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Economic growth, exports and foreign direct investment in Least Developed Countries: A panel Granger causality analysis ☆

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ABSTRACT

This paper investigates potential Granger causality among the real GDP, real exports and inward FDI in Least Developed Countries for the period between 1970 and 2009. A new panel-data approach developed in Kónya (2006) [Kónya (2006), Exports and growth: Granger causality analysis on OECD countries with a panel data approach, Economic Modelling, 23, 978–992] which is based on SUR systems and Wald tests with country specific bootstrap critical values has been employed. The results indicate direct, one-period-ahead, unidirectional causality from exports to GDP in Haiti, Rwanda and Sierra Leone, and from GDP to exports in Angola, Chad and Zambia. Considering the FDI–Growth nexus, there is evidence of FDI Granger-causing GDP in Benin and Togo, and GDP Granger-causing FDI in Burkina Faso, Gambia, Madagascar and Malawi. While studying EXP–FDI relations, this paper finds that the causality is from FDI to real exports in Benin, Chad, Haiti, Mauritania, Niger, Togo and Yemen, and from real exports to FDI in Haiti, Madagascar, Mauritania, Malawi, Rwanda, Senegal and Zambia.

1. Introduction

This paper examines causality relations among the real GDP, real exports and real net FDI inflows as they affect Least Developed Countries (LDCs). Understanding causality relations among economic growth, exports and FDI in LDCs poses an important research question as this group of countries includes the most vulnerable economies of the world, suffering from drastic economic and social problems, extreme poverty, hunger and inadequate levels of human development.[1] For quite some time, practically since the dissolution of colonial empires, assisting development in the economically backward areas of the world has been on the international community's agenda. Developed countries of the world, often under the leadership of the United Nations, have pursued extensive, multifaceted aid schemes and economic development assistance programs with the aim of encouraging sustainable economic growth and human development in developing areas.

Recognizing the special needs of the Least Developed Countries, the United Nations has organized three major conferences on LDCs over the last three decades. The three "Programme of Actions" initiated by these successive UN Conferences served as the main framework of international development assistance provided to the LDCs. The first UN Conference on LDCs organized in Paris in 1981 initiated the first comprehensive "Programme of Action" (PoA), with the aim of improving the deteriorating conditions of the LDCs. The Second UN Conference on LDCs adopted the Paris Declaration and initiated a new "PoA" for the 1990s. The third UN Conference on LDCs was organized in Brussels in May of 2001 and initiated the "Brussels Declaration and Programme of Action for the LDCs" (BPoA) for the period from 2001 to 2010. These three successive PoAs had the intention of reversing the negative economic and developmental trends witnessed in LDCs, enhancing economic growth, and alleviating poverty; while their ultimate aim remained the eventual graduation of targeted countries from LDC status.[2] Although the ideas, argumentation and general economic

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[1] Currently, (as of January 2011) 48 countries are classified by the United Nations as "least developed countries". The selection of LDCs depends on three criteria: a "low-income" criterion, based on a three-year average estimate of the gross national income (GNI) per capita, with a threshold of $905 for inclusion to the LDC list, and a threshold of $1086 for graduation from the status; a "human assets weakness" criterion, involving a composite index based on indicators of nutrition, health, school enrolment, literacy and an "economic vulnerability" criterion, involving a composite index based on indicators of natural shocks, trade shocks, exposure to shocks, economic smallness and economic remoteness (UNCTAD, 2010). The LDC list is reviewed in the light of these criteria every three years by the United Nations Economic and Social Council (ECOSOC) in order to identify countries that might graduate from LDC status.

[2] Up until today only three LDCs have managed to graduate from the UN's list of LDCs: Botswana in December 1994, Cape Verde in December 2007, and most recently Maldives on 1 January 2011.

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rationale behind these programs have been changing across time, the three PoAs implemented since 1980s relied on similar policy measures. Typically, besides direct bilateral and multilateral official development aid flows, all the three PoAs attributed a central role to export revenues and foreign direct investment inflows in supporting economic growth and development in LDCs. A short look at the building blocks of the BPoA makes it easier to understand the core economic thinking behind these three types of implemented development assistance programs.

The BPoA foresaw a series of major policy tools to support development and economic growth in LDCs, including (i) Official development assistance (ODA), (ii) preferential market access and trade related assistance, (iii) Foreign direct investment (FDI) inflows and (iv) debt relief. The BPoA attaches a particular importance to foreign direct investment (FDI) and export revenues to complement Official Development Assistance (ODA) and other international transfers in compensating for the inadequate level of capital accumulation in LDCs. The BPoA is based on the view that sustainable expansion of output in LDCs depended more on foreign demand for exports, rather than domestic demand. In the BPoA, like in the previous PoAs, FDI inflows are seen as a vital source of finance, and a means for acquiring new technology and know-how for LDCs to be able to compete in international markets (UN, 2011: 3). Based on these views, the international community has been encouraging LDCs to adopt export-oriented development strategies and more open trade and investment regimes. Export-orientation and internationalization in LDCs have also been supported by special aid-for-trade and trade capacity building schemes.

Despite the fact that export revenues and FDI inflows remain at the core of the major development assistance programs for the LDCs, only a very limited number of empirical studies have targeted their impact on economic growth in this group of countries. Although there exists voluminous empirical literature on both the 'exports–growth' and 'FDI–growth' nexuses, the bulk of this literature focuses on the case of "developing countries" in general, with no explicit focus on LDCs. The LDCs, however, provide a particular subset of developing countries, as they share very similar developmental problems and characteristics, having been subject to the same development assistance and poverty alleviation schemes for many decades. Furthermore, the body of empirical evidence on the more general case of developing countries still remains to be inconclusive, as the results of existing studies are obviously country- and methodology-specific. Most of the existing empirical works, on the other hand, are taint with severe estimation biases as they employ earlier econometric techniques which do not take into account cross-sectional dependency and heterogeneity issues. There is therefore a need for further research on causality relationships among economic growth, exports and FDI in LDCs. This is what this study strives to do.

This paper examines the possibility of Granger causality among real GDP, real exports and real net FDI in Least Developed Countries (LDCs), for the period between 1970 and 2009. While studying causality relations among real economic growth, real exports and real net FDI inflows this study employs a new panel-data approach recently developed in Kónya (2006), which is based on seemingly unrelated regression systems (SUR) and Wald tests with country specific bootstrap critical values. This new approach makes it possible to test for Granger-causality on each individual panel member separately, while accounting for the problem of cross-sectional dependence in panel data. These advantages make this approach particularly well-suited for the purposes of this study, given the cross-sectional dependency of the data at hand, and the high degree of heterogeneity existing across LDCs.

The objectives of this paper can now be stated as follows. The primary objective of the study is to examine the 'exports-growth' nexus in LDCs, testing explicitly for both the "export-led growth" and "growth-led export" hypotheses. The findings of Granger causality tests implemented will shed light on the question of whether export revenues contribute significantly to real economic growth or whether it is domestic growth dynamics that trigger exports growth in LDCs in the first instance. Secondly, this paper aims to investigate potential causality directions between FDI inflows and economic growth empirically. At this level, the objective is to see whether FDI inflows from the rest of the world contribute to the growth of LDCs, or rather LDCs with better growth performance attract more FDI. The findings of our causality tests are expected to provide some new information on the determinants of FDI inflows to this group of low income developing countries. In addition to studying the 'exports-growth' and 'FDI-growth' nexuses, the third objective of this paper is to examine a less scrutinized, but equally important set of relationships between FDI and total merchandise exports in LDCs. The methodology employed in this research allows us to address all these three sets of causality relations simultaneously. In an attempt to study unidirectional and bidirectional causality relationships among the variables at hand, we estimate both bivariate and trivariate systems of equations.[3] To the best of our knowledge, this is the first study that exclusively focuses on causality relationships among economic growth, exports and FDI in the case of LDCs.

The remainder of the paper is organized as follows: the second section provides a short survey of the related theoretical and empirical literatures; the third section presents the research methodology employed for testing causality; the fourth section reports on the data employed, and presents empirical findings of the research; the final section provides concluding remarks and some policy recommendations.

2. Literature survey

2.1. Exports–growth nexus

The relation between export growth and economic growth has long been an area in international and development economics receiving a great deal of research attention. Relying on basic economic theory, one can suggest that exports growth contribute to economic growth first through what is known as the foreign trade multiplier effect (see Stolper, 1947). The foreign trade multiplier analysis asserts that, given the spending function, an export surplus will have an expansionary effect whose magnitude depends on the marginal propensity to import. Transfer of scarce resources from low-productivity domestic industries to higher-productivity export industries results in an increase in overall productivity, accelerating output growth. Economic theory also suggests that a higher level of exports might contribute to economic growth as export revenues provide an important source of foreign exchange, which is crucial when domestic savings are inadequate for making imports of capital goods possible. Finally, export growth might also trigger economic growth through the expansion of the efficient market size, bringing in substantial economies of scale that accelerate the rate of capital formation and technical change.[4]

The causality relation between exports and economic growth can work in both directions; a reverse causality direction, from economic growth to export growth might well exist. This idea is often referred as the "growth-led export" hypothesis and is based on the view that domestic economic growth dynamics is more relevant for explaining export growth (see, for example, Jung and Marshall, 1985). Basically, the rationale behind this hypothesis is the idea that output growth triggers productivity growth, which in turn enhances international competitiveness of export products, and accelerates export growth

[3] Our bivariate and trivariate analyses led to very similar results. For the sake of clarity, however, only the trivariate model results are detailed in the paper. Bivariate model results are available from the author upon request.

[4] See Reppas and Christopoulos (2005: 930).