

The quality hurdle: Towards a development model that is no longer industry-centric

May 10, 2021

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1. The new dualism	1
2. The competing explanations of the dualism	3
The legal incentives view	4
The neo-dualist view	5
The structuralist (or poverty trap) variant	5
The endowments variant	8
3. Some counter facts and an alternative hypothesis	9
The inconspicuous capabilities of the informal sector	9
The quality hurdle	11
4. Quality hurdles in the Peruvian agricultural sector	14
One exception that points towards the new rules	17
5. Contracting in differentiated agricultural markets	19
6. The new dualism and the quality hurdle	21
References	22

## 1. The new dualism<sup>1</sup>

Structural change—the shift out of subsistence agriculture into manufacturing—was supposed to result in high-quality, high-productivity jobs and trigger self-reinforcing capability building and economy-wide productivity gains. Instead, deep changes in the use of technology and the pattern of globalization have led to an involution, particularly in Africa and Latin America. Along with a modern sector, competitive in world markets and at home with the practices of the knowledge economy, development has produced large, low-productivity, low-quality and low-wage manufacturing, agriculture and service sectors operating beyond the authority of the state, without the obligations and protections of private law. The traditional hope that the growth of industry would absorb the resources trapped in informal sector, overcoming the dualism that Lewis (1954) famously saw as characteristic of developing economies, has proved misplaced. In the absence of alternatives, in many parts of the developing world dualism has been recreated, not overcome.

In the rich countries too, there is a growing divide between a segment of advanced production that thrives on the uncertainty of the knowledge economy and a less productive segment, using outdated methods and unskilled labor, that neither contributes to nor benefits from innovation. The new dualism threatens the maintenance as much as the attainment of broad prosperity.

The sheer extent of the new informality is arresting. In countries like Peru, 75 percent of the work force is employed in the informal sector. The share of informal labor has remained stubbornly high despite more than a quarter century of growth averaging 5 percent per year.<sup>2</sup> In Mexico, according to a study by the McKinsey Global Institute covering the period from 1999 to 2009, the modern sector of large firms (employing 500 or more workers) increased productivity by 5.8 percent annually. It coexists with a large, mostly informal, sector of small and micro-enterprises (employing 10 workers or less) in which productivity *decreased* by 6.5 percent annually. In the decade covered by the study the ratio of labor productivity between the large and small firm sectors more than tripled, from 3.5 to 11; the share of workers employed in the informal sector increased from 39 percent to 42 percent and the labor share in the modern sector, having grown earlier, stagnated.<sup>3</sup> Development, it seems, has gone into reverse.

But the focus on the failures of structural transformation obscures a crucial potential of growth: informal firms in manufacturing, agricultural and services sectors with many, but

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<sup>1</sup> In writing this essay we benefited greatly from discussion with Salo Coslovsky, Natasha Iskander, Margaret Macmillan, Dani Rodrik and participants in the Harvard Growth Lab seminar. The ILO supported field work in Peru. We are especially grateful to Jose Manuel Salazar-Xirinachs and Efraín Quicaña of that institution for encouragement and criticism.

<sup>2</sup> Peru is an outlier in the sense that its informality level is easily 20 pp. above others at a comparable level of per capita income and development; but there is nothing unique about its circumstances.

<sup>3</sup> These results are consistent with Levy's (2018, p. 130)

not all, of the capacities needed to join dynamic supply chains. With support from other small producers like themselves, buyers, or the state these firms can close the gap between the modern and informal sectors, transforming the latter piecemeal from within.

Firms in this intermediate position are the focus of this paper. These in-between firms are neither fully traditional nor modern under any of the current understandings of those terms. They are often within striking distance of the modern economy, yet unable to reach it on their own. They operate beyond the level of subsistence, using materials and methods more likely to trickle down—or be cast off—from more advanced enterprises rather than passed on by tradition. Yet their accumulated capacities do not equip them to compete with dynamic firms. Even if they have met all formal regulatory and tax obligations (and most have not), they must still satisfy their customers' requirements for reliability and quality by learning to identify and reduce—if not eliminate—local causes of disruption. And since the requirements for entry gradually but inexorably increase, and solutions to current problems often reveal new ones, new entrants must demonstrate the capacity for continuous improvement just to maintain a place on the bottom rung of a modern supply chain. Firms that aim to climb higher must do much more.

High-potential firms or farms deciding whether to trade the freedom of maneuver characteristic of the informal sector for the opportunities associated with participation in the modern sector or knowledge economy via supply chains face what we will call a quality hurdle: a bundle of requirements to improve and expand operations that must be met both by mastering new disciplines and routines and deploying additional resources. Simply relaxing resource constraints—for example, through increased access to credit—is insufficient. Capacity building, in the sense of extending the range (and increasing the difficulty) of the tasks the firm can reliably accomplish, is necessary as well. Because capacity building requires learning new general principles (and how to adapt them to local contexts), and learning requires various forms of sociability with teachers and co-learners, firms seldom clear the quality hurdle as the isolated, individual actors they are taken to be in development economics. Success typically depends on collaboration among producers (in associations or cooperatives) and between these groupings and buyers or sellers.

The focus here is on agriculture and related activities such as aquaculture, silviculture, or animal husbandry. Taken together these form an important avenue for economic advance given the blockage of industrialization strategies. We do not attempt to estimate the weight of such high potential, informal sector firms; nor do we offer any rigorous assessment of the costs and benefits of cooperative mastery of the quality hurdle. Rather, we read the recent literature on dualism and structural change against the grain, supplement it with our field work in Peruvian agriculture, and connect it to current work in agricultural economics, to show that high-potential, informal-sector firms are much more prevalent than current theories of development lead us to expect, and face problems which these theories usually do not contemplate at all.

Though we stop short of discussing policy alternatives here, our ultimate goal is to contribute to the gathering discussion of how economies, developing and developed, can

be organized to overcome dualism by broadly diffusing the practices of the dynamic economy. Showing that key parts of the informal sector are on the verge of mastering those practices; that they are held back by the risks of proceeding rather than any intrinsic limit to the development of their capacities; that in this sense the sectors are closer to each other—and the gap between them easier to bridge than usually thought—is a first step.

In the next part we review explanations for the persistence and expansion of informality that focus on perverse regulation and show why these have been, in the main, rejected in favor of neo-dualist accounts emphasizing perversities in the nature of markets or technology, often in combination with deficiencies in the endowments of firms. We show that neo-dualism, in all its variety, exaggerates the duality of developing economies, overlooking important evidence of the range of firms above the subsistence level but still within the informal economy. In Part 3 we show that, in attending to the situation of firms and individuals at (or just above) subsistence, these theories have ignored the distinctive problems and opportunities of firms that are more capable yet still not qualified for participation in dynamic supply chains: firms facing the quality hurdle.

In Part 4 we provide a case study of Peruvian smallholders growing fresh produce for sale to exporters to illustrate both the ability of small producers to clear this hurdle but also their reliance—in the near absence of public support—on assistance from customers and or producers association in doing so. The current literature in agricultural economics, well aware of the distinctive problems of developing economies, finds strikingly similar outcomes in supply chains in Asia, elsewhere in Latin America and Africa. Analytically this literature links the spread of quality-differentiated markets to forms of vertical coordination in which oligopsonist buyers—if they cannot vertically integrate into farming, and if they are confident they can recoup their investments—train suppliers to meet standards, and pay an above-market “efficiency premium” when they do. But because private provision of support depends on these and other contingencies, market failures are common. There is no reason to suppose that the level of assistance provided is anywhere near socially optimal. To close the gap public intervention is required. Part 6 concludes.

## 2. The competing explanations of the dualism

Current discussion of dualism starts by asking why the big, efficient modern firms don't expand into the markets of the informal sector, or why the informal firms don't use their cost advantages to cannibalize the big ones? There are two competing explanations of this puzzle. The first, legal incentives view, emphasizes the perversities of legal provisions subsidizing small firms or protecting large incumbents against smaller competitors; the second, neo-dualist view, emphasizes perverse constellations of market structure and firm endowments that trap small producers in poverty they cannot escape except by nearly super-human efforts or policy windfalls. We consider the two broad views of dualism and their variants briefly in turn.

## The legal incentives view

De Soto's "The Other Path" (de Soto, 1989), based on field study in Perú, presented the informal sector as full of entrepreneurial energy and ability. But this potential was unrealized. Instead of recognizing and legitimizing the ingenious and adaptive practices of the informal actors, the state, under pressure from large incumbents fearing competition, imposed unworkable formalities that put the informal sector outside the circle of legality and condemned it to low productivity (de Soto, 1989). De Soto's remedy was to decentralize and democratize decision-making, making it responsive to emergent informal-sector practices and ending the divorce between law and reality. Freed of the yoke of the state, the productive potential of the informal sector would be unleashed.

But it is anything but clear that the informal sector is limited by oppressive rules and laws, at least in Peru. Many of the ill-adapted norms and bureaucratic procedures to which it is formally subject are not binding in practice. There are de facto substitutes for formal land titles, so informal property can be easily bought and sold. In addition, actors in the informal sector do not pay mortgages or most taxes. Together the limited reach of state law and the availability of workable, popular alternatives allow for the substantial accumulation of assets within informality.<sup>4</sup>

A further demonstration of the marginal influence of burdensome regulation on the development of informality is the behavior of firms when the red tape is cut. Field studies and trial policies inspired by some of de Soto's ideas show that even after substantial reductions in license costs or massive administrative simplification, informality has not been substantially reduced (de Andrade et al. 2013; de Mel et al. 2013; Jaramillo 2013).<sup>5</sup> The benefits of formal status in itself are negligible, so lowering the costs of formalization does not incentivize transition. De Soto's postulates are now widely perceived as one-sided, at best.

Santiago Levy (2018) reverses the valence of De Soto's claim: small firms, not large ones, are in his view the beneficiaries of distortionary state intervention. (summarized in Table 7.9 in Levy 2018). Formal firms must pay for pension and health benefits, some of which are provided to informal workers for free. This implicit tax on formal employment

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<sup>4</sup> A rough proxy for the level of wealth in the informal sector is the stock of household holdings of durable goods used for commercial purposes, such as washing and sewing machines or utility vehicles. The national survey of households (Encuesta Nacional de Hogares) conducted by Perú's Instituto nacional de Estadística e Informática (INEI) registered an increase of roughly 190 percent in average holdings between 2004 and 2019 (during a boom period when GDP grew by 110 percent), strongly suggesting that significant accumulation is occurring. See INEI (2020)

<sup>5</sup> In Peru, for example, a hyper-simplified system, the RUS was introduced in 2004 and then changed to NRUS (Nuevo RUS) in 2017. It implied that micro and small enterprises paid a very small fee in lieu of all taxes. This made them formal, but only on paper. There is no evidence that being registered in RUS/NRUS changed their behavior in any meaningful way. It just resulted in agglomeration of reported income (due to under-reporting) around the thresholds. See Sunat 2018, p. 11-12.

and the corresponding implicit subsidy for informal employment bias the allocation of resources against the formal sector.<sup>6</sup> His solution is straightforward: Eliminate all artificial obstacles and allow high-productivity large firms to outcompete less efficient, smaller rivals, assuring the expansion of the formal sector.

But Hsieh and Olken (2014), in a study of India, Indonesia and Mexico that reviews Levy's earlier work, challenge key elements of this view. They cite Levy's (2008) finding that the vast majority of small and midsize firms in Mexico evade the 35 percent payroll tax. More fundamentally they find "no economically meaningful bunching of firms around these thresholds, which suggests that stories based on thresholds due to formality or regulations are unlikely to be causing major distortions in the economy" (Hsieh and Olken 2014, p. 90).<sup>7</sup> In a similar vein, Samaniego de la Parra and Fernández estimate that 26 percent of the employment in formal firms in Mexico is actually informal (Samaniego de la Parra and Fernández 2020, p. 42).

The tax and regulatory burden on large firms is thus unlikely to be the main explanation for the expansion of the informal sector even in Mexico, where that burden is especially pronounced, at least on paper. Legal perversities are even less plausible as a general account of the widely observed reconstitution of informality given that few legal regimes formally favor small firms to the extent Mexico's does.

### The neo-dualist view

The alternative to de Soto and Levy is the neo-dualist view. In the structural variant, the informal economy, understood broadly as including stunted firms with low productivity and extremely limited possibilities for improvement, results from fixed features of technology or markets that keep micro or small firms from expanding. In the endowments variant, it is specific deficiencies in the makeup of informal-sector firms—a lack of managerial capacities—that prevent them from taking advantage of existing opportunities.<sup>8</sup>

### The structuralist (or poverty trap) variant

In the structural variant, set out in *Poor Economics* (Banerjee and Duflo 2011), near-subsistence firms and entrepreneurial firms with unlimited growth potential face different production functions.

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<sup>6</sup> Levy (2018) recognizes that the relative importance of each policy can't in effect be quantified.

<sup>7</sup> These findings notwithstanding, the fact that the marginal product of capital is much higher in large firms leads them to conclude that large firms are constrained. And that the dominance of small firms in poor countries is explained by firms choosing not to exert the effort needed to grow because their marginal cost would increase if they did grow.

<sup>8</sup> It is possible to translate from one dualist perspective to the other. Where firms have profound and pervasive deficiencies, we can say they face structural barriers for growth, and where their endowments are rich relative to needs, we can say they do not. But as the two vantage points direct attention to different research programs, it is useful to distinguish them for purposes of the later discussion.

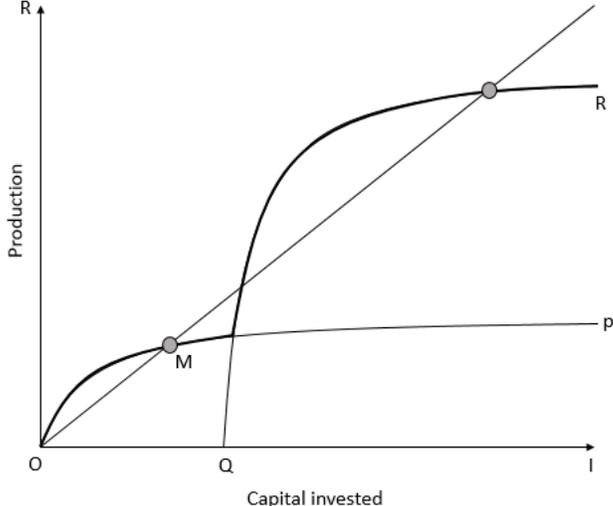
For subsistence firms with a bare minimum of seed capital—enough to start a store at home by purchasing some shelves and stocking them with snacks—the returns on a small, marginal investment (for example, in a distinctive snack that draws a few new customers) are initially high. That explains why the store owner is able to pay high interest rates for credit. But returns quickly decline as the local market is saturated. A large investment—in expanded facilities, much more stock and so on—could succeed by attracting new customers and effectively expanding the market; but it requires capital that simply can't be accumulated by incremental steps from the starting point, given the sharp drop in marginal returns as the business expands.

Competitive or entrepreneurial firms start with ample capital and face high, and perhaps even increasing, returns to marginal investment. Their growth is limited, if at all, by the extent of the international markets in which they come to compete.

The two production functions can be combined into a single composite that shows the relationship between investment and output as capital outlays increase. This can be seen in Figure 1. OP represents the traditional, decreasing returns technology. QR represents the modern, high-returns range. OR (bolded) is the composite of the two.

In this composite curve OR, the structural barrier to growth appears as a non-convexity: there is a range (at low levels of capital investment) where marginal returns are very low, and a range (at higher capital investment levels) where returns are very high.

**Figure 1: Composite Technologies**



Source: Banerjee and Duflo 2011

The composite curve translates the structural barrier to growth—the gap between the subsistence and entrepreneurial firms—into a systematic disincentive for growth past a

low limit for the small producer: the returns to the subsistence firm decrease just when they would have to sharply increase to permit the accumulation needed to move to the entrepreneurial range.

The key point is that a rational actor, whose understanding of possibilities is fully reflected in the composite production function (with its associated non-convexities) will conclude that growth beyond a low limit ( $M$ ) is impossible, and will put additional family savings to work outside the firm. Only very few people (and normally under very special conditions) are able to keep growing and accumulating.

To underscore the near impossibility of stepwise growth from the subsistence to the dynamic sector Banerjee and Duflo recount the nearly superhuman success of a Chinese entrepreneur. Recognized by her village for her intelligence, she was sent at an early age to a local school for fashion design, but then denied a promised job upon her return. Undaunted, she raised the capital to start a small garment factory by selling sewing lessons to the women in the village and hiring the best students as her employees. After a decade of continuing growth and re-investment the factory was big enough to compete successfully for contract work from international brands outsourcing to China. In a second, similar story an Indian entrepreneur realizes that she can increase her earnings by separating the bits of tungsten and other metals from the trash she and her husband collect and selling it pre-sorted to wholesalers; soon she and her husband have moved from trash collecting themselves to organizing the trash collection of others.

The point of these anecdotes is that they are necessarily exceptional. The successful women are forces of nature, while most of us are not. The constraints they escape will bind almost all others. More fundamentally, these cases are self-limiting in another way: the increased earnings, which allow the subsistence firm to escape the low-yield trap in the production function arise from organizing other subsistence workers. Not everyone can organize others, so such strategies are inherently exceptional.

This account fuses a very general story and a specific one. The general story uses the non-convexity in the production function to usefully restate the self evident: There is a systematic obstacle in the path of accumulation that stops a very small producer from growing into a large one. If there weren't such obstacles there wouldn't be an informal sector of micro and small firms, or, for that matter, a problem of economic development. The non-convexity is a useful device because it allows us to visualize the mismatch between accrued resources and the investment required for continued growth—whatever the exact configuration of that mismatch in any particular case. But of course this generality also limits the utility of the non-convexity set-up as a tool for understanding the constellation of factors that in any given setting actually cause a blockage.

That is where the specific story comes in. By invoking the experience of the garbage sorter and the garment entrepreneurs Banerjee and Duflo give us to understand that, in the main, the kink in the production curve is caused by the lumpiness of technology, and that it can only be surmounted in exceptional cases, by extraordinary people. But this is, at bottom, an empirical claim. If it turns out that those super capacities are in richer sup-

ply, or if the lumpiness of investment has to do with the accumulation of skill more than physical capital, the structural limits to growth look different, and perhaps more like a hindrance than a true barrier.<sup>9</sup> In more recent work, we will see Banerjee and Duflo with coauthors (Banerjee et al.(2019) themselves begin to explore some of these possibilities.

### The endowments variant

The endowments variant sees constraints on growth rooted in the resources available to the firm, not in the nature of markets and technologies.

For La Porta and Shleifer (2014) informal firms resemble formal firms in many ways, with a crucial difference regarding managerial resources. The vast majority of informal entrepreneurs simply lack the skills to be successful in the formal modern sector. In support of this claim La Porte and Shleifer point to two studies which find that the managers of informal firms are considerably less educated than those of formal firms (see La Porta and Shleifer 2008; Gennaioli et al. 2013). Since the highly educated are, almost by definition, scarce in developing countries, and will naturally be drawn to the attractive careers in the formal sector, the informal sector is doomed to stagnation for want of managerial talent. As in the Lewis model, informality will disappear only when the growth of the modern sector absorbs those workers previously employed in informal firms.

But where the structural variant sees fundamentally different types of firms (and technologies) in the informal and competitive or dynamic sector, the endowments variant sees marginal differences: If the subsistence firm had somewhat better or more energetic management, it would reach the high-returns range of the production function and growth would be self-sustaining. If enough firms have such endowments, the structural barrier to growth vanishes. In other words where Banerjee and Duflo (2011) assume a traditional production function joined to a modern production function at a convexity that makes switching from one to the other difficult, La Porta and Shleifer (2014) assume that all producers face just one technology, More capable producers will make better use of available resources (so the firm's total factor productivity will increase) and advance further up the production function. But as in the standard Solow growth model, and in contrast to the non-convexity picture, initial differences in capital are inconsequential.<sup>10</sup>

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<sup>9</sup> Banerjee and Duflo disdain the grand narratives of modernization and industrialization from which came post-War development economics. They prefer instead to study the incremental effects of particular policies on individual or family well being and accumulation strategies. A curious result of having forsworn all language for describing the growth trajectory of an economy they are reduced to discussing structural change by anecdote. In public discussion Duflo in particular emphasizes preference for “small,” testable ideas over the “big” but unfalsifiable ideas she associate with sweeping narratives (Duflo 2010; Kuper 2015).

<sup>10</sup> Solow (1956)

Given, however, that the structural and endowment variants assume a similar scarcity of a bottleneck input—entrepreneurial drive and capacity—in the informal sector these conceptual differences are not reflected in divergent policy conclusions. As a practical matter the solution to informality for both is for the formal sector to grow and suck the employment out of the informal firms.

### 3. Some counter facts and an alternative hypothesis

In this part we look at the limits of the neo-dualist conclusions about the inert character of the informal sector. First, we canvas evidence that the capacity distribution of developing economy firms is at odds with neo-dualist claims; then we develop the concept of the quality hurdle to characterize the challenges faced by capable, small (and mostly informal) firms at the threshold of the dynamic economy.

#### The inconspicuous capabilities of the informal sector

Recent studies of structural change and the informal sector in Tanzania, Mexico, Brazil and India go well beyond disconfirming particular explanations of informality to suggest an unsuspected potential for growth in the intermediate category of firms between the informal and formal sectors. In a study of Tanzania, Ellis, McMillan and Silver (2018) emphasize the enormous heterogeneity of the micro-, small-, and medium-enterprise (MSME) sector. They recall that Lewis identified an “in-between sector” of firms neither completely formal and modern, nor informal and traditional, some with the potential to expand and modernize with economic development.<sup>11</sup> They find “a surprisingly large number of firms” in what they call, accordingly, the in-between sector in Tanzania. There is a significant right-hand tail of firms in the MSME manufacturing sector whose productivity equals or exceeds those in the formal manufacturing sector. Just short of 1 million of the 5,2 million employees in the whole economy are in the in-between sector (FSDT 2012, p. 82); and “these are the firms that are most likely to have the capability to grow into medium-scale manufacturing enterprises.” (p. 306)

Levy’s own results for Mexico likewise suggest great heterogeneity in the in-between sector, and with it a potential for growth. He finds that firms that survive between 2008 and 2013 become more capital intensive: their stock of capital increases 16.4 percent while employment actually fell by 5.6 p.p., and average size, measured by workers employed, fell from 4.5 to 4.3. These changes are consistent with an increase in productivity among survivors; and indeed Levy finds that approximately one-fifth of the low productivity firms registered in 2008 that survive become high productivity in 2013. Fully half of the survivors become medium productivity. In addition, approximately one quarter of the medium productivity firms of 2008 that survive become high productivity in 2013 (Table 5.8 in Levy 2018).<sup>12</sup> Ulyseas finds corroborating evidence of heterogeneity in a

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<sup>11</sup> The reference is to Lewis (1979).

<sup>12</sup>This result is also consistent with the Hsieh and Olken (2014) study, mentioned earlier, which likewise found continuity in firm size distribution in Mexico

study of informal firms in Brazil (Ulyssea, 2018). In particular, he finds a large overlapping region between formal and informal productivity distributions. There is a sizable interval in which for the same productivity level one can find both types of firms.<sup>13</sup>

Recent work by Banerjee et. al. (2019) in India accords with this finding of heterogeneity. Returning to an earlier field study of the effect of micro finance in firm development in Hyderabad, they distinguish “gung-ho entrepreneurs” (GEs)—those who had started a business before receiving a treatment credit—from “reluctant entrepreneurs” (REs)—who had not. Approximately 42 percent of the sample were GEs. The treatment group benefited greatly from microfinance, increasing the scale and performance of their businesses: compared to GEs in control, self-employment hours increase almost 20 percent; the stock and flow of business assets increase by 25 and 40 percent respectively; business expenses increase by 80 percent and revenues more than double. In other words, while far from commonplace the endowments needed for development are more widely available than suggested by the anecdotes about the near-superhuman abilities of the few entrepreneurs who find a way past the kink in the production curve. Indeed even the current results could well understate the capacity reserve in the informal sector as embeddedness in the right kind of kin or friendship network, or other, as yet unobserved relations, could kickstart growth given micro credit. If policy treatments can be specialized to elicit and make effective use of various, context-specific endowments, the potential for growth could be revealed to be greater still.<sup>14</sup>

Taken together discussion so far points to three stylized facts. First, the heterogeneity of capabilities in the informal sector and the absence of discontinuities in their distribution indicate a greater developmental potential than current explanations of that sector allow. Second, as there is nonetheless little evidence that firms in the informal sector, despite capabilities in excess of the demands of subsistence, regularly enter the dynamic sector, this potential for development is still significantly limited. Third, the limits to development are not fundamentally the result of legal obligations: informality, in the sense of failure to comply with official requirements, does not seem to penalize or privilege informal-sector firms in any determinative way.

In the next section we show that the existence of a quality hurdle—a bundle of technical and organizational capabilities that are preconditions to participation in the dynamic sector—reconciles these three stylized facts.

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<sup>13</sup> He indicates that the different views on informality are not competing frameworks. They simply reflect heterogeneous firms choosing whether to comply with the relevant laws and regulations.

<sup>14</sup> Because it relies on group pressure rather than collateral to ensure repayment of loans to otherwise unbankable, poor borrowers, micro finance cannot tailor credit to the needs of risk-taking entrepreneurs—who may therefore seek to borrow from other sources. Response to microcredit loans is therefore a limited proxy for the growth potential of the most capable in-between firms. See poor economics.

## The quality hurdle

Accounts of modern international supply chains emphasize their rigor. Buyers expect suppliers to produce goods that meet exacting specifications, free of defects, on precise schedules (just-in-time), while complying with (the more demanding of) national or international standards regarding the environment, labor conditions, the rights of first peoples, etc. (Womack et al. 1991; Speer 2009).

Suppliers must meet all these requirements reliably, since delays or defects in production are enormously costly in supply chains that maintain minimal buffer inventories. Since standards continually ratchet upwards, suppliers must also be able to continuously improve on all these dimensions. To qualify to compete for a place in an advanced supply chain, suppliers must meet all or most of these requirements—or demonstrate the capacity to meet them soon.<sup>15</sup> Once in a supply chain the supplier's performance is regularly rated. Persistent failure to keep pace results in exclusion.

Domestic supply chains are less demanding, emphasizing reliability of supply over the constancy of quality and relaxing or eliminating requirements for continuous improvement, especially for new entrants. But these differences notwithstanding, participation in domestic supply chains, like participation in their international counterparts, demands a thoroughgoing and often wrenching break from habitual practices, including, especially, willingness and capacity to respond quickly and effectively to customers' complaints.

Participation in dynamic supply chains is unquestionably rewarding: admission is a kind of certification of high-level capacity generally recognized in one's industry, and the continual review of performance under increasingly demanding conditions is an invaluable source of information about organizational and technical know-how. But failure is visible and costly.

This combination of risks and rewards mean that the prospect of entering into a dynamic supply chain confronts the owner of a firm with an investment decision similar to, but even more daunting than, the decision faced by the owner of a small firm considering whether to marshal resources for a dash to the high-returns range of the production function. For the near subsistence owner as depicted in the poverty-trap account, the main, and indeed virtually only, problem is financial: returns on the low-yield range of the curve simply don't accrue fast enough to make a lumpy, high-return investment feasible, barring super-human or, gung-ho efforts.<sup>16</sup> Were she sufficiently endowed the small investor could buy the "expertise" for the high-returns endeavor—in the simplest

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<sup>15</sup> For a case study of supplier selection by a demanding white-goods supplier in China see Lockstrom et al. 2012.

<sup>16</sup> Gung-ho entrepreneurs might succeed because of some combination of perseverance and unusual managerial or technical expertise, which would slightly complicate this picture; but Banerjee and Duflo ignore this possibility and here we do the same.

case the additional shop inventory—literally off-the-shelf. As a rule though resources will be inadequate and investible funds will go to diversification in the same line of activity or outside it. For small farmers, constantly exposed to the risks of fluctuation in the weather or prices, such diversification—buying a plot exposed to a micro climate that differs from the one in current holdings, or starting a produce stand or other off-farm activity—is the dominant strategy—almost a reflex (Figueroa 1987).

At the entrance to dynamic supply chains financial resources are a necessary, but far from sufficient, condition for participation. The whole point of the elaborate qualification process is to ensure not that an investment has been made but rather that it reliably yields the intended result. It is the firm's capabilities, and above all its ability to develop and extend those capabilities, that is, and continues to be, in question.

The potential investor at the boundary to the dynamic sector thus faces a choice that is more open than that posed to very small firm owner just above the subsistence line. The availability of credit will be an important consideration, but not all determinative. Even when finance is assured the decision to seek entry to the dynamic sector will be risky. Diversification will therefore continue to be an appealing strategy, even if it is not dominant.

In the event the choice of strategy will depend on the particulars—often nearly imponderable—of the situation: Is now an opportune moment to diversify into real estate in this city? Is demand for my decent-quality replacement parts growing fast enough to support an expansion, or second location, of my machine shop? Will the domestic supermarket chain that wants me to become a regular and certified supplier help me solve technical difficulties if they arise? Do I need to free up money now for my children's education? The rationally self-interested investment decision depends on the answers to these, and countless other, contextual questions.

But precisely because the decision to invest in upgrading to join a supply chain is only one choice among many, and often the most demanding and riskiest of all, it is at that point we locate the boundary between the dynamic and the static sectors. The most relevant frontier, in other words, is not between legal formality and informality: between firms that comply with all or most legal requirements and those that don't. Rather it is between firms that master the product and process standards required in the dynamic sector and firms that decide not attempt such mastery, or failed trying.

The existence of a quality hurdle helps explain not only why so few informal sector firms, despite possibilities for capacity building, enter the dynamic sector, but also why informal sector firms retain cost advantages in production that make it difficult for dynamic sector firms to outcompete them in low-quality, low-price goods. First, meeting the requirements of the quality hurdle is costly, at a guesstimate much more costly—and certainly more unforeseeably costly—than meeting the requirements of legal compliance. The necessary investments put a relatively high floor under the prices dynamic sector firms can charge, despite their productivity advantages. Second and more subtly, some, perhaps many, of the informal-sector firms that end their upward capability trajec-

tory just below the quality hurdle thrive and perhaps expand as suppliers of good-enough (replacement) capital goods or support services to other informal sector firms. The productivity gains these firms achieve would thus accrue in large measure to the benefit of the informal sector, making it more competitive with (and resistant to invasion by) the formal sector.<sup>17</sup> The more pronounced the quality hurdle, the more persistently dualist, in the absence of policy interventions, an economy will appear.

To test these claims we would ideally examine the distribution of firms on both sides of the capacity divide in various industries in countries. We would look carefully at the reasons why firms did and did not choose to clear the quality hurdle—and why they failed if they tried but did not succeed—and the role that firms stopping short of the hurdle play in sustaining the informal sector. That investigation would need to be complemented by enquiry into the kinds of support service that could make it more appealing for informal firms to take the risks of qualifying for participation in advanced production systems.

Instead, in this exploratory study we limit ourselves to presenting, next, a sketch of quality hurdles facing small producers of fresh produce in Peru. We focus on small farmers because they are numerous and at risk: Their possibilities for finding productive, alternative employment in manufacturing (or elsewhere) are extremely limited. Understanding whether and, if so, how they can augment their capacities and connect to the dynamic sector is of central importance to articulating new models of development.

We focus on Peru because it could be an important test bed for such a model. An export boom in fresh fruits and vegetables is already underway. So far it has centered on large, mostly vertically integrated producers, which grow and process their own crops. But further expansion of the export sector will depend, in part, on incorporating the country's smallholders, many of whose families acquired titles to small parcels of land (5 hectares or less) after the dissolution in the 1980s of the cooperatives formed as part of General Velasco's agrarian reform of 1969.<sup>18</sup> Understanding how small producers, typically in association with each other and with the support of their customers, have been able to clear the quality hurdle in the absence of public support will help orient discussion of public policies that broadly encourage this kind of capacity building in the many cases where private interests do not happen to align to favor it.

Our method of studying small Peruvians produce farmers is now called economics by walking around: talking to the key actors, in this case the small farmers and exporters and supermarkets that buy their produce.<sup>19</sup> As we are interested in strategic choices

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<sup>17</sup> Under favorable conditions provision of good-enough replacement parts can lead to innovation and acceptance as an advanced-sector supplier. For such development by such a process of excavation equipment initially specialized to the small galleries of Peruvian gold mines see the account of Resemin XXXX

<sup>18</sup> The most detailed narrative of the evolution of the cooperatives (and similar firms) created during the Peruvian agrarian reform can be found in Bonfiglio (2019)

<sup>19</sup> The term was coined by Blanchflower (2007)

shaping the market at the entry to the dynamic sector, we spoke with both the managers of supply chains, including especially those whose day-to-day responsibilities keep them in constant contact with their suppliers (and with the suppliers themselves). Often, we spoke with small groups of both together about their experience and plans. In addition, we spoke with managers of cooperatives (and associations) producing cacao, coffee, mangos, asparagus, avocados, apples and bananas. Although the cooperatives operate in distinct market segments and often export directly, the problems the managers face in helping small members meet and maintain high quality standards are strikingly similar to those encountered by managers of supplier relations in midsize export supply chains. We report only findings that were fully consensual—shared by both buyers and sellers in each conversation and across all conversations with actors in similar relations—and with the cooperative managers where relevant. In a loose sense then, we are presenting the heuristics or rules of decision-making and organizational design applied by each side of the market and agreeable to the other.

Our findings agree with those of the literature on the participation of small producers in developing countries in dynamic supply chains. We find some comfort in this agreement for the generalizability of the results.

#### 4. Quality hurdles in the Peruvian agricultural sector

Perishables—fresh produce generally—are gaining weight in consumption baskets worldwide. Consumer tastes are changing, turning against processed foods produced by “industrial” methods and in favor of more “natural” products such as fresh fruits and vegetables<sup>20</sup>, free of dangerous chemical residues, if not “organic”.<sup>21</sup>

The spread of e-commerce, furthermore, means that many shoppers buy staples online. Supermarkets are increasingly forced to rely on attractive offerings of fresh produce and other short-lived and wholesome products to draw consumers into their stores. The most forward-looking supermarket chains recognize the need for a reliable supply of high-quality fresh produce and are establishing dedicated teams to help wholesalers build the capacity of their local supply networks.

All these changes have both spurred and been encouraged by the spread of public and private quality standards in food. The rapid increase in public food standards can be gauged by the exponential multiplication of notifications of new sanitary and phytosanitary regulatory measures to the WTO, from a few hundred in the mid-1990s to above 20,000 in 2017 (Swinnen 2018, p. 170); the growing importance of (more demanding) private standards is reflected in the increase in GlobalG.A.P.-certified producers from around 20,000 in the mid-1990s (Maertens and Swinnen 2015, cited in Swinnen 2014)

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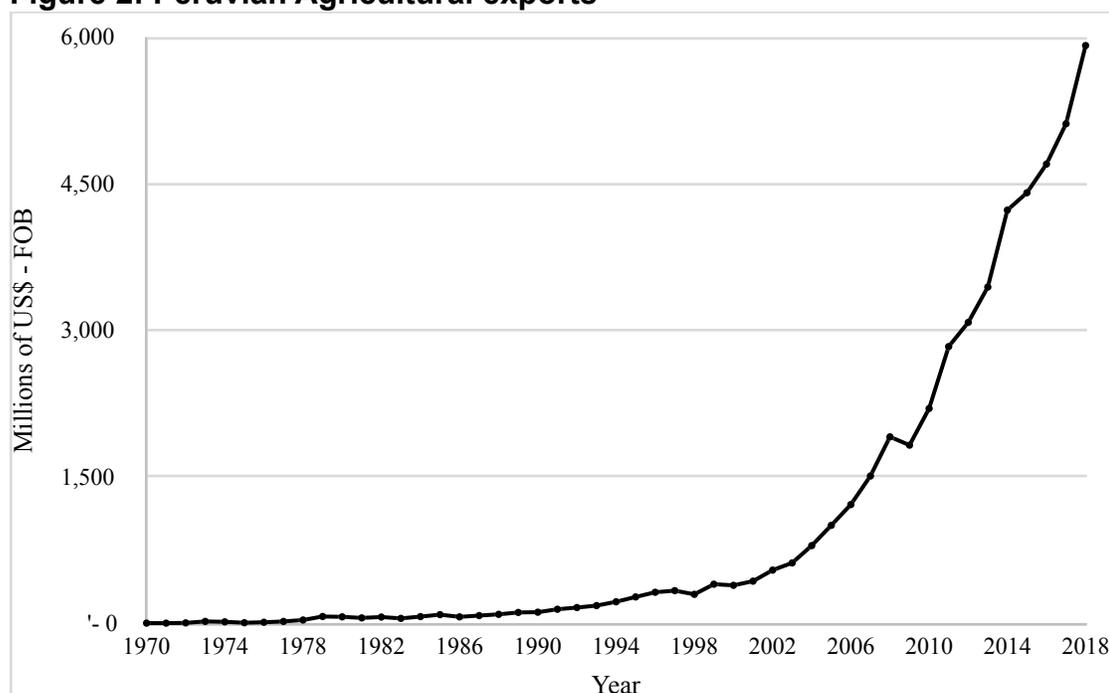
<sup>20</sup>The appeal of fresh, natural products is further evident in efforts to make frozen fruits and vegetables fresher and more natural, with corresponding pressure on the standards applied to farmers and the rest of the supply chain.

<sup>21</sup> For further discussion on the development of quality standards in the dairy industry, see Sabel et al. 2015.

to around 200,000 in 2018 (GlobalG.A.P. 2018, p. 32). Growth in agricultural exports in these years has, moreover, been greatest in the higher value products—fruits, vegetables, seafood, fish, meat and dairy products—where standards are most important; the shift to such exports has been most marked in developing economies in Asia and Latin America (where the share of high-value added products in agricultural exports doubled from around 20 percent in 1980 to 40 percent in 2010), with similar, but slower changes in African economies (Maertens and Swinnen 2015, cited in Swinnen 2014). With these economies a “supermarket revolution,” led by international and foreign investors, has led to concentration in the food retail sector and application of standards to a growing share of products intended solely for the domestic market (Dries et al., 2004; Reardon et al., 2003; cited in Swinnen 2014).

Against this backdrop, Peru has in recent decades become a leading exporter of fresh fruits and vegetables. In products like avocados, asparagus, blueberries, grapes, or mangos it ranks among the 5 biggest exporters in the world; in many of these categories among the top 3. Exports of these agricultural products have increased since the beginning of the century, from USD400 million to 7 billion in 2019, with expectations of continued growth.<sup>22</sup> (See Figure 2)

**Figure 2: Peruvian Agricultural exports**



Source: Central Reserve Bank of Peru 2019. Authors' own elaboration.

<sup>22</sup> Strictly speaking, we are showing what in Peru are called “non-traditional” agricultural exports. They refer to new agricultural exports (like fresh produce) and are defined in opposition to traditional agricultural exports (like cotton, sugar and coffee) that Perú was already exporting in the 1970s or before. Of those traditional commodities only coffee is still exported.

The largest exporters of fruits and vegetables, which together supply about 70 percent of the exports market, are highly sophisticated, and mostly vertically integrated firms. Several sell directly to global brands; some are recognized as exemplary producers in extremely demanding supply chains, such as Walmart's. They produce most, and in many cases all, of what they export on their own land.<sup>23</sup> The largest of them have estates of several thousand hectares in the coast. They focus on capital-intensive crops like blueberries, where the cost of soil preparations is the greatest. In response to market opportunities they may buy produce from smaller farmers. But with few exceptions they do not systematically build their own supply chains with small producers; and their substantial R&D capacities are directed towards improving cultivation and processing of the crops on their own land, or entering new markets, not supporting suppliers.

With much less capital than the largest exporters, the midsize producers and packing operators are highly reliant on outside suppliers. Well over half their needs are met by purchases from small farmers. Given the rising costs of land and the difficulties of acquiring easily managed, contiguous plots, growth in this segment of the market depends almost entirely on increasing outside supply.

Though the midsize producers normally do not sell directly to global brands, their products must meet similar standards regarding regularity of size, shape and color, exposure to pesticides, control of prohibited agrochemicals, maintenance of buffer zones at the margins of fields, and so on.

Small producers outside the dynamic sector cannot satisfy these requirements on their own. Helping them do so, and carefully monitoring that they in fact do—helping them, in other words, clear the quality hurdle—increasingly makes close and continuing collaboration between the buyer-processor and the small farmer supplier indispensable to growth for all but the very largest exporters.

These pressures for collaboration are inducing ambitious midsize producers such as Cuyuma, Westfalia Fruit Peru, Wiraccocha and Asociación de Productores de Espárragos Compositan Alto to both increase technical support for and monitoring of their small suppliers. At the heart of the emerging relation is an exchange: Buyers provide the supplier with funding, seeds, and technical assistance. In many cases such supervision and support are nearly continuous, if only to permit immediate detection of the use of impermissible chemicals to protect crops or accelerate their growth. In return for providing these inputs and services at below market cost the supplier gives the buyer the right of first refusal when the crop is sold. This affords the buyer a reliable source of supply at

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<sup>23</sup> Among 5 of the top largest exporters (Camposol, Beta, Talsa, Danper and SAVSA), the percentage of raw materials sourced from own funds for fresh produce is close to 100%, with the exception of DanPer. The percentage falls significantly for frozen and conserved fruit for the cases of DanPer and Savsa as the raw material utilized for those is normally produce that fails to meet size or cosmetic requirements to be sold fresh. In those cases a large percentage can be supplied by other producers (including smaller ones).

the requisite quality level, without tying either party into a long-term commitment to a fixed price.

Where possible, the midsize producers prefer to buy from smallholders who are (at least *de facto*) members of an association or cooperative. As association ties the good of each to the good of all in the same group as it naturally encourages the small farmers to learn from each other, cutting the total cost of continuously educating the individual members of the association in good practices, and reducing in equal measure the costs of support born by the buyer.

These findings were corroborated and extended in discussion with the managers of cooperatives. Helping members and potential members to meet standards is their paramount responsibility. Yet asked directly what makes a cooperative succeed the managers say, unanimously, trust, meaning roughly a disposition to reciprocity and a willingness to commit to a common purpose—as though shared values were the necessary and sufficient condition for cooperation. Only when asked to explain the process by which new members are admitted, and existing ones evaluated and, if need be, sanctioned or assisted, do the managers focus on meeting standards and developing the capacity for continuous improvement.<sup>24</sup>

An initial discriminator in the assessment of applicants for membership is a producer's response to criticisms of product quality. Some react angrily or dismissively, saying that the fault lies with the standard or the evaluator; they themselves are following methods proven through generations. Those more apt to become capable members want to understand what went wrong and how they can improve. But even in this case, it can take two years to establish the capacity to actually do so, with the support of the association or cooperative; and once established capacities must keep pace with increasing quality requirements. This experience is reflected in the cooperatives' careful qualifications for membership, and preference for long trial periods for candidate members, as well as continuing evaluation and support for those that do qualify. One well-run cooperative, for example, imposes minimum quality and productivity requirements for candidate members; observes the candidates' performance, and especially their ability to improve with support, for two years before deciding on membership; and ranks all members into three categories by their performance, with those in the middle group receiving support targeted to their specific problems, and those in the low-performing group eventually excluded from the coop if they persistently fail to improve.

### One exception that points towards the new rules

Westfalia Fruit Peru SAC (WFP) is one of the largest avocado exporters in Perú, which is the second largest exporter of the fruit.

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<sup>24</sup> For the view that trust can be the outcome, rather than the precondition of joint learning see (Sabel 1993).

WFP started life as Camet Trading SAC, a mid-sized producer with 70 hectares of rented land, limited capital and an innovative business plan. Large avocado exporters in Peru depend predominantly on produce from their own extensive plantations in the coastal regions. Camet Trading was convinced it could compete by buying from outside suppliers if it could help them meet export standards. It also noticed early on that buying from the numerous small producers in the mountain regions (up to 2800 meters above sea level) could be harvested in the months before the coastal producers' export window opens in late April, and command higher prices.

In 2017 Camet Trading was acquired by Westfalia Fruit, a multinational with a large global avocado footprint. Today ninety-seven percent of WFP's sales originate in fruit inputs purchased from outside suppliers, many of them small producers. It sees its main competitive advantage in the efficiency with which it can increase output by integrating outside suppliers.

To ensure that the outside suppliers reliably deliver high-quality avocados in sufficient quantity—and remain loyal to the buyer—WFP insists that they, with its support, qualify for Global GAP group certification option 2. Under that option, WFP establishes procedures for quality assurance and safety, and monitors compliance through desk audits and on site inspections. Global GAP then inspects a random sample of ten percent of the candidate suppliers on-site to check whether the procedures and monitoring regime meet requirements; and if they do, the conforming small producers are listed as a group on a certificate issued directly to WFP as the “manager representative.” This certification helps WFP's suppliers attain an otherwise unaffordable qualification for the most demanding and lucrative markets; but it also greatly reduces the chances that the small producers, with their newly validated capacities, will defect to other buyers. They only count as certified when selling through WFP. In addition, WFP continues to develop a bundle of specialized supports to its smallholder producers, some for a fee, others gratis.<sup>25</sup>

But WFP naturally only co-invests in capacity building when there is a high probability of making a target return. A threshold condition for investment is that, taken as a whole, a regional agglomeration of smallholders produces a sufficient volume of fruit annually—according to WFP's rule of thumb about 220 US short tons a year—to cover the fixed costs of establishing reliable logistics and support services. Formation of the regional hub, in turn, shapes the firm's strategy for selecting reliable and capable partners from among the smallholders: WFP contacts all current producers of avocados and offers to work with them to achieve option 2 certification, and to buy their products at a premium price or at market prices depending on the result of the certification process. Firms that struggle with certification but show promise of improvement are given up to 2 years to succeed. According to WFP, 80% of avocado growers in a new region typically qualify for certification. Farmers in the region who switch into avocado production can qualify

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<sup>25</sup>For example, WFP finances purchases of seedlings but offers technical assistance without charge. If the small landowners run out of money before harvest, it provides bridge financing.

by the same process; and the success rate of the newcomers, with support in certification from WFP, is again approximately 80%.

But investing only when private returns to WFP exceed its costs means that it will not invest in the (presumably frequent) case that social returns—the gains to Perú as a whole from an investment—exceed private returns: when, in other words, there are positive externalities or spillovers from investment that accrue to society, not the company. For example, WFP will not co invest with a producer who must switch to growing avocados from another crop. Neither will it invest in public goods like infrastructure—for example, sophisticated irrigation. In terms of the discussion here, WFP invests in those producers who are close the quality hurdle and therefore with good chances of crossing it at a conveniently financeable cost to both supplier and buyer. It avoids those that require significant (public or private) investments to get to that point.<sup>26</sup>

## 5. Contracting in differentiated agricultural markets

Our observations are supported by the findings of a substantial body of literature on deep changes in agriculture and the development of supply chains. In economics textbooks agriculture is presented as an example of spot markets, in which buyers and sellers are fully informed price takers exchanging commodities. Today, in fact, spot markets in agriculture are the exception. Concentration among wholesalers and retailers means that in many markets many farmers sell to a few buyers. Products are differentiated by quality and by the timeliness and reliability of delivery. Pertinent information will be costly to acquire and more accessible to some traders than others.

Normally oligopsony advantages buyers over sellers and consumers. But in modern, differentiated agricultural markets demand is inelastic; response to imbalances requires deliberate coordination between buyers and seller, constraining the oligopsonists' behavior and favoring the development of the kinds of supply chains we have been discussing.<sup>27</sup>

On the supply side, farmers in differentiated markets must meet the buyer's specific requirements. Learning to do so requires an investment specific to each, particular buyer—for whom alone it has value; and it is thus the buyer who bears the cost. The buyer likewise bears a share of the cost of investments in monitoring the execution of contracts linking adherence to the new, specialized methods and the acceptability of the fi-

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<sup>26</sup>An example of good opportunities for Peru that WFP has from its point of view good reason to ignore are the small avocado producers in the Moquegua, one of the southernmost (and smallest) regions in the country. The climate in Moquegua allows for early harvests (and hence higher prices). But design flaws in the tubing in the feeder system of a recent irrigation project limit the reliable supply of water; and this, together with middling quality soil and the small size territory result in annual production levels that do not meet WFP's minimum requirements, leaving it to either government or NGOs to fix the infrastructure enough to make the region attractive to the private investor, and eventually assist those growers of other crops who might want to benefit from WFP's presence in Moquegua but can't manage the costs of conversion themselves.

<sup>27</sup> This discussion follows the analysis in Sexton 2012 and Swinnen et al. 2015.

nal product. Together these investments mean that the buyer's costs of switching suppliers are high relative to the costs of managing and extending relations with demonstrably capable and dependable providers.

The costs of disruption are increased by constraints imposed, on the demand side, by the intermediaries' customers, such as supermarkets. For these buyers, as we saw, reliability of supply is paramount. A missed delivery causes immediate damages in foregone sales and may raise longer-term questions about reputation; so great is the potential harm that the penalty for unreliability is typically exclusion from the supply chain.<sup>28</sup>

Together the supply- and demand-side constraints induce a shift from spot markets to vertical coordination of supply chains for differentiated goods through contracts linking production methods to product definition. In the US such "interlinked" contracts covered 11 percent of the total value of domestic agricultural production in 1969, increased to 39 percent in 2008 (MacDonald and Korb 2011, cited in Sexton 2012).

These constraints are even more binding in developing economies with weak institutional environments, subject to an important proviso. In developing economies potential, small farmer-suppliers, facing as we saw the quality hurdle, are likely to lack experience with quality control and other basics of participation in the dynamic economy. This increases the costs, but also the risks, of investment to the buyer: since the basic capacities, once acquired, can be redeployed in relations with other customers, the buyer must be on guard against the supplier's possible opportunism. The same goes for monitoring. In a weak institutional environment, where contract enforcement is unlikely, monitoring will have to be intensified as a partial substitute for missing legal incentives to respect contract terms. But it will be difficult to separate monitoring for compliance from monitoring as part and parcel of teaching basic skills; so more monitoring may also increase the chances that the supplier breaches the contract for another, more favorable one, or threatens to do so unless the current customer offers better terms. Together these considerations move the buyer to offer the supplier an "efficiency bonus" or premium to the market price as an incentive to overcome the temptations of opportunism. Thus, despite the power imbalance, the constraints of differentiated markets, especially in developing economies, lead the buyer to support learning by the supplier with the aim of establishing long-term relations (Swinnen 2014).

But these governance arrangements are expensive and buyers will seek to avoid them when they can. This is the proviso. In differentiated markets, where quality and thus the quality hurdle matter, buyers will support training and long-term relations with small producers only if the limited supply of affordable land makes vertical integration impossible. And even then large exporters will choose to minimize transaction costs by contracting with a few large suppliers rather than many small ones. We noted the preference of

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<sup>28</sup> Note that delivery failures in one period can't be compensated by price reductions and the prospect of increased sales in the next because processing capacity and logistics concerns—starting with the customer's shelf space—limit the buyer's ability to expand sales of a particular product at a discount in the short run.

large, Peruvian exporters—early entrants in the boom—for vertical integration. The full rank order of preferences—vertical integration/large suppliers/small suppliers—is clearly documented in a careful study of the effects of certification—especially product certification, covering growing conditions of the product on the farm—on the sourcing strategies of Peruvian asparagus exporters. At the start of the study period in 1993 purchased just over half of their inputs from outside farms of all sizes and 15 percent of their total demand from smallholders with 10 or less hectares of land. By the end of the study period in 2011, after the spread of the demanding GlobalG.A.P. standard, purchases from outside farms had decreased by 37 percent, and purchases from smallholders by just under three quarters. Underscoring the importance of quality, non-certified companies continue to source from smallholders (Schuster and Maertens 2013).

But where vertical integration is impossible and large suppliers are unavailable—perhaps because, as in Peru, they prefer to become exporters themselves—small producers are successfully included in supply chains for high-value-added products.<sup>29</sup>

It is a short step from this finding to questions about the role of government and policy in encouraging growth in this sector. In an inconceivably benign and efficient world, large firms, having reached the local limits to vertical integration, would offer technical support and other forms of assistance to those farmers, who could potentially benefit from them; and large and small farms together would supply exactly what the global high-value added markets for agricultural goods demand. But it seems much more plausible to conclude on the evidence above that the patterns of inclusion of small holders in sophisticated supply chains reflect countless local accidents of history and the current, but changing preferences of exporters, here and there corrected by policy measures—not the dictates of efficiency.

## 6. The new dualism and the quality hurdle

Dualism has changed since it entered the lexicon of development economics in the 1950s as the distinction between a fringe of modern firms and a much larger hinterland of informal, subsistence activities, serving at best as a labor reserve for expanding industries. In the new dualism the informal sector hums with activity that goes well beyond subsistence, even if productivity is low by modern standards, and there are many “in-between” firms, neither in the traditional informal sector nor the modern, dynamic one.

There is no comprehensive, compelling explanation for the new dualism. One approach traces it to perverse legal incentives favoring small firms at the cost of the large. Another

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<sup>29</sup> A recent survey of the literature (Swinnen 2014, p. 3) includes dairy production in Bulgaria and other examples from Eastern Europe (Dries and Swinnen, 2004; Noev et al., 2009; Van Herck and Swinnen 2014); the vegetable export sector in Madagascar (which consists only of smallholders, some 10,000 of them) and the fruit and vegetable sectors in Zimbabwe (Henson et al. 2005), Chile (Handschuch et al. 2013) and Thailand (Kersting and Wollni, 2012). In China the horticulture export sector is based almost completely on smallholders producing under contract (Wang et al. 2009); smallholders also predominate in similar supply chains in many other Asian countries (Gulati et al. 2007). *Ceteris paribus* the results we found in Peru are typical, not exceptional. See also (Swinnen et al 2015).

approach, elaborating the idea of poverty traps, suggests very generally that firms above, but not far from, the subsistence level normally encounter a non-convexity in their growth path where returns from the initial cheap, low-productivity, production set up cannot finance the lumpy, high-productivity investment needed to advance. This kink marks the upper boundary of the informal sector and a structural limit to growth.

In this paper, reading the current literature on informality and smallholder agriculture against the grain and refining ideas by speaking with actors at the interface of the formal and informal agricultural sectors in Peru, we reject the perverse incentives explanation and add precision to the poverty trap view by looking to the distinctive features of the modern economy that create a structural barrier to entry into the dynamic sector. Our focus is on what we call the quality hurdle: the new demands for reliability, quality and continuous improvement that are today the condition for participation in the sophisticated supply chains of the advanced economy.

Our central finding is that although the broad capacities needed to clear the quality hurdle are widely diffused, making the transition between the sectors is so difficult and risky that few firms actually attempt it, and then rarely alone. Rather, a group of potential suppliers jointly decide to cooperate to reduce the costs of acquiring new capacities, with the potential buyers—particularly those dependent on cooperation with small firms to expand their capacity—offering technical and other support to candidate firms. As a complement to cooperation with the buyer the small firms may form associations among themselves to reduce learning costs and provide mutual support in meeting delivery obligations. In yet another variant the small firms join cooperatives for these purposes. Clearing the quality hurdle is, in short, a group activity, importantly influenced by the likelihood of support from buyers.

But while the spontaneous self organization of the actors shines a light on how the problem of the quality hurdle can be addressed, it is far from being in itself a complete solution. Often the benefits to society of helping in-between firms in agriculture, services and industry enter the dynamic sector exceed the private gains to buyers and sellers eying each other across the quality hurdle. Without public support for firms in this situation one of the few remaining potentials for development will be sacrificed before it has been explored. As dualism in its new form expands, and the vision of growth through industrialization dwindles to the strategic hope of a bygone age, focusing policy on the need for that support and building the institutions to provide should come center stage. .

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