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The ***Ashesi Economics Lectures Series Journal*** is a compilation of selected, peer-reviewed papers presented at the Ashesi Economics Lectures Series. The papers address economic and public policy issues of relevance to the International Community and to the Sub-Saharan African Region.

1 • Trends and cycles in primary commodities: state space modelling and the Kalman filter

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Abstract

Decomposing economic time series into their temporary and permanent components have followed two broad paths: trend versus difference stationary models and detrending versus filtering. Whereas the former breaks down due to their inability to capture the underlying data generation process (dgp), the latter are either one sided filters or are based on ad hoc procedures in achieving parsimony. In this paper, we propose structural time series models in which trends, cycles, seasonal components are treated as stochastic, and which contains the traditional approach as a special case. Cast in state space form, and estimated using maximum likelihood via the Kalman filter, these models accurately predict the behaviour of commodity prices through time. Using data on agricultural raw materials and metal price indices for the 1957(1) to 2008(4) period we document the frequency and duration of commodity prices, key elements for designing policies aimed at smoothing terms of trade shocks and the resulting macroeconomic effects associated with price disruptions. We found that the individual dgp have varied over time and are best captured as stochastic rather than deterministic trends. Moreover, we uncover multiple structural breaks and outliers, far beyond what extant results would like us to believe. Finally, the models remain robust in an out of sample forecast.

Key Words: commodity prices, terms of trade shocks, trends, cycles and state space models.
JEL classification: C51, Q11, E32

Introduction

All primary commodities exhibit certain stylized facts: they have grown above average over the past 60 years, and have fallen much less so during the same period; slowing more with recessions, and rising faster with upturns. The short-run fluctuations in primary commodity prices are noted to be demand driven, and sometimes display evidence of lagged supply response, while the long-run trend is supply driven and tend to follow advances in technology in primary, relative to manufactured industries (see Cashin and McDermott, 2002; Deaton and Laroque, 1992). Whereas a lot has been written about the behaviour of commodity markets, there are still many gaps in our knowledge concerning the short-run cyclical fluctuations and long-term trends.

Extant knowledge have followed two broad paths: trend and difference stationary models and their various extensions that account for structural breaks and, detrending procedures based on Beveridge and Nelson (1981), type decomposition and Hodrick and Prescott (1980), for short, style of detrending. While the former suffer from low power, imposes a restrictive deterministic time trend plus a stationary component which is sometimes misleading and indeed unnecessary (see Harvey, 1997), the latter, notably, techniques are based on ad hoc procedures in their model selection, while the Hodrick and Prescott filters employ mechanical means to separate the long-run from the short term components. In this paper, we propose unobserved components to overcome the intractable difficulties encountered in extant literature.

First, estimating the change in the secular terms of trade inevitably faces serious statistical difficulties. For example, results are very sensitive to which years are taken as the beginning and end of the data series and the

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2 • Does political stability improve the aid-growth relationship? A panel evidence on selected Sub-Saharan African countries

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Abstract

Significant ambiguity still surrounds the aid-growth relationship despite fifty years of research on the subject. For the case of Sub-Saharan Africa (SSA), a possible reason for the lack of consensus is that until recently the influence of political stability on the aid-growth relationship had been largely ignored despite its relevance for the region. Further, although overlooked by the literature, the Instrumental Variable (IV) technique, the preferred treatment method of endogeneity in aid-growth relationships, may be ineffective in eliminating endogeneity bias because typical instruments for aid are neither sufficiently exogenous nor strong. Using a dataset of 31 SSA countries from 1984-2007, we re-visit the question of whether aid can spur growth in SSA using first-differencing (FD) to eliminate unobserved effect endogeneity while focusing on the role of political stability on the aid-growth relationship in SSA. Results suggest aid promotes growth conditional on political stability in SSA and that First Differencing (FD) eliminates a substantial amount of the endogeneity bias. Our results demonstrate the pertinence of a stable political environment to attaining the UN's Millennium Development Goals (MDGs) for SSA countries since these goals inherently assume that aid can promote growth.

Key Words: Growth, Aid, Political Stability, Endogeneity, SSA, and IV.
JEL classification: 011

Introduction

Despite repeated warnings by economists of its futility, the developed world still provides lots of aid to Sub-Saharan Africa (SSA) to spur economic growth (Leeson, 2008 and Arndt, Jones and Tarp, 2010). SSA has absorbed almost one trillion nominal aid dollars over the last fifty years but the growth record has been unimpressive (Mayo, 2009 and Easterly, 2006). The insistence of developed countries to bestow aid on SSA is not so confounding if one considers that ambiguity still surrounds the effect of foreign aid on growth (Naito, 2010 and Bruckner, 2011). In particular, estimation of the aid-growth relationship is fraught with different kinds of endogeneity problems (Rajan and Subramanian, 2008 and Deaton, 2008). Further, since SSA has been racked by political instability, a question emerges about the effect of political stability on the aid-growth relationship in the region.

Given the uncertainty about the effect of aid on growth, and the possible consequences of political stability on the aid-growth relationship, this paper seeks to: (1) empirically determine if aid and growth are related using recent SSA data, and (2) identify the effects of political stability on the aid-growth relationship in SSA after accounting for possible endogeneity bias.

The article contributes to the literature in three main ways. First, it focuses on the SSA region and employs recent data in estimating the effect of political stability on the aid-growth relationship. Second, it uses a dependable measure of political stability constructed with Political Risk Service (PRS)'s International Country Risk Guide (ICRG) dataset to identify the effect of political stability on the aid-growth relationship in SSA. Finally the possibility of endogeneity bias is addressed: The current literature treatment of endogeneity with IV is criticized while FD is justified and employed in estimating the aid-growth

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3 • Free-riding and incidence of poverty in Ghana

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Abstract

Poverty levels in Ghana have largely been high among rural dwellers. The study assess the ex ante risk that if an individual is not currently below the poverty line, will slip past it, and the ex post possibility that those who are already in poverty will remain in it with increased severity.

The FGT poverty class of index was first used. This showed that a proportion of 0.77 of the entire population under investigation was poor. Also, the poor trade hugely among themselves at 0.74 redistribution rate.

Furthermore, to investigate the major determinants of poverty in Ghana resulting from free-riding, a dichotomous logit model was used. Most importantly, female household heads were found to be more vulnerable to poverty relative to their male counterparts. It was also observed that there has been a 'poverty-switching' phenomenon from the savannah zone to the coastal and forest zones of Ghana with deplorable consequences.

Key words: Incidence of Poverty, Free-riding, Logit, FGT Poverty class of index, Ghana
JEL: D030, D190, I320, I380, J160, J170, R290

Introduction

Poverty in Ghana has over the years been a major militating factor to economic development. In 2006, the poverty headcount ratio showed that about 53.7% of the total population was living on at most $2 a day (ADI, 2010). Thus, in the spirit of poverty measures, majority of the total population could be considered as poor at the time. However, the source of these levels of poverty cannot be attributed to the individuals' own characteristics alone. As noted by Rice (2001), studies by Cozzarelli, Wilkinson, and Tagler confirm what most attribution research on poverty finds: people are most likely to blame the poor for their own poverty.

In a society where family ties transcend the borders of one's own nuclear family, there is a high tendency for increased dependency. Though the ratio of age dependency on the working population has been declining (rather slowly) in recent times, the values are still higher and thus leave enough room for concern. In 2008, the dependency ratio on the working population was about 73.32, slightly lower than the 2007, 2006, and 2005 values of about 74.15, 75.02, and 75.90, respectively (ADI, 2010).

With a mean household size of about 4 individuals, with Greater Accra region recording the lowest at 3.4 and the Upper West region recording the highest at 6.5 (GSS, 2007), coupled with an average annual household income of about GH¢1,217.00 and an average per capita income of about GH¢400 in Ghana, the dependency rate on the working population is undoubtedly significant. Given that average annual household expenditure in Ghana hovers around GH¢1,918.00 and an annual per capita consumption expenditure around GH¢644.00 (*ibid*), it is quite surprising how the poor survives with lower incomes, as noted above. This undoubtedly leads to a

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4 • Media freedom and political stability in Sub-Saharan Africa: a panel data study

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Abstract

Political stability is often cited as a key determinant of growth in Sub-Saharan Africa (SSA) although little research that identifies the factors that ensure political stability in SSA is available. A pertinent determinant of political stability in SSA may be press freedom since on one hand, the press can contribute to political stability by keeping the electorate informed thereby keeping a check on graft, fraud, embezzlement and other corrupt practices of government officials. On the other hand, however, the press can be manipulated to generate political instability by misinforming the public so the exact relationship between press freedom and political stability in SSA is ex ante unclear. By investigating the determinants of political stability and accounting for possible of endogeneity bias, this paper (i) isolates the most pertinent variables that affect political stability in Sub-Saharan Africa and (ii) investigates to what extent press freedom mitigates or worsens the incidence of political instability in the SSA region. A panel of 31 SSA countries from 1984–2007 is used in static and dynamic panel data frameworks to investigate the determinants of political stability and to verify the relationship between media freedom and political stability in SSA. Important determinants of political stability are found to be mainly related to economic performance, macroeconomic policies, unemployment the level of education and regime type. Preliminary results also suggest that media freedom may be a vital determinant of political stability in SSA although less so than economic, political and social factors. Ongoing estimations suggest elasticities of political stability with respect to media freedom calculated at different values of media freedom are nonzero. The research result should help guide policy makers in the different nation states of SSA in drafting pragmatic media and economic policies that will promote political stability in their respective countries.

Key words: Press Freedom, Political Instability, Panel Data, Elasticity, Sub-Saharan Africa

Introduction

Considered a perennially unstable region with minuscule growth prospects and often plagued by powerful influences from within and without and by its own inherent demons, Sub-Saharan Africa (SSA) seems more stable recently and is growing (Armah, 2009). Reasons for this growth have been attributed to good governance and political stability (Armah, 2009). Note that Political stability as defined here reflects good governance. It represents legislative strength as well as the ruling government's popularity, its ability to carry out its declared programs and its ability to stay in office. This definition of political stability does not however reflect catastrophic events, including wars.

We concede that there remains some debate about both the theoretical validity and empirical robustness of the political stability-growth claim although it has been touted by influential leaders such as current US president Barack Obama and former British premier Gordon Brown. For proponents of the conditionality theory that economic prosperity is predicated on political stability however, it seems priceless to find answers to questions like (i) what

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5 • Will hedging joint cocoa price and production risk benefit Ghana?

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Abstract

This paper assesses the usefulness of risk hedging on futures markets for a cocoa exporter subject to concurrent price and output (revenue) risks. The analysis is conducted for Ghana, the world's second largest exporter of cocoa beans. Using cocoa export revenue data, the cocoa exporter's utility maximization problem (UMP) is solved using a Constant Relative Risk Aversion (CRRA) utility function due to Nelson and Escalante (2004) which displays risk vulnerability. Risk vulnerability is the most natural restriction on preferences (Gollier and Pratt, 1996). Simulation results from solving the UMP indicate that as a result of production risk, optimal revenue hedge ratios are much smaller than optimal price risk hedge ratios for reasonable values of the risk parameter. When transaction costs are incorporated into the hedger's UMP, optimal revenue hedge ratios decline further although they remain positive. The findings indicate that limited use of the futures market is optimal for Ghana because it improves cocoa exporter utility relative to the unhedged position. These results should provide valuable information to policy makers in Ghana and other cocoa producing countries because they confirm that revenue risk hedging is a viable risk management alternative even when transaction costs are accounted for in the UMP of the hedger.

Key words: Transaction costs, risk management, cocoa, hedge ratio, risk vulnerability.
JEL Classification: MO; N27; Q13; Q14; and Q17

Introduction

Cocoa exporting Sub-Saharan African (SSA) governments typically depend heavily on cocoa export revenue to finance development projects, exposing them to export revenue risk (Borenstein, Jeane and Sandri, 2009 and Razzaque, Osafo-Kwaako and Grynberg, 2007). Export revenue variability emanating from either export price or production uncertainty can lead to undesirable consequences for sovereign exporters overly dependent on export revenue (Newbery and Stiglitz, 1981; Razzaque, Osafo-Kwaako and Grynberg, 2007). For instance, export revenue risk can increase the likelihood of default on sovereign debt and also lead to macroeconomic instability in export revenue-dependent SSA countries (Malone, 2005).

This paper focuses on the export revenue risk problem facing Ghana, the second largest cocoa exporter in the world where revenue risk is understood to comprise of both price and output risks. Ghana is chosen for analysis because it is somewhat typical of the cocoa exporting SSA countries and relies heavily on cocoa export revenue: cocoa provides nearly thirty percent of Ghana's export revenue (Pinnamang Tutu and Armah, 2011).

Export revenue risk has assumed great importance recently because non-market strategies including buffer stocks, buffer funds and commodity agreements designed to minimize commodity revenue risk have failed (Borenstein, Jeane and Sandri, 2009 and Larson, Anderson and Verangis, 2004). Further, because of the recent efforts by the World Trade Organization (WTO) to liberalize markets and foster competition in world markets, risk management methods such as the cocoa agreements and buffer stocks are not likely to be encouraged in the future (Lence, 2009; Borenstein, Jeane and Sandri, 2009). As an alternative, market-based risk

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