



Impacts of Trade Agreements and Policies on the Tomato Industry

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Introduction

The United States is the world's third largest tomato producer behind China and India. Mexico ranks tenth and Canada thirty fifth (FAOSTAT, 2013). Yet, in 2014 imports to the United States accounted for almost double of what was domestically produced. Imports mainly from Mexico and Canada represented 89.61 percent and 9.45 percent respectively. The remaining imports came from Europe and Central America. However, over the years, tomato imports from Mexico have been showing an accelerated increase mainly attributed to the North American Free Trade Agreement (NAFTA), technological advances in production, and the devaluation of the peso in the mid-1990s (Almonte-Alvarez and Conley, 2003).

On the other side, Canada and Mexico are the two main destinations of U.S. tomato exports. U.S. exports peaked in 2000 at 186,133 metric tons (MT) but by 2014 this quantity has declined by 45 percent (USDA, 2015c). This tendency plus the decrease in domestic production and the accelerated increase of Mexican exports of tomato into the United States has resulted in trade disputes with Florida growers.

Starting in 1978 U.S. tomato producers in Florida have argued that Mexican growers are dumping their tomatoes into the U.S. market. Escalating disputes have resulted in what literature usually calls a "Great Tomato War" (Kosse, Devados and Luckstead, 2014). The result of these disputes is trade tensions and several changes in policy for the tomato industry. One of the most recognizable policies is the first price floor established for Mexican tomatoes in 1996, the renewals of agreements in 2002, 2008 and the latest in 2013. Additionally, NAFTA is probably the most influential agreement, especially for Mexico (Kruger, 1999). However, NAFTA also affected Canada by enlarging the Canadian-U.S. Free Trade Agreement (CUSTA) (Trefler, 2004).

Structural Changes in the Tomato Industry

To determine the potential factors that affect the structure of the tomato industry and if there is any structural change that can be linked to policy interventions or any other event, Bai and Perron (2003) tests are used for six different variables: prices of tomatoes, domestic production, exports, and imports from Mexico, Canada and the rest of the world. This test does not require any information about the timing of the possible breaks or the number of breaks as it is only based on the data. When the Tomato data (USDA, 2015a, b, e) from 1970 to 2014 is tested for multiple endogenous breaks, the results suggest that there are two structural changes. The first change occurred during January 1992 for imports from Mexico and the other in August 1999 for imports from Canada and Rest of the World. These suggest that imports are driving structural changes in the industry.

Causal Structure in the Tomato Industry

After the breakpoints are found, the historical data is divided into three periods of time for which a causality analysis in contemporaneous time (Bessler and Akleman, 1998) is performed on TETRAD V (Schines et al., 1996). As shown in panel (a) from Figure 1, before NAFTA signature in 1992 there were not many interactions between the variables analyzed and the domestic production was mainly determined by the prices and the quantity to be exported. Even though early disputes between Florida and Mexican growers had already started, imports did not play a very influential role in the structure of the industry. Imports from Mexico and from Canada appear to be linked between them. During this first period, the quotas were the main policy affecting the domestic production.

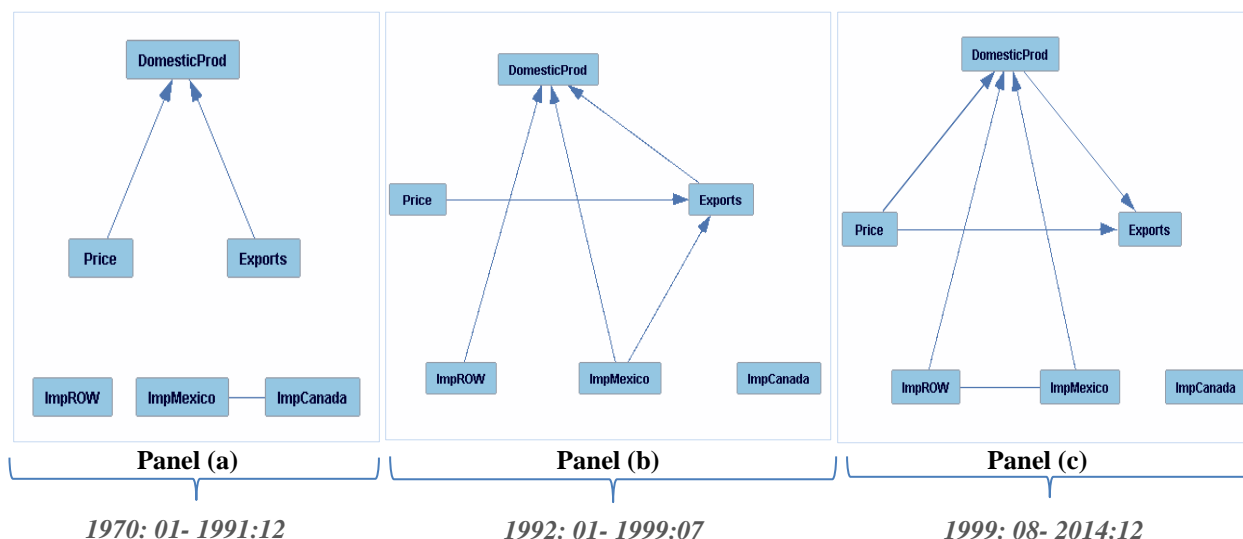
The first structural break might have been caused by the NAFTA signature in 1992, even though the agreement did not come into force until 1994 expectations could have played an important role. There is a structural change and the causal relation in the industry also changed (panel b). Now imports, especially from Mexico and rest of the world start to play an important role in explaining the domestic production. Prices are not causing the domestic

production directly anymore but they appear to affect it indirectly through exports. Mexican imports also affect the quantity exported emerging as a very important supplier of the U.S. market. Although NAFTA only concerned Canada and Mexico, imports from rest of world started to become suppliers as new trade agreements were signed.

The second structural change in 1999 could be attributed to the elimination of the NAFTA tariff rate quota for summer Mexican imports in 1998 and changes in pricing policies like the establishment of price floor in 1996. Additionally, it could have also been caused by the steady increase of Canadian greenhouse tomato production and the emergence of central and South American countries as tomato exporters to the United States.

After the second structural change and before 2014 (panel c), prices are affecting again the domestic production. Imports from Mexico and rest of the world are explaining the quantity produced and are linked. This could have happened because of the increase in Mexican exports and the fact that Imports from the rest of the world not only increased but also supplied the market in the same months as Mexico. In addition to this, now the quantity to be exported is not determining how much is produced but on the contrary, the amount produced is what determines how much is available to be exported. Imports from Canada are still not very influential in explaining the industry causal structure.

Figure 1. Causal Structures in the Tomato Industry



Agricultural policies have an important effect in the underlying causal structure of the U.S. tomato industry. As opposed to what literature has argued, it appears that Mexican peso devaluation did not have an effect in changing the structure of the tomato industry during the 1990s. Additionally, the analysis shows that NAFTA had more influence in affecting the structural change in the short run than pricing policies. There is a clear spillover effect as a result of Mexican imports driving changes in the industry. Most of the agricultural policies applied for tomatoes have been oriented to protect domestic growers. However, it seems that they have not stopped competitors, and specifically Mexican importers from taking an important share of the market. While domestic growers have relied on these policies, Mexico, Canada and Central American countries have used mechanisms such as technological and infrastructure investment to increase their market power.