementability is not always in favour of the state, justifying the permanence of traditional schemes of authority on efficiency grounds. For instance, the communitarian African land tenure system, still practised in many parts of the continent, may be preferred to Western-style land titling in spite of the limits it imposes on the use of land as collateral in credit transactions (Place and Hazell, 1993). Having clarified these issues, we are now in a better position to examine what government policies are called for to promote farm competitiveness and welfare.

The most important form of government intervention, in these times of deregulation and market liberalization, is the provision of an essential public good, namely, market institutions. There are many different ways by which government can help and support markets. The first is the provision of a legal framework for commercial and private contracts that is appropriate, given the country's culture and level of economic development. Many countries, for instance, have legal requirements for the registration of financial institutions that lack specificity or are too stringent. In other situations, good projects are not implemented, particularly by medium- and small-scale entrepreneurs because of lack of clarity in the law and lack of credibility in its implementation. The second is the rapid, cost-effective and fair adjudication of private contractual disputes by state courts. Many countries fail in this respect as judges are either corrupt or subject to political pressures, or both.

Courts, however, are seldom sufficient to deter opportunistic behaviour in private contracts. It is, for instance, seldom profitable to sue a debtor in small transactions. Other enforcement mechanisms have to be found. Here, too, governments can help. First, the state may directly monitor certain aspects of contractual performance. For instance, governments, alone or in partnership with private agents, may encourage the use of standardized weights and measures, control the quality of agricultural products (such as meat), grade agricultural commodities and certify agricultural inputs (such as seeds). Second, the state may favour the emergence of informal contract-enforcement mechanisms based on reputation. For instance, whenever financial institutions and commercial businesses fail to agree to pool information about bad debtors, the state could assume a leadership role and serve as a catalyst for solving a coordination problem. This would enable commercial farmers who are good risks to differentiate themselves from bad risks and thus gain an easier access to credit. Improved economic efficiency in credit allocation, investment and growth would result. Third, the state may help put in place specialized markets such as commodity markets, futures markets, and auction floors for agricultural com-

modities and farm equipment. Such markets have the advantage of publicizing information about prices and market trends, thereby enabling producers to make better informed decisions. They also reduce the scope for abuse.

The state can also induce the emergence of efficient institutions by directing complementary interventions or engaging in partnerships with private agents. A typical dilemma in agrarian communities is that local agents have superior information about the expected behaviour of community members, thus allowing them to reduce adverse selection and moral hazard. At the same time, however, they have less ability to diversify risk and sometimes less ability to enforce contracts as they are too closely related to local power structures. An interesting solution, that does not necessarily involve government but often does, is to capitalize on the relative abilities of internal and external agents by linking the two in a contractual arrangement. For the delivery of credit, for instance, commercial and development banks with risk diversification capacities can rely on better informed local agents for the screening and monitoring of credit recipients. Local agents can be moneylenders or traders with incentive contracts to select and monitor credit recipients for high repayment probability (Udry, 1990). It can also be credit groups which rely on peer monitoring and peer pressure to enhance both the ability and the willingness of borrowers to repay loans (Stiglitz, 1993; Besley, 1992). New institutions that link the modern and the traditional and capitalize on the differential efficiency advantages of each can thus emerge under the initiative of government. There also exists a wide scope for government to help the poor define good projects, either directly through specialized government agencies or indirectly through funding consultant assistance delivered by competitive private services. In other instances, government can organize loan guarantee programmes or provide risk capital to micro entrepreneurs. Schemes of shared costs and shared risk have been introduced with some success in Mexico's PRONASOL programme for micro enterprises.

Another mechanism through which governments may induce the emergence of efficient contracts and institutions is the redefinition of property rights and redistribution of assets. Giving titles to squatters may be a way of reducing the insecurity they face and allowing them to use land as collateral. Doing so may promote the emergence of small farms with lower transaction costs in mobilizing labour and higher total factor productivity (Feder *et al.*, 1988). Redistributing land may thus shift access to assets towards farmers with lower transaction costs and better projects. As experience has shown, however, land titling and land reform are costly undertakings. Moreover, they are effective in creating viable, competitive farms only if they are complemented by a host of demanding reforms to deliver to these newly created entrepreneurs access to markets, credit, inputs, technology, information and insurance.

In other circumstances, market failures cannot be corrected or mitigated through the promotion of private institutions and contracts or partnerships between government and civil society. Direct intervention may then be required. A case in point is that of risk management. If consumption-smoothing instruments are imperfect, households' consumption decisions and risk aversion will affect their income generation decisions (Udry, 1990; Morduch, 1992). In particular, they will engage in risk management, such as inefficient

crop diversification, and the holding of buffer stocks and liquid assets such as bullocks, all of which have high efficiency costs (Alderman and Paxson, 1992). Classical forms of intervention to insure consumption include food-for-work programmes, employment in public works and guaranteed employment schemes.

Finally, government may reduce transaction costs and market segmentation by investing in public infrastructure (such as rural feeder roads) and correct for externalities (for example, encouraging technology adoption). Opportunities for governments to improve competitiveness are thus plentiful, but they require finesse and can easily backfire through rent seeking and mismanagement. Like institutional changes that could emerge from civil society but do not, public intervention in support of market institutions can fail to emerge. Furthermore, government interventions are subject to the whims of political feasibility. In consequence, while opportunities may be plentiful, successful interventions may be few. The path that needs to be travelled is treacherous.

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