

Promoting Exports, Preventing Poverty: Toward a Causal

Evidence Base

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In chemistry two influential theories were put forward within five years of each other near the climax of the Scientific Revolution. In 1662 Robert Boyle proposed that the volume and pressure of gases are inversely proportional: decreasing the volume of an amount of gas pressurizes it predictably. Next, in 1667 Johann Joaquin Becher posited that all flammable substances contain the element *terra pinguis*, which he claimed is released during combustion. Stahl later renamed the combustible element *phlogiston*. Both Boyle's and Becher's theories went on to profoundly affect the science and practice of chemistry for the next century.

But only one of the ideas has survived. Boyle's Law remains a foundational principle of modern chemistry. On the other hand, Becher's *terra pinguis/phlogiston* was definitively disproved by Antoine-Laurent Lavoisier's closed experiments, reported in 1783, in which he demonstrated that burning requires oxygen and that solids sometimes gained mass when combusting. Yet for more than a century, chemists believed in phlogiston and used the idea to guide their work.

As social scientists searching for remedies to global poverty, in some ways we find ourselves in a similar position as chemists in the 17th and 18th Centuries. David Ricardo's Law of Comparative Advantage, one of the most pivotal ideas in

social science – the single economic proposition that Nobel laureate Paul Samuelson (1969) asserted was both non-trivial and non-obvious – suggests that specialization and exchange might provide a powerful antidote to poverty. The mathematical proof is compelling. Most social scientists, indeed most educated people, believe it.

But in combatting global poverty, is Ricardo's Law like Boyle's Law? Or is it like phlogiston? The only way to know is through compelling empirical support. However, the causal evidence base for trade as an anti-poverty strategy is scanty, at least so far. Observational evidence, capable of suggesting correlation but not causation, is more extensive but mixed on the question. Field experimental evidence with the ability to reveal causality is mostly missing to date. This article therefore explores the evidence base for trade as a means of combatting poverty and makes suggestions for improving our knowledge of the causal effects. In key ways the question of the effects of global trade on poverty serves as an illustration of the broader question of globalization and the poor described in this forum. As described in the forum introduction (Rudra 2015), this article addresses empirical challenges and possible solutions to assessing the relationship between globalization and poverty. Like Beramendi and Wibbels (2015) in this forum, key questions focus on the appropriate measurement and estimation of how global economic factors influence the poor.

Prior Research on Trade and Poverty

As with foreign direct investment (see Malesky 2015 in this forum) and the informal economy (Milner and Rudra 2015 in this forum), the expanding

international economy might affect the poor through multiple mechanisms. Here, I focus on two particular channels through which trade might impact poverty. First, exports might improve labor markets, and imports may improve consumption possibilities.

The majority of observational studies tend to focus on the income effects as manifest through economic growth, and their findings appear to lend support to the argument that trade benefits the poor (Dollar and Kraay 2004, 2002). However, this result is contested, and other prominent scholars have questioned the relationship between trade liberalization and economic growth. Rodríguez and Rodrik, for example, find that “[i]n many cases, the indicators of openness used by researchers are problematic as measures of trade barriers or are highly correlated with other sources of poor economic performance. In other cases, the empirical strategies used to ascertain the link between trade policy and growth have serious shortcomings, the removal of which results in significantly weaker findings” (2001, 265).

As Rodríguez and Rodrik argue, the cross-national observational analysis faces many conceptual and methodological challenges, and numerous confounding factors may bias or otherwise muddy the findings. They note, “We suspect that the relationship [between trade policy and growth] is a contingent one, dependent on a host of country and external characteristics” (2001, 266).

In part because of the challenges with the cross-national findings, I focus here on more micro studies of the relationship between trade and poverty based on data drawn from individual household surveys or other sub-national datasets. Again, that literature appears to suggest a generally positive relationship between trade

and the relief of poverty. For example, exports in Senegal apparently had positive effects on the poor through the first mechanism of increasing incomes through expanding labor market participation and creating employment opportunities (Maertens and Swinnen 2009; Maertens, Colen and Swinnen 2011). Similar effects apparently hold for farmers participating in supermarket channels in Kenya whether for export or for domestic consumption (Rao and Qaim 2011).

Also supporting the income mechanism, Porto (2006) finds that trade liberalization in Argentina positively affected the poor by improving wages for unskilled workers in line with Stolper-Samuelson, which outweighed the minor negative effects on welfare of the increasing relative prices for the poor's consumption goods. However, using a very similar methodology, Boraz et al. (2013) also find that trade had anti-poverty effects in Brazil, but these effects occurred almost entirely through the second mechanism of reducing the prices of consumption goods while having close to zero effect on labor income. Rural locales in Chile with greater proportions of tradable agricultural goods were also associated with lower poverty rates (Fleming et al. 2010). In these studies positive associations between trade and reduced poverty were identified, but the mechanisms appear entirely different from case to case.

Yet other studies find that the effects of trade on poverty depend largely on complimentary government policies investing in human capital and infrastructure as well as providing export credit and technical assistance for farmers (Harrison 2006). It appears that the anti-poverty effects of trade promotion are much more complicated than implied by the simple Ricardian models. While the general anti-

poverty effects of trade liberalization were significant in Indonesia, the impact varied across segments of the poor, with rural farmers negatively affected initially until they could be assimilated into expanded labor markets (Hertel et al. 2004).

Estimated welfare gains from trade may depend on the assumption of perfect vs. imperfect labor markets (Seshan 2014). Further, differential marketing costs appear to significantly moderate the anti-poverty gains from exports (Balat et al. 2009). And moreover, the benefits of trade liberalization, at least in Mexico, appear to accrue disproportionately to the rich and those living closest to the border with the major trade partner (Nicita 2009). When heterogeneity among those affected by trade policy is examined, evidence suggests clearly that there are both winners and losers from free trade, and the costs concentrate especially among the poor, as Ravallion (2006) found in Morocco and China. As Winters et al. (2004) summarize, “there can be no simple general conclusion about the relationship between trade liberalization and poverty.”

The observational evidence is thus generally positive about the relationship between trade and reduced poverty, but the contingencies are many and the identification of causal effects problematic. In the natural and social sciences, scholars generally place more causal weight on evidence derived from experiments in which the intervention can be randomly assigned and thus all possible confounding factors balanced in expectation.

However, I could locate only a single published study meeting these criteria. Asraf, Giné and Karlan (2009) worked in Kenya with the non-governmental organization DrumNet to evaluate an intervention in which small farmers were

encouraged to grow crops for export – such as baby corn, passion fruit, and French-cut green beans – rather than for consumption or domestic markets. DrumNet provided training for the farmers, assistance in saving money, negotiations with an exporter, and pickup of produce at harvest. The DrumNet program and the intervention plus credit were randomly assigned alongside a control group that did not receive the intervention. Neither the DrumNet intervention nor the program plus credit had a significant effect on farmers' income compared to control. However, in subgroup analysis, the authors found that farmers producing exports for the first time saw a 31 percent increase in average income.

However, in a disturbing epilogue, Asraf, Giné, and Karlan (2009) learned that the exporter dropped the DrumNet farmers in the second season due to concerns about certification to European Union product standards. DrumNet subsequently collapsed and all of the farmers' export crops rotted. The case underscores the volatile nature of export markets and the power exerted by regulations in partner countries. Thus, the best-identified study suggests some evidence that exporting can increase incomes of first-time exporters, but it also provides a warning that the real world contains much more complexity and contingency than Ricardo's stylized example of English cloth for Portuguese wine.

Avenues for Future Research

Future research should attempt to account for this complexity. I foresee two general approaches to field experiments studying the effects of trade on poverty. I hasten to note up front that field experiments cannot be designed for many

questions of interest surrounding trade and poverty. Where possible, sources of as-if-at-random exogeneity in imports and exports for given countries should be sought in order to identify potential natural experiments. Even without credible causal identification, however, as careful epidemiological research in medicine shows, observational data can be used to useful effect in support of sound theory, such as Ricardo's Law and new trade theory, especially as correlations accumulate in support.

Nevertheless, field experiments may be able to fill the existing causal identification gaps in two ways. First, researchers might attempt to explore the effects of imports especially on the livelihoods of the poor. I see this as a particular challenge given the complex nature of households' consumption and production baskets. Nevertheless, it would seem possible to partner with aid donors in the planning and implementation of special economic zones (SEZs) within countries that enable fully liberal trade and investment within their borders.

The World Bank in particular has participated in such planning in the past, and given the institution's commitment to rigorous project assessment and its recent widespread practice of randomized evaluation, it might be possible to work with governments to identify a fixed number of finalist locations for SEZs in given countries. Within that set of finalists the SEZs might be randomly assigned either in a full control design in which the comparison is to finalist locales that never receive an SEZ or in a rollout design in which the SEZs are established randomly in the different locations over time. Households within or near the SEZs might be productively compared to households at the control or wait-list locations to learn

the broad spectrum of effects of the SEZs on the livelihoods of the poor. Pre- and post-intervention survey instruments might be designed to assess both the labor market and consumption effects of proximity to the SEZs. Such designs would enable relatively precise estimates of the effects of SEZs broadly on individual welfare clustered by location.

Second, it seems even more possible to identify the causal effects of export-promotion interventions through field experiments. For example, the current World Bank portfolio includes 25 active export promotion projects totaling \$941 million in World Bank commitments (see World Bank 2014). One of these projects is the “Agricultural Markets and Agribusiness Development Project” in Senegal (World Bank commitment is \$35 million; total project cost is \$60 million). Farmers in many Senegalese locations are receiving assistance, infrastructure, and irrigation systems that ought to enable a shift to export products such as confectionary nuts, essential oils and spices, and processed foodstuffs. A future such World Bank project might, in collaboration with the domestic government, select twice the number of targeted locations than required and then randomly assign the interventions to half of those locales with other half serving as control. Pre- and post-intervention surveys might likewise be designed to assess the welfare effects of the export promotion efforts. Again, such an evaluation would provide relatively precise estimates of the treatment effects of international trade on poverty relief and could be designed up front with subgroup analysis planned that might help identify contingencies either assisting or harming poor households.

Conclusion

This forum article discussed the literature on trade and poverty with a specific focus on the evidence base for the argument that global trade causes a reduction in poverty. For many this proposition is intuitively obvious. But the observational literature presents mixed and contingent evidence that trade is associated with poverty relief. The identification of causal effects in this literature has remained especially elusive.

The recent global surge in field experiments, however, might extend to this critical question in political economy. However, until major donors such as the World Bank, in conjunction with developing country governments, routinely perform randomized evaluations of their trade-promotion programs, it will be difficult to redirect these interventions in ways that maximize the number of individuals exiting from poverty while minimizing the potentially negative effects for those who might be harmed. It would be good for social science and good for real-world practice to learn that Ricardo's Law really is more like Boyle's Law than phlogiston. But until the causal evidence base is built, we will just be speculating.

References

- Ashraf, Nava, Xavier Giné, and Dean Karlan. 2009. "Finding missing markets (and a disturbing epilogue): Evidence from an export crop adoption and marketing intervention in Kenya." *American Journal of Agricultural Economics* 91.4: 973-990.
- Balat, Jorge, Irene Brambilla, and Guido Porto. 2009. "Realizing the gains from trade: Export crops, marketing costs, and poverty." *Journal of International Economics* 78.1: 21-31.
- Borraz, Fernando, Daniel Ferrés, and Máximo Rossi. 2013. "Assessment of the distributive impact of national trade reforms in Brazil." *The Journal of Economic Inequality* 11.2: 215-235.
- Dollar, David, and Aart Kraay. 2002. "Growth is Good for the Poor." *Journal of Economic Growth* 7.3: 195-225.
- Dollar, David, and Aart Kraay. 2004. "Trade, Growth, and Poverty." *The Economic Journal* 114.493: F22-F49.
- Fleming, David A., David G. Abler, and Stephan J. Goetz. 2010. "Agricultural trade and poverty in Chile: a spatial analysis of product tradability." *Agricultural Economics* 41.6: 545-553.
- Harrison, Ann. *Globalization and poverty*. 2006. No. w12347. National Bureau of Economic Research.
- Hertel, Thomas W., Maros Ivanic, Paul V. Preckel, and John AL Cranfield. 2004. "The earnings effects of multilateral trade liberalization: implications for poverty." *The World Bank Economic Review* 18, no. 2: 205-236.

- Maertens, Miet, and Johan FM Swinnen. 2009. "Trade, standards, and poverty: Evidence from Senegal." *World Development* 37.1: 161-178.
- Maertens, Miet, Liesbeth Colen, and Johan FM Swinnen. 2011. "Globalisation and poverty in Senegal: a worst case scenario?." *European Review of Agricultural Economics*: jbq053.
- Nicita, Alessandro. 2009. "The price effect of tariff liberalization: Measuring the impact on household welfare." *Journal of Development Economics* 89.1: 19-27.
- Porto, Guido G. 2006. "Using survey data to assess the distributional effects of trade policy." *Journal of International Economics* 70.1: 140-160.
- Rao, Elizaphan JO, and Matin Qaim. 2011. "Supermarkets, farm household income, and poverty: insights from Kenya." *World Development* 39.5: 784-796.
- Ravallion, Martin. 2006. "Looking beyond averages in the trade and poverty debate." *World Development* 34.8: 1374-1392.
- Rodríguez, Francisco and Dani Rodrik. 2001. "Trade Policy and Economic Growth: A Skeptic's Guide to the Cross-National Evidence." *Macroeconomics Annual 2000*. Ben Bernanke and Kenneth S. Rogoff, eds. MIT Press for NBER, Cambridge, MA.
- Samuelson, Paul. 1969. "The Way of an Economist." In Samuelson, Paul A., *International Economic Relations: Proceedings of the Third Congress of the International Economic Association*. London: Macmillan, pp. 1-11.
- Seshan, Ganesh K. 2014. "The Impact of Trade Liberalisation on Household Welfare in a Developing Country with Imperfect Labour Markets." *Journal of Development Studies* 50.2: 226-243.

Winters, L. Alan, Neil McCulloch, and Andrew McKay. 2004. "Trade liberalization and poverty: the evidence so far." *Journal of Economic literature*: 72-115.

World Bank. 2014. "Projects and Operations." Accessed 23 December 2014 at <http://www.worldbank.org/projects>.