

CHAPTER 10

GDP forecasting by CDR composition

Reference: Ridley (2018c).

It has been established that the parsimonious capitalism, democracy, rule of law (CDR) model is a global time invariant model for the estimation of real gross domestic product adjusted for purchasing power parity (G). This new scientific discovery may be used to estimate G for any year in which a country market capitalization (C), democracy ranking (D), rule of law ranking (R), and the highest and lowest values of G amongst all countries are known. This scientific growth model is used to construct a forecasting model for G from its CDR composition.

Keywords: Forecasting; Gross Domestic Product; Capitalism; Democracy; Rule of Law.

1. INTRODUCTION

Prior to the Ridley (2017a,b) CDR model the Solow (1956, 1957) growth model was the best estimator of output from which gross domestic product (GDP) could be obtained. That model is based on an adaptation of the Cobb-Douglas model $Q=f(K,L)$ in which K is fixed capital and L is labor. It does not account for entrepreneurial capital and must come up short of explaining the total variation in GDP. Whereas it is presented as an aggregate production function, Ridley and Ngnepieba (2018) show definitively that there is no such thing as an aggregate production function. Also L varies depending on quality due the level of associated skill. That is, it departs from the Ricardo (1817, 1821) definition of homogenous labor in which each unit must be the same. The Solow model is not global invariant and not time invariant. Therefore, it must be estimated separately for each country and re-estimated for each year. Knowing K and L for any one country does not say anything about G in another country or in a different year.

Gwartney and Lawson (2003) and Gwartney, Holcombe and Lawson (2006) advocate economic freedom as good for economic growth. That research produced the economic freedom of the world (EFW) index. But, the $GDP=f(EFW)$ model yields only $R^2_{adj} = 52\%$ compared to $R^2_{adj} = 83\%$ for the CDR model.

A fundamental principle for time series analysis and forecasting is to recognize that an historical variable that is to be forecast may comprise components that change over time but not all in the same way. For that reason, where possible, the variable should be decomposed into its component variables. Or, its components can be identified together with the relatively weights that they contribute. Each component variable should be forecast separately and subject to the rules that apply to it. The component forecasts can then be integrated by a weighted average to obtain the forecast of the aggregate variable of interest.

This paper explores the possibility of using the CDR growth model to forecast real gross domestic product adjusted for purchasing power parity (G). In the CDR model, the components of G are capitalism measured by total market capitalization (C), degree of democracy measured by country democracy ranking (D) and degree of rule of law (R) measured by the opposite of country ranking in corruption. Rule of law reflects the enforcement of property rights and various laws related to the achievement of justice. The relationship of these components to G is global time invariant. Global time invariance permits the estimation of G for any year in which country