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Title

A New Model of Global Beverage Markets

I want to submit an abstract for:

Conference Presentation

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Keywords

wine; grapes; beer; spirits; alcohol markets

Research Question

How much influence do developments in markets for one alcohol beverage have on the other beverage markets, and how does that differ across countries?

Methods

The authors' model of national production, consumption, bilateral trade and excise and import taxes in the world's wine markets has been revised and expanded to include beer and spirits markets.

Results

The interactions between products is much greater within the wine category (comprising non-premium, commercial premium and super-premium wines) than between wine and the other two alcohol types.

Abstract

A model of the world's wine markets, first published by Wittwer, Berger and Anderson (2003) and much improved by Anderson and Wittwer (2017), is being expanded to include beer and spirits markets. Wine types continue to be disaggregated into non-premium (including generic bulk), commercial-premium and super-premium still wines, and sparkling wine. As in the original model, there are two types of grapes, premium and non-premium. Non-premium wine uses non-premium grapes exclusively, super-premium wines use mainly premium grapes, and commercial-premium and sparkling wines use both types of grapes. The number of countries and country groups exceeds 50, including 7 composite regions. The model's database is calibrated to 2016, based on data in Anderson, Nelgen and Pinilla (2017) and Holmes and Anderson (2017).

While this is a partial equilibrium model, its theory (involving supply and demand equations) is based on that of economywide CGE models in the ORANI school (Dixon et al. 1982). The equations resemble a hybrid of the TERM (Horridge 2012) and GTAP (Hertel 1997) CGE models. The model is implemented using GEMPACK software (Harrison et al. 2014).

On the production side, each industry uses a combination of intermediate and primary inputs to produce a unit of output. Producer decisions consist of a sequence of CES decisions, with a composite good entering the next stage. Some intermediate inputs such as grapes have endogenous supplies, while others, for whom sales to beverages are a small proportion of total sales, are exogenous, implying infinitely elastic supplies of those inputs. Grape prices therefore will move with changes in global wine market conditions, as a large share of the global grape crop is crushed to produce wine.

For each beverage (four wine types, beer or spirits), substitutability possibilities involve two stages, between import origins to form the import composite and between the domestic source and import composite.

The model includes nominal exchange rates relative to the US dollar (the numeraire). This allows a distinction between price impacts as observed in local currency units and those observed in 2016 US dollars. Changes in a nation's nominal exchange rate will only affect a producer's competitiveness in the global beverage market if it is transmitted through to real impacts. If a movement in the general price level and nominal wages exactly offset a nominal exchange rate movement, there is no change in a nation's international competitiveness.

The demand side adopts a linear expenditure system based on a utility function that splits household spending on each product into a subsistence component that depends only on the number of households and preferences, and a luxury component that depends on prices and income in a Cobb-Douglas form. In addition to the various beverages, there is another sector covering all other household expenditure. The optimizing problem for household consumption of each commodity is subject to a budget constraint. Since real aggregate consumption is usually exogenous in the simulations, the linear expenditure system determines the consumption shares of individual final commodities, driven by changes in relative prices as faced by domestic consumers. The income elasticity of demand for each commodity is equal to the marginal budget share divided by the expenditure share. The income elasticity of demand for non-beverage consumption is very close to 1.0, because alcohol accounts for only a small percentage of aggregate expenditure.

In addition to describing the model, the paper will illustrate the usefulness of its many outputs by reporting the results from one or more simulations of relevant market or policy shocks. Past simulations using the world wine model have shown the importance of exchange rate movements in altering the international competitiveness of different nation's wine producers (Anderson and Wittwer 2013, 2017). This paper will explore the extent to which beer and spirits producers are influenced by real exchange rate shocks.

References

- Anderson, K., S. Nelgen and V. Pinilla (2017), *Global Wine Markets, 1860 to 2015: A Statistical Compendium*, Adelaide: University of Adelaide Press.
- Anderson, K. and G. Wittwer (2013), "Modeling Global Wine Markets to 2018: Exchange Rates, Taste Changes, and China's Import Growth", *Journal of Wine Economics* 8(2): 131-58.
- Anderson, K. and G. Wittwer (2017), "The UK and Global Wine Markets by 2025, and Implications of Brexit", *Journal of Wine Economics* 12(3): 221-51, December.
- Dixon, P., B. Parmenter, J. Sutton, and D. Vincent. 1982. *ORANI: A Multisectoral Model of the Australian Economy*. Contributions to economic analysis 142, North-Holland, Amsterdam.
- Harrison, J., M. Horridge, M. Jerie and K. Pearson (2014), *GEMPACK Manual*, GEMPACK Software, ISBN 978-1-921654-34-3.
- Hertel, T. (ed.) (1997), *Global Trade Analysis: Modeling and Applications*, Cambridge and New York: Cambridge University Press.
- Holmes, A.J. and K. Anderson (2017), *Annual Database of National Beverage Consumption Volumes and Expenditures, 1950 to 2015*, Wine Economics Research Centre, University of Adelaide, at www.adelaide.edu.au/wine-econ/databases/
- Horridge, M. (2011), "The TERM model and its data base", CoPS working paper G-219, <http://ideas.repec.org/p/cop/wpaper/g-219.html>, July.
- Wittwer, G., N. Berger and K. Anderson (2003), "A Model of the World's Wine Markets", *Economic Modelling* 20(3): 487-506, May.

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