Examining Links Between Total Factor Productivity Growth and National Food Supplies: Are there Implications for Food Security and Self-Sufficiency?

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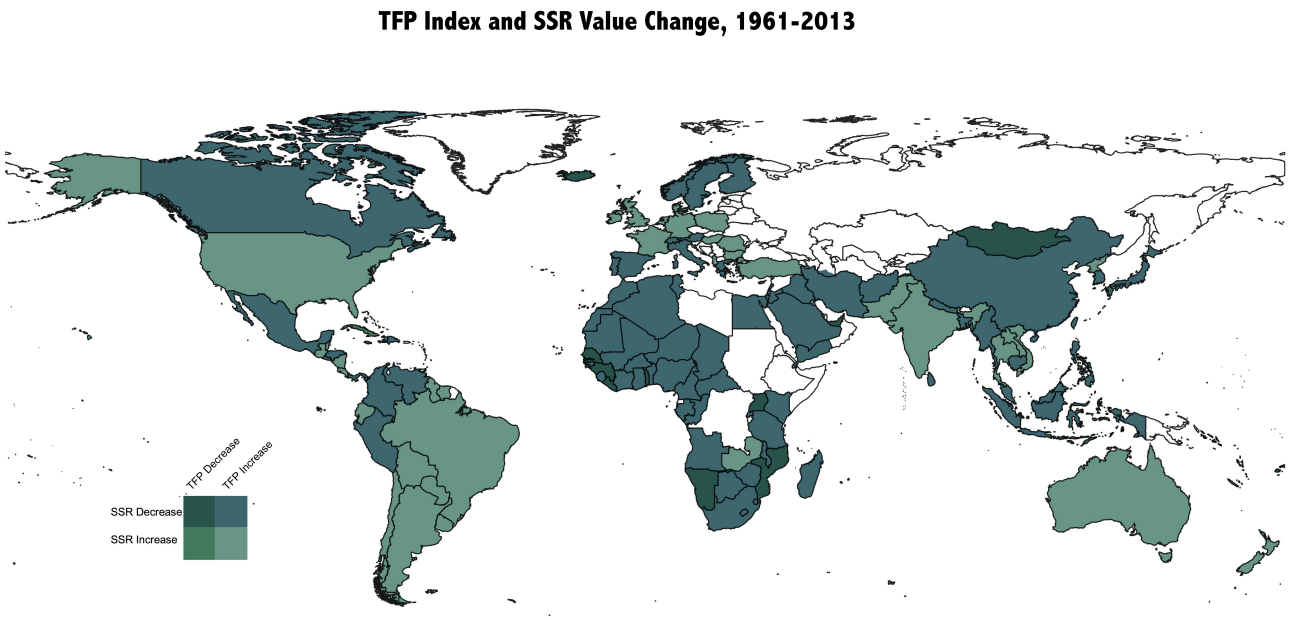
Total factor productivity (TFP) measures the ratio of aggregate inputs used in agricultural production to agricultural outputs. Given concerns related to food security, including inequality in food access and disparities in food self-sufficiency potential among nations, my research seeks to address whether TFP, an economic measure, can have a more "humanized" dimension through its relationship with food availability. Drawing from national statistics on food production and trade for 48 food items from 1961 to 2013 for 131 countries, I analyze trends in indices of food supply per capita and food self sufficiency and compare these to TFP growth trends to investigate linkages between TFP and food availability. I find that TFP growth shows the closest associations with specific food items, especially animal products. Although my findings suggest that TFP growth may help to maintain self-sufficiency levels in some countries, many high-income countries are moving away from self-sufficiency despite steady TFP growth. Further research is needed to investigate the statistical relationship between these variables based on time-series analysis, including the specific mechanisms that may underpin these associations.



Change in food self-sufficiency, measured by self-sufficiency ratio (SSR) compared to change in TFP index value. Source: Author