

Net Effects of the Russian invasion of Ukraine on the US Economy

Topic: Input-output analysis for policy making II (Chair: Candi Clouse, Cleveland State University)

Author: Candi Clouse

Overview & Research Question

Input-Output analysis has been used since its inception to study the domestic effects of war and even to target disruptions in enemy supply chains (Bollard, 2020, p 193). Coupled with analysis of maps, obituaries, and secret communications, input-output analysis was instrumental in pointed attacks in World War II led by data and intelligence from economists (Bollard, 2020, p 194). While much attention was paid in the early days to learning how to dominate world aggressors through penalties and attacks, there are also huge implications to these policies on the domestic front. In the current global context while Russia is invading Ukraine, countries across the globe are seeing dramatic delays and interruptions in their imports and exports to the warring nations. These abrupt economic changes, although hopefully short lived, have lasting impacts on regional economies.

Methodology

This analysis will examine the regional winners and losers in the United States from the war in Ukraine using a net analysis coupled with multi-regional input-output analysis. Net analyses report a holistic look at the effects resulting from a change in production or spending in the economy, both the positive and negative. Net analyses that involve two or more different industries will have net winners and net losers beyond just those directly impacted. It is extremely useful to examine both sides in an analysis framing a truer impact picture by not focusing solely on the winners or the losers (Slovachek, 2022).

Using multi-regional input-output (MRIO) analysis, the regionality of economically concentrated places is maintained. MRIO employs interregional commodity trade and commuting flows in order to assess the change in a linked region (Clouse, 2020). Employing this method, the regional concentrations of the affected industries will not only be maintained, but linked out to the other regions across the US.

Data

The first side of this analysis will look at the losses to US businesses from import bans outlined by the United States federal government. Sanctions by industry currently include oil and energy, computers, sensors, lasers, navigation tools, telecommunications, aerospace and marine equipment (Funakoshi, Lawson, & Deka, 2022). Based on the most recent export data from the US Census Bureau - Economic Indicators Division, US exports to Russia were pulled from the list of all exports at the 4 digit North American Industry Classification System (NAICS) code (United States Census Bureau, 2022). These exports total over \$1 billion in losses for US firms across 17 NAICS codes.

On the other hand, the United States has also authorized \$13.6 billion in emergency aid to Ukraine (Aljazeera, 2022). This includes not only monetary support, but also \$1 billion in anti-aircraft and anti-tank weaponry, produced within the United States, in three 4 digit NAICS code industries.

An analysis of the production centers by region for each of the identified industries will be identified. Then, using the IMPLAN data and analysis, a model will be created that will show negative impacts in the industries facing sanctions against Russian exports and positive impacts in the military supply aid being sent to Ukraine (IMPLAN, 2022). These industries will be modeled regionally and linked via Multi-Regional Input-Output (MRIO) analysis. Using this method, the net effect at the national level will be demonstrated, but additionally the regional winners and losers in terms of manufacturing clout via industry will also be ascertained.

Preliminary Conclusions & Novelty

While on the surface, the loss of approximately \$1 billion in forgone exports to Russia is offset by the \$1 billion gain in new sales going to support Ukraine, the different industries that are affected have distinct supply chains and connectivity within the US and ergo there will inevitably be winning and losing regions across the country.

While this is in no means intended to be a comprehensive examination of the effects of the war in Ukraine on the American economy, the hope is that by looking at what seems to be a dollar-for-dollar loss in exports to gain in domestic manufacturing, a subtle shift in spending patterns will show that certain regions will disproportionately be “winning” while others are “losing” in times of global conflict. This research hopes to examine the overlap of regionality in terms of the industrial gains and losses across the United States to see if policy interventions might be required to mitigate economic losses to certain places due to international unrest.