Motivation and Objectives

Investigate whether there is a gap between efficiency and productivity of companies operating in non-tradable and companies operating in tradable sector of any national economy. It is expected that the productivity gap between sectors is going to be different in different countries.

Underlying Methodology

A nonparametric method in operations research and economics for the estimation of production frontiers (clarification needed). It is used to empirically measure productive efficiency of decision making units (DMUs).

Linear Regression – Fixed Effects Model

In panel data analysis, the term fixed effects estimator (also known as the within estimator) is used to refer to an estimator for the coefficients in the regression model. If we assume fixed effects, we impose time independent effects for each entity that are possibly correlated with the regressors.

Research process architecture and data treatment

Analysis – 1st round

Basic fixed-effects model with all countries individually expressed. As dummy variables is testing at general efficiencies of individual countries with relation to base country, but coefficient of interest is not statistically significant. All countries, base is Slovenia: 

Colinearity of effects of similar countries is the suspect for non-significance of log_nontrad_normals... most important coefficients. Thus, we group the countries on the basis of geographical, historical or current economic and legislative constellation.

Analytically the best results are obtained with the following grouping:

Research – 2nd round – grouped countries

Analysis of the log-corrected global efficiency and group dummy variable. The optimal monetary stabilization role for fiscal policy is desirable not only from the viewpoint of each country’s members ability to conduct countercyclical fiscal policies, but also from the point of view of the union as a whole.

Conclusion

There is a relationship between efficiency of non-tradable sectors and relative efficiency of tradable sectors of national economies within international markets. In general, we expect, that if efficiency of non-tradable sector in a country increases by 1%, relative efficiency of this country’s tradable sectors in international market is going to increase by 0.6%.

Software

R: A language and environment for statistical computing.

ggplot2 (R package): Elegant graphics for data analysis.

gvlma (R package): Global validation of linear models assumptions.

Benchmarking and Frontier Analysis Using DEA and SFA

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Literature review

To the extent that price stickiness is present, there are welfare losses associated with departures from price stability. In addition to those stemming from monetary output and fiscal gaps. However the flexible price/efficient allocation is not feasible under the currency union regime. In particular, the rise in productivity must be absorbed as a gradual and persistent fall in the price level, with the consequent relative price distortions (Gall, Monacelli, 2008).

As a result, the optimal policy mix requires expanding the fiscal gap to bring about the rise in demand necessary to accommodate the desired expansion in output, thus smoothing the adjustment of prices over time. (Ciaian et al, 1999). The optimal monetary-fiscal policy mix is in the presence of idiosyncratic shocks to productivity and assumed normal rigidities, combined with the impossibility of restoring nominal exchange rate adjustments, induces an inefficient response of the terms of trade that justifies the use of fiscal policy as a stabilization tool. (Gall, Monacelli, 2008)

Implications based on Gall & Monacelli (2008):

- If the optimal for the common monetary authority to stabilize inflation in the union as a whole, a monetary policy rule like the one adopted by the European Central Bank, is one that focuses on aiming price stability the union as a whole. However the optimal policy is conditional on the national fiscal authorities simultaneously implementing their part of the optimal policy package to neutral fiscal stance in the aggregate which poses no inflationary pressures on the trade.

- Under the optimal policy arrangement, each country’s fiscal authority plays a dual role, helping off the provision of an efficient level of public goods and the stabilization of domestic inflation and output gap. The existence of such a stabilizing role for fiscal policy is desirable not only from the viewpoint of each individual country, but also from that of the union as a whole.

- Such finding may fall into question the desirability of imposing external constraints on a currency union’s members ability to conduct countercyclical fiscal policies, when the latter seek to limit the size of the domestic output gap and inflation aftermaths resulting from idiosyncratic shocks.

Analysis

A database of comparable financial information for public and private companies across Europe

Data

Fixed Effects Model

In panel data analysis, the term fixed effects estimator (also known as the within estimator) is used to refer to an estimator for the coefficients in the regression model. If we assume fixed effects, we impose time independent effects for each entity that are possibly correlated with the regressors.

 DEA computation and DEA score evaluation

DEA scores of companies are used as inputs into regression analysis. Raw DEA scores are useless. Average DEA score tells us something about the distribution of scores within an industry, but is again not suitable for comparison. One small very efficient newcomer renders the whole "market" DEA ineffective. When probing the data for individual industries, DEA scores are weighed according to the market share and then normalized, so that overall efficiency of the market stays the same.

Examples related to "DEA ineffective". When probing the data for individual industriese, DEA scores are weighted according to the market share and then normalized, so that overall efficiency of the market stays the same.

Conclusion

There is a relationship between efficiency of non-tradable sectors and relative efficiency of tradable sectors of national economies within international markets. In general, we expect, that if efficiency of non-tradable sector in a country increases by 1%, relative efficiency of this country’s tradable sectors in international market is going to increase by 0.6%.