

THE IMPACT OF WEATHER ON COMMODITY PRICES: A warning for the future from UK banana imports

An increase in global temperatures as a result of climate change is likely to lead to a substantial increase in commodity prices, according to research by **Annalisa Marini**, to be presented at the annual congress of the European Economic Association in Manchester in August 2019.

Her study of UK imports of bananas illustrates how higher temperatures in countries that produce and export commodities are likely to lead to higher prices for consumers in developed countries.

Weather and climate change are relevant to various fields of economics, including the agricultural sector, which still covers a predominant role in the economy of developing countries. In particular, weather may affect the determination of commodity prices.

This study, which applies a methodology that allows for the presence of the heterogeneity of weather variation across seasons, investigates the impact of temperatures and precipitation in several banana producing/exporting countries on the prices of exports to the UK.

This group of countries comprises Belize, Cameroon, Colombia, Costa Rica, Côte d'Ivoire, the Dominican Republic, and Ecuador, which cover a great part of UK banana imports.

Although the research studies the banana market, it proposes a framework that can be generalised to identify the impact of weather on a variety of commodity markets.

The author focuses on the banana market for specific reasons:

- First, climate has an impact on worldwide economies, but especially so on developing economies whose income sources depend more on agricultural products.
- Second, she investigates the banana exports to the UK to show that the effect of weather on developing countries is relevant also for developed economies.
- Third, banana is a fruit with good nutritional properties (so important for the daily diet), which does not have substitutes and is also the most favourite fruit around the world. Furthermore, there exist diseases that are currently threatening its production.
- Finally, bananas can only be grown in specific areas of the world; thus, imports and prices of developed countries depend on a selected network of countries, which are then correlated.

The findings are as follows:

- First, shocks to temperatures in the exporting countries are more relevant than shocks to precipitations for the determination of banana export prices, so precipitation is excluded from the econometric analysis.

- Second, an increase in temperatures increases commodity prices; most importantly, the study shows that weather shocks not only have a direct impact on export prices of the country affected by the shock, but they also spill over to other exporting countries.
- Third, by simulating a scenario compatible with global warming, the study finds that an overall increase in temperatures is likely to lead to a substantial increase in commodity prices.
- Finally, considering the relevance of the agricultural and export sectors for the countries under study, the author simulates a contemporaneous shock to both temperatures and the economy, finding that these effects are four to six times bigger if the shock to temperatures is accompanied by a shock to the economy of exporting countries.

She discusses the implication of the results for the future in terms of the resilience of the food system.

On the one hand, although an increase in prices may increase revenues of banana producers/exporters, the benefits of an increase in revenues are likely to be overridden by the costs the industry should bear in order to adjust and adapt to the effect of global warming.

On the other hand, a change in the banana market (for example, a reduction of the supply or an increase in prices) could affect preferences of consumers.

So, she concludes by stressing the importance of investigating the resilience of both producers and consumers in the banana market and more generally the resilience of the food system.

Indeed, it can be questioned whether in some developed countries, including the UK, the impact of a shock on commodity prices is generally absorbed by retailers, and consequently consumers should not be much affected. If we consider that climate change will affect all commodity markets, it becomes clear that retailers will not be alone in facing the implications of these future scenarios.

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