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Comment Marc F. Bellemare

Like most economists, I learned early on to view protectionism with suspicion. That is why the core finding in Anderson, Ivanic, and Martin's (hereafter, AIM) chapter—protectionist measures in times of high food prices can reduce poverty—was both unsurprising and interesting.

When global food prices start rising rapidly, there is almost always some discussion in the media of the protectionist measures adopted by developing countries to insulate themselves from high food prices. That discussion typically goes as follows: protectionist measures are bad because they exacerbate the problem of rising food prices. The implicit argument is thus that exacerbating already rising food prices can only hurt the world's poor, who were already facing high food prices to begin with.

In late 2011, for example, National Public Radio's *Planet Money* (NPR 2011) produced a podcast that recounted how rising rice prices led India and the Philippines to ban rice exports in 2008, thereby exacerbating a situation of high rice prices. Though the podcast did a good job of explaining how protectionist measures can compound the problem of high food prices, it included little to no discussion of the impacts of protectionist measures on poverty.

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Does protectionism hurt the poor? In their chapter, AIM answer's is a qualified "yes." In other words, protectionist measures appear to increase poverty, and those same measures are almost always detrimental to other countries.

In this discussion, I would first like to use the AIM chapter as a springboard for my thoughts as to what I would like to see future researchers accomplish on this topic. Then, I wish to briefly extrapolate from the AIM chapter to speculate on the causes and consequences of food price protectionism.

Identification

As an applied microeconomist who came to the topic of food prices from development economics, most of my comments on the AIM chapter relate to the identification of the causal relationship flowing from protectionism to poverty. More accurately, my comments are what I would like to see future researchers do in order to refine our understanding of the relationship between protectionism and poverty and, ultimately, improve food policy.

The empirical relationship between poverty and protectionism is best represented by the equation

$$(1) \quad Y_{it} = \alpha + \beta_i D_{it} + \sum_{j \neq i}^J \beta_j D_{jt} + \gamma X_{it} + \epsilon_{it},$$

where the subscripts i , and j denote countries i and j , respectively, subscript t denotes time period t , Y is a measure of poverty,¹ D_i denotes protectionist measures in country i , D_j denotes protectionist measures in country j , X is a vector of control variables, and ϵ is an error term whose mean is equal to zero.

The objective is to estimate the parameters β_i and β_j , which respectively measure the impact of protectionist measures in country i on the poverty rate in country i and the impact of protectionist measures in country j on the poverty rate in country i . One can respectively think of those effects as own and spillover impacts of protectionism. With J countries other than country i , the objective is to estimate $J + 1$ parameters.

As always, the problem is to identify the causal impact of D_{it} and D_{jt} on Y_{it} , a task that is made significantly difficult by the fact that poverty and protectionist measures are jointly determined. And although one can perhaps make the case that the protectionist measures adopted in country j are exogenous to poverty in country i , it can generally be the case that there is

1. Though AIM focus on the number of people living on less than a dollar a day, the measure of poverty retained for analysis need not be a headcount. Indeed, the dependent variable in equation (1) could be any of the higher-order Foster-Greer-Thorbecke measures of poverty, such as a measure of the depth of poverty (Foster, Greer, and Thorbecke 1984).

reverse causality between the protectionist measures adopted in country i and poverty in country i . Indeed—and as the next section briefly discusses—protectionist measures in theory depend directly on the level of development in country i .

The ideal data set to estimate parameters β_i and β_j in equation (1) would most likely be longitudinal and would follow a number of countries over time. Ideally, that data set would rely on monthly data in order to capture short-term movements in food prices and measure changes in protectionism as they happen.

The AIM findings are necessarily limited by data availability. In order to accurately estimate the impact of protectionist measures on poverty, however, future researchers should keep the following two things in mind.

Representativeness. To study the impacts of protectionist measures on poverty, AIM rely on household expenditures and income data for a convenience sample of thirty developing countries. Those data were collected between 2002 and 2010. It is difficult, however, to accurately estimate the impact of protectionist measures adopted between 2006 and 2008 without a representative sample of countries and without data that were collected at the same time. To make the study of the relationship between protectionism and poverty more systematic in the future, the World Bank should preselect countries where it would conduct rapid appraisals of how household incomes or expenditures have changed for a representative sample of households in response to food price spikes. As it stands, the data at our disposal are too spotty to accurately estimate the welfare impacts of food price spikes, let alone estimate the welfare impacts of the protectionist measures adopted in response to those food price spikes.

Timing of protectionism measures and planned versus emergency measures. Because the price data used by AIM cover the period 2006 to 2008, their findings can, in principle, encompass protectionist measures that were adopted up to a year and a half before the mid-2008 spike in food prices. To effectively identify the impact of those protectionist measures adopted *as a direct response to food price spikes*, however, it will be necessary to disentangle policies that are adopted before a price spike from those adopted afterward. Likewise, it will be necessary to distinguish policies planned long ahead of food price spikes from policies that are adopted as a response to food price spikes. In order to do this, researchers will have to come up with a precise definition of what constitutes a food price spike.

This is, of course, on top of ensuring that no important control variables are omitted and that the selected indicators do not suffer from measurement error. The latter problem is especially important when dealing with cross-country data, with each country potentially using slightly different variable definitions or reporting methodologies.

Causes: The Political Economy of Protectionism

Beyond looking at the impacts of protectionism on poverty, it is worth asking what might lead to the adoption of protectionist measures. Though this is not the place to develop a full-fledged model to account for the political economy of food price protectionism, I nonetheless wish to lay the foundations of what such a model might look like.

Assuming that protectionist measures actually work to reduce the price of food, the thirst for protectionism in a given country is presumably a function of the proportions of individuals who are net buyers of food $b \in [0, 1]$, of individuals who are autarkic relative to food $a \in [0, 1]$, and of individuals who are net sellers of food $s \in [0, 1]$ in that country, with $b + a + s = 1$. For simplicity, I assume that there is a measure zero of individuals who do not depend on food markets for their subsistence, that is, $a = 0$. In practice, however, there certainly are cases where an individual or household remains autarkic relative to food, either because the individual or household consumes exactly what it produces or because of market failures.

I also abstract from dynamic considerations such as storage and buffer stocks (Williams and Wright 2005; Wright and Williams 1982) and general equilibrium effects, and I assume that rising food prices benefit net sellers of food but hurt net buyers of food (Deaton 1989). Everything else being equal, the former oppose protectionist measures, and the latter support them. Under a voting model, protectionist measures obtain when $b > s$. That is, when net buyers of food outnumber net sellers of food, politicians seeking reelection will have an incentive to enact protectionist measures, whose result is to lower the price of food.

Even in heavily agricultural, food-exporting countries, however, it will generally be the case that $b > s$; that is, net buyers of food outnumber net sellers of food. So why do we not observe protectionist measures everywhere?

The answer is likely because a pure voting model is not ideally suited to explain protectionism. Indeed, few developing countries have regular, open elections for their citizens to hold politicians accountable. Moreover, in most countries, food is but one issue voters care about. This is especially true in more developed countries: as a country develops and incomes increase, the budget share of food decreases, and so the price of food becomes an increasingly negligible concern. In such countries one might expect net sellers of food—farmers—to lobby politicians against protectionist measures (Bates 1981), simply because the gain to net sellers of doing so far exceeds the loss incurred by consumers because of higher food prices.

Indeed, as countries develop and their economies evolve from agrarian economies generating low incomes per capita to industrial economies generating higher incomes per capita, and then to service economies generating high incomes per capita, we can expect politicians to be increasingly unlikely

to adopt protectionist measures. This is reinforced by Engel's law, which states that as countries develop and incomes increase, the budget share of food decreases for the average household, and so consumers care relatively less about the price of food. This progression of protectionist policies along the stages of development is similar in spirit to the "developmental paradox," according to which policies aimed at reducing the effects of food price volatility are more likely to be adopted as a country develops, as farmers become more likely to organize and lobby the state for price stabilization (Barrett 1999; Lindert 1991).²

Going back to developing countries, where food prices are of utmost importance to consumers because of high budget shares of food, though the voting model might not be terribly well suited to explain politics in developing countries, it is not clear that the lobbying model is either. Indeed, in developing countries, rural producers often lack the organizational capacity required to lobby politicians. In such countries, however, it is often the case that the threat of food-related social unrest (Bellemare, forthcoming; Rudé 1964) will provide politicians with enough of an incentive to adopt protectionist measures.

Consequences: Protectionism and Externalities

The foregoing focused on the likely causes of protectionist measures, but what about the consequences of such measures?

If protectionist measures decrease the price of food in country A but contribute to rising food prices elsewhere, there is an externality associated with those measures for country B.

Whether that externality is positive or negative depends once again on the distribution of households along the net buyer, autarkic, or net seller continuum in country B; that is, on the proportions b_B , a_B , and s_B . When $b_B > s_B$, protectionism in country A is a negative externality for country B. That is, for citizens in country B, the rest of the world overproduces protectionism. When $b_B < s_B$, however, protectionism in country A is a positive externality for country B. That is, for citizens in country B, the rest of the world underproduces protectionism, in which case politicians in country B should be willing to pay politicians in country A to adopt protectionist measures.

What politicians in country B do in response to the externality—that is, whether they encourage the politicians in country A to adopt (or disadopt) protectionist measures—however, depends on the political economy of food in country B, as discussed in the previous section. In other words, there might be a good case for country B to retaliate against or give preferential treat-

2. I distinguish between rising food prices (i.e., high food price levels) and food price volatility (i.e., the noise or uncertainty around the food price level), or between the mean and the variance of a food price series.

ment to country A in response to the latter's adoption of protectionist measures. In the limit, the externalities associated with food price protectionism can provide a rationale for intervention by global food policymakers.

Conclusion

The AIM chapter has explored the impacts on poverty of the protectionist measures adopted in response to rising food prices. In this discussion, I have outlined a possible agenda for future research aimed at understanding both the causes and consequences of such protectionist measures.

Specifically, by "causes," I mean the political economy of food price protectionism, and by "consequences," I mean the externalities that come with the adoption of protectionist measures. Understanding both the political economy of protectionism and the externalities arising from protectionist measures will help the design of global policy instruments aimed at mitigating the effect of high food prices.

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