How Competition Affects the Distribution of Welfare

A literature review shows competition policy reforms can deliver benefits for the poorest households and improve income distribution. A lack of competition in food markets hurts the poorest households the most. Competition in input markets and between buyers helps farmers and small businesses. And more competitive markets bolster job growth over the longer term. More research is needed, however, to better understand the impact of competition reforms and antitrust enforcement on poverty and shared prosperity.1

While the impact of competition on overall welfare has been well documented, the relationship between competition, poverty, and the distribution of welfare is less well understood. Of the evidence that does exist, most studies point to a positive relationship between competition and the distribution of gains toward the poorest, but there can be trade-offs and short-term costs.2

The distributional effects of a lack of competition have long been acknowledged in the literature. Monopolies can have a major impact on inequality in the distribution of household wealth (Comanor and Smiley 1975). Policies that reduce monopoly power can have positive effects on both growth and income distribution (Dutt 1984). Rodriguez-Castelan (2011) finds that, while theoretically there are conditions under which higher product market concentration could lower poverty, an increase in poverty is more realistic. Baker and Salop (2015) hypothesize that market power contributes to inequality by raising the return to capital relative to the rate of economic growth, and by discouraging innovation and productivity. In this context, they suggest that antitrust enforcement and regulatory agencies might consider placing a higher priority on reducing inequality. Several
studies provide evidence that competition can improve the distributional impact of trade liberalization by directing more benefits toward developing country producers (Sexton et al. 2007) and raising the relative wages of less-skilled workers (Borjas and Ramey 1995).

This review focuses, where possible, on developing country evidence, although much of the literature relates to high-income countries. Results may not be directly transferable to developing countries given differences in market characteristics, including the greater likelihood of market and institutional failures in developing economies.

The bottom 40 percent as consumers
Food prices, together with the share of food in an income group’s expenditure basket, play an important role in how competition affects the distribution of consumer welfare. The low elasticity of demand for staple foods and high spending on food (Figure 1), particularly for those in the lowest income deciles, implies significant direct welfare costs and distributional effects from high food prices as a result of market power in this sector. Monopolies, collusion among competitors, and rigid regulations that shield firms from competition increase market power and harm the distribution of consumer welfare. Sexton and Zhang (2006) show that market power in a Cournot duopoly at successive stages of the food marketing chain, in conjunction with oligopsony power among processors, reduces consumer surplus by 75 percent.

Households with lower income suffer relatively larger welfare losses from monopoly and imperfect competition in basic goods than those with higher incomes. Lower-income households often have a greater share of basic goods in their consumption baskets. In Mexico, while all income groups experience reduced consumer welfare from market power in seven commodity markets, losses for the lowest income decile were 19.8 percent higher in urban areas (22.7 percent higher in rural areas) than for the highest income decile (Urzúa 2013). Similarly, the welfare loss associated with monopoly power for 14 commodity groups in Australia is 46 percent higher for households in the lowest decile than for those in the highest (Greedy and Dixon 1998). In Kenya, allowing sugar prices to fall by 20 percent would lead to welfare gains for all income deciles, but gains as a share of income would be 4.4 times higher for the poorest income decile than for the highest (Argent and Begazo 2015).

Sanctioning and deterring anticompetitive behavior can generate important consumer savings, particularly by eliminating cartels in basic food products and commodities. Connor (2014) suggests that cartels lead to a median overcharge of 23 percent and a mean of 49 percent, although Boyer and Kotchoni (2014) produce lower estimates (about 16 percent for both mean and median). According to Connor (2014), 60 percent of cartel episodes that include overcharges have an overcharge above 20 percent, and of these, the mean overcharge is 79.7 percent. Notaro (2014) finds that a cartel discovered in 2007 in the Italian pasta market overcharged by around 11 percent. Mncube (2013) estimates that, due to price fixing among major bread manufacturers in South Africa, independent bakeries were overcharged by 7–42 percent on the price of wheat flour, harming both bakeries and bread consumers. A World Bank study (2016) finds that, in South Africa, tackling only four cartels (in wheat, maize milling, poultry, and pharmaceuticals) reduced poverty by 0.4 percentage points. In comparison, cash transfers and free basic services reduced poverty by 13 percentage points.
points, but at a disproportionately greater cost (3.8 percent of gross domestic product).

Competition can be intensified by removing government-imposed barriers that stifle well-functioning markets. State interventions that distort markets and raise food prices—including import tariffs or minimum support prices—are often justified as a tool to increase the incomes of agricultural producers. However, most empirical analyses suggest that higher food prices generally harm low-income households, since poor people are often net consumers of food (Christiansen and Demery 2007; Wodon et al. 2008; Wodon and Zaman 2010). Argent and Begazo (2015) find that allowing sugar and maize prices to fall by 20 percent in Kenya by relaxing government policies that restrict competition would decrease poverty by 1.5 percent and 1.8 percent, respectively.

Farther down the food value chain, competition in retail also affects the prices and quality of food and other necessities. Busso and Galiani (2014) show that entry into the retail market in the Dominican Republic led to a significant and robust reduction in prices (around 6 percent) without affecting the quality of products or services provided by grocery stores. Griffith and Harmgart (2012) find that more restrictive planning regulation in the United Kingdom reduces entry of large supermarkets, increases prices, and leads to consumer losses of up to £10 million per year. Hausman and Leibtag (2007) find that the entry and expansion of supercenters in the United States, which compete with traditional retail food outlets, lead to direct consumer welfare gains (at 20.2 percent of average food expenditure) through increased variety, and to indirect gains through a price effect (4.8 percent). Lower-income households benefit by

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<th>Reform / Impact of…</th>
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<tr>
<td>Mexico</td>
<td>Urzúa (2013)</td>
<td>High market power for seven markets, including food, beverages, and medicines</td>
<td>Welfare loss 19.8% higher for lowest income decile than for highest in urban areas, 22.7% higher in rural areas</td>
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<tr>
<td>Australia</td>
<td>Creedy and Dixon (1998)</td>
<td>Monopoly power for 14 commodity groups</td>
<td>Welfare loss 46% higher for lowest income decile than for highest</td>
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<tr>
<td>International</td>
<td>Connor (2014)</td>
<td>Cartel (sample of 1,530 cartel episodes across sectors and countries)</td>
<td>Median average overcharge of 23%; mean of 49%, 60% of the cartel episodes with overcharges of 20% or higher have a mean overcharge of 79.7%</td>
</tr>
<tr>
<td>South Africa</td>
<td>Mncube (2013)</td>
<td>Cartel (wheat flour)</td>
<td>Overcharge to independent bakeries of 7–42%</td>
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</table>
| Kenya          | Argent and Begazo (2015)     | Reducing barriers to competition leading to a 20% fall in the price of i) maize and ii) sugar | i) Effect equivalent to 1.2% increase in real income with greater gains for the poor, 1.8% fall in poverty  
ii) Welfare gains for the poorest income decile 4.4 times higher than for the highest, 1.5% fall in poverty |
| Dominican Republic | Busso and Galiani (2015) | Entry of new grocery stores into a conditional cash transfer program | 1% increase in number of stores operating in the market reduces prices by 0.06% without affecting product or service quality |
| United States  | Hausman and Leibtag (2007)   | Entry and expansion of retail supercenters               | Welfare gains from direct effect of increased variety is about 20% of average food expenditure; indirect price effect of 5%  
Lower-income households benefit by 50% more than average effect |
| Mexico         | Atkin, Faber, and Gonzalez-Navarro (2015) | Foreign supermarket entry | Significant welfare gains for average household (6.2% of household income), driven by direct consumer gains from new foreign stores with cheaper prices; richest income groups gain about 50% more than the poorest |
about 50 percent more than the average household because they are more likely to shop at outlets with lower prices. The progressive nature of these gains, however, depends on context and the type of entry. Atkin, Faber, and Gonzalez-Navarro (2015) find that entry of foreign supermarkets in Mexico led to significant welfare gains for the average household, but that the richest groups gained around 50 percent more than the poorest groups because poor people transfer less of their retail consumption to foreign stores.

Consumers can also benefit from competition in other sectors that play a key role in welfare improvements and poverty alleviation, such as pharmaceuticals (Bokhari and Fournier 2013; Tenn and Wendling 2014). Consumer welfare gains from new entry in the United States market for anti-cholesterol drugs is higher for consumers in the lowest income decile than for higher income deciles, driven in part by the fact that lower-income households tend to be more price sensitive (Dunn 2012). Indeed, more price-sensitive consumers—such as those without health insurance—generally benefit more from the availability of low-priced generic drugs (Frank and Salkever 1992, 1997). This is particularly pertinent in developing countries, where health insurance coverage is rarer.  

**The bottom 40 percent as producers**

Anticompetitive behavior and regulations that unreasonably constrain competition increase the cost of inputs. Anticompetitive behavior can inflict particular harm on low-income producers when it occurs in markets for agricultural inputs such as fertilizer, seeds, pesticides, and transport services. Globally, the existence of international cartels in the fertilizer sector raised prices of chemical fertilizers by 17 percent on average during 1990–2010 (Connor 2012). Jenny (2012) projects the price of potash for 2011–2020 under a Canadian cartel arrangement to be double what it would be under a competitive scenario. In the transport sector, Arvis, Raballand, and Marteau (2010) find that transitioning from cartelized control of transit freight allocation to an efficient trucking market would reduce logistics costs by over 30 percent in landlocked developing countries. Breaking up anticompetitive practices in international shipping services would reduce transport prices for goods shipped to the United States from developing countries by 25 percent.

### Table: Effect of competition on shared prosperity of households as producers

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<tr>
<td>United States (in trade with developing countries)</td>
<td>Fink, Mattoo, and Neagu (2002)</td>
<td>i) Removing anticompetitive practices, such as rate fixing by maritime conferences, ii) Removing restrictive government policies, such as restrictions on foreign suppliers</td>
<td>i) Transport prices decline by 25%, cost savings of $2 billion ii) Transport prices decline by 9%, cost savings of $850 million</td>
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<tr>
<td>Sierra Leone</td>
<td>Ghani and Reed (2015)</td>
<td>Entry into the market for ice manufacturing as an input for fishermen, previously held by a monopoly manufacturer</td>
<td>Each new manufacturer associated with a 5–6% fall in price 19 percentage-point increase in credit provision to fishermen from retailers following introduction of competition</td>
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<td>India</td>
<td>Banerji and Meenakshi (2004)</td>
<td>Buyer collusion in wheat auctions</td>
<td>Prices paid to farmers depressed by about 1–4%</td>
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<tr>
<td>Benin, Burkina Faso, Côte d’Ivoire, Ghana, Malawi, Rwanda, Uganda, and Zambia</td>
<td>Porto, Chauvin, and Olarreaga (2011)</td>
<td>Increased competition between processors in export crops: i) Largest processing firm splits ii) Entry of a small processor</td>
<td>i) Average increase in farmer income of 2.8% ii) Average increase in farmer income of 0.25%</td>
</tr>
<tr>
<td>Madagascar</td>
<td>Cadot, Dutoit, and Melo (2009)</td>
<td>Elimination of the vanilla monopoly/monopsony marketing board</td>
<td>Price received by producers increases from 2–11% to 22% of free on board price to 22%, 20,000 individuals lifted out of poverty</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Warr (2005)</td>
<td>Effective ban on rice imports</td>
<td>Increase in poverty in urban and rural areas, 1% overall</td>
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and lead to cost savings of up to $2 billion (Fink, Mattoo, and Neagu 2002). Removing restrictive government policies would drop transport prices by 9 percent and yield cost savings of up to $850 million. In Sierra Leone, upstream entry in the manufacture of ice as an input for fishermen—previously a monopoly market—helped fishermen achieve better contractual terms vis-à-vis ice retailers on both price and timeliness (Ghani and Reed 2014). Moreover, ice manufacturer entry boosted the provision of trade credit by retailers, with multiple ice retailers competing for buyer relationships.

Downstream buyer power depresses prices for small producers. While lower prices for producers could theoretically be passed on to lower prices for end consumers, this pass-through is often limited by the high market power of intermediaries.7 Collusion between three large buyers in wheat auctions in India depressed prices paid to farmers by around 5–20 rupees per quintal (Banerji and Meenakshi 2004). Porto, Chauvin, and Olarreaga (2011) show that more competition among downstream processors of certain African export crops benefits farmers and raises farm gate prices. Where the downstream firm with the largest market share splits, for example, the average income of producing households increases by 2.8 percent across all case studies.

Competition reforms often benefit some producers, but the distribution of those effects can vary across income groups. A household’s net position as a producer or consumer matters. The elimination of Madagascar’s monopsony/monopoly vanilla marketing board, and its replacement with imperfectly competitive domestic vanilla traders, had a large positive effect on the purchase price paid to vanilla farmers, lifting about 20,000 individuals out of poverty. The impact on income distribution was limited, however, because cash made up a small proportion of rural households’ overall income and much of their consumption was self produced (Cadot, Dutoit, and Melo 2009). Also in Madagascar, Barrett and Dorosh (1996) found that first-order gains from higher rice prices through market-oriented reforms accrued mainly to large farmers producing a marketable surplus, since farmers below the poverty line made substantial net purchases of rice. Similarly, an effective ban on rice imports in Indonesia—introduced in part to raise the incomes of poor farmers—benefited only the richest farmers and raised the incidence of poverty by just under 1 percent of the population due to high household expenditure on rice (Warr 2005).

Similarly, while broader procompetitive reforms help both small and large firms, the extent to which they do so can vary by firm size. Scarpetta et al. (2002) find that, for 10 countries of the Organisation for Economic Co-operation and Development (OECD), more stringent product market regulations limit market access for small and medium-sized firms. In particular, reducing by two standard deviations the administrative regulations affecting entrepreneurial activity could increase small firm entry rates by about 1.3 percentage points. In Australia, implementation of the country’s National Competition Policy8 helped businesses overall, but offered greater benefits for larger rather than smaller businesses and in metropolitan areas more than rural areas (Productivity Commission 1999).

The bottom 40 percent as employees
Product market reform tends to boost employment in the long term and/or on aggregate. This conclusion is confirmed in both theoretical models (Spector 2004; Blanchard and Giavazzi 2003)9 and empirical work (Griffith, Harrison, and Macartney 2007; Fiori et al. 2012; Nicoletti and Scarpetta 2005).10 The basic intuition is that more intense competition lowers prices toward marginal cost, increasing the output demanded by consumers and, therefore, the labor demanded by producers. Lower prices also raise real wages, which can increase the supply of labor. In Egypt, a lack of competition due to capture by firms that were connected to the former Mubarak regime dampened job creation (Schiffbauer et al. 2015). Entry by connected firms in new, previously unconnected sectors reduced aggregate employment growth by 1.4 percentage points per year in those sectors. Employment increases from the entry of connected firms did not outweigh the job losses in unconnected firms that could not compete with distortive policy privileges for connected firms, including energy subsidies and trade protections.

The impact on jobs depends on the type of reform, whether outcomes are observed at the
firms, at the firm level or on aggregate, and the stance of labor regulations. Employment outcomes in the short run are less clear-cut than in the long run. Cacciatore, Duval, and Fiori (2012) find a negative short-run employment effect (but a positive wage effect) from product market reform that reduces entry barriers. Profitable investment opportunities in new firms induce households to save more and consume less, which outweighs the jobs created through increased entry. It could also be argued that the exit of less productive firms due to increased competition could lead to job losses. However, Dierx et al. (2015) find a positive net effect of competition on employment in the short run in the European Union, and Spector (2004) finds a positive employment effect of greater competition (measured by an increase in the number of firms allowed to sell a good) in the short run.

### Table: Effect of competition on shared prosperity of households as employees

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<tr>
<td>OECD countries</td>
<td>Fiori et al. (2012)</td>
<td>Two quartile reduction in Product Market Regulation index in high labor market regulation environment</td>
<td>Employment increase of 1.1% in short run and 3.5% in long run</td>
</tr>
<tr>
<td>Egypt, Arab Rep.</td>
<td>Schiffbauer et al. (2014)</td>
<td>Entry of politically connected firms into new, previously unconnected sectors</td>
<td>Decline in aggregate employment growth by about 1.4 percentage points annually during 1996–2006 compared to unconnected sectors without entry</td>
</tr>
<tr>
<td>France</td>
<td>Bertrand and Kramarz (2002)</td>
<td>Existence of entry restrictions on large retail stores</td>
<td>10% reduction in employment</td>
</tr>
<tr>
<td>Mexico</td>
<td>Atkin, Faber, and Gonzalez-Navarro (2015)</td>
<td>Foreign supermarket entry</td>
<td>Traditional retail employment reduced by 11% and monthly incomes of workers reduced by 5.9% in the long term; no significant effect on employment or incomes at the municipal level</td>
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Labor impacts in sectors that employ a significant number of lower-income workers are the most likely to improve shared prosperity. The retail sector is prominent in this regard. Evidence from Europe shows a negative impact on employment in the sector as a result of government regulations that restrict entry of large retail stores. Bertrand and Kramarz (2002) find that retail employment could have been 10 percent higher in France had entry regulation not been introduced in the early 1970s. In Italy, less restrictive regulations on large store entry are associated with fewer small retail owners, but this is compensated for by greater employment in both small and large retail outlets such that moving to a free entry scenario would increase the employment rate by 0.8 percentage points (Viviano 2008). In Mexico, foreign retail store entry decreases employment and labor incomes for workers in the traditional retail sector over the medium to long run (Atkin, Faber, and Gonzalez-Navarro 2015). However, these negative effects apply only to a fraction of households and are thus muted in the aggregate by reductions in the overall cost of living that benefit all households.
Conclusion
Empirical evidence shows that tackling anti-competitive behavior by firms and reducing government restrictions on competition can have a positive distributional impact by lowering consumer prices in markets that are key for the poor and raising returns to small producers. More competitive markets can bolster job growth and improve income distribution. Importantly, though, the fact that most households perform more than one function in the market is fundamental to understanding the distributional impact of competition reforms.

Given the potential impact, this area deserves further research for developing and emerging economies. More methodologically rigorous estimations of cartel overcharges and pass-through rates from intermediate customers to end consumers would allow a sharper focus on the distributional impact of cartels and other forms of anticompetitive behavior or mergers. It would also be enlightening to analyze the impacts of competition in a broader range of sectors, particularly those with strong income and consumption effects on the bottom 40 percent—including service sectors such as transport, energy, telecommunications, and financial services—where evidence on poverty and distributional impacts is lacking. It would be useful to research the impact on small producers of weak competition in intermediary functions in value chains, in terms of both upstream inputs and downstream buyers. Moreover, moving from partial equilibrium to general equilibrium analysis and incorporating the effect of high market power on employment, wages, and capital returns, would provide more complete conclusions. Similarly, it would be useful to learn more about the dynamics of the interaction between competition and welfare through, for example, asset accumulation in the long term, and utilization of and returns to those assets in the short to medium term.

Much of the evidence on the effect of procompetitive reforms on firm-related variables relates to OECD countries. As more data (such as indicators on product market regulation and firm-level data) become available for emerging and developing economies, empirical analysis of the effect on productivity, employment, entrepreneurship, wage distribution across households with differing socioeconomic characteristics, and the relative impact on small and medium enterprises can be considered. Access to tax return and customs data as well as firm-level economic variables will support this type of analysis to better understand these dynamics in developing economies.

Notes
1. Shared prosperity combines the goals of economic growth and equity, targeting growth in household income and consumption among the poorest 40 percent of the population of each country (World Bank 2015).
2. See World Bank (2016), for a broader literature review on the effects of competition and competition policy on shared prosperity.
3. Access to services, such as telecommunications, energy, and banking, may also have an important effect on poverty and inequality across generations, despite making up a relatively small proportion of poor households’ consumption basket.
4. Defined as the difference between the observed market price and the price that would have prevailed in the absence of collusion.
5. Unskilled wages also rise in response to an increase in commodity prices. Overall, evidence suggests that the effect of higher consumption prices due to lack of competition is generally not offset by the induced increases in wages (Rashid 2002; Ivanic and Martin 2008; De Hoyos and Medvedev 2011).
6. Governments can spur pro-poor gains by setting drug procurement rules that encourage the entry of generics, for example, and more competitive pricing of drugs.
7. In the long run, depressed producer prices may disincentivize producers from entering the market and from innovating.
8. The National Competition Policy, introduced in the 1990s, implemented reforms to minimize competition restrictions and promote competitive neutrality between public and private players engaged in business activities.
9. The long-term positive effect found by Blanchard and Giavazzi (2003) assumes a reduction in entry costs.
10. The applicability of these results outside the OECD is not clear. One might expect the effects of product market regulation to be more modest in developing countries, for example, due to greater informality and a lower capacity for supervision.
11. In analyzing over 100 countries, IFC (2013) found services (including retail) to lead job creation in developing countries.
12. It is worth noting that this note focuses on product markets and therefore does not cover the existence of market power in labor markets, although there is a strand of literature on this topic (see, for example, Brummund 2014).

References
For a list of all studies cited in this note, go to http://www.worldbank.org/competition.

Key Studies


