



## Energy exports, globalization and economic growth: The case of South Caucasus



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### ABSTRACT

We examine the effect of energy exports and globalization on economic growth using the bias-corrected least square dummy variable model in a panel of five South Caucasus countries (Azerbaijan, Armenia, Georgia, Russia and Turkey) over the period of 1990–2009. We provide evidence that higher energy exports and globalization expand economic growth. Also, we find that higher economic, political and social integrations are associated with higher growth rates. Furthermore, we find that greater energy exports contribute to higher growth rates in the course of globalization. In particular, higher energy exports lead to higher growth rates in the period of increasing economic and political integration. We therefore emphasize that energy exports, global integration, and their interaction effects are important determinants of economic growth in the South Caucasus region.

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### 1. Introduction

The South Caucasus is valuable due to its location at the cross-road between Europe and Asia, and, more importantly, it possesses important supply of energy (de Haas et al., 2006). Thus, the global integration of the South Caucasus region into the world market is significant for economic growth in these countries (Wittich and Maas, 2009). In this context, Azerbaijan, Georgia and Turkey have constructed the energy transportation routes in the South Caucasus. In particular, the development of Baku–Tbilisi–Ceyhan oil pipeline, the Baku–Tbilisi–Erzurum gas pipeline and the Baku–Tbilisi–Kars railroad links Azerbaijan, Georgia and Turkey to Europe and Asia (Petersen, 2007).

Hence, these energy transport routes have shaped the energy supply security in the South Caucasus.<sup>1</sup> Elkind (2005: 39), for example, notes that the energy transit corridor has contributed to a “critical infrastructure link between once-distant Caspian energy deposits and global markets, but also as a source of greater supply diversity, a

symbol of independence, a proof of cooperation among neighbors, a standard for the performance of a global industry, and a tool for economic development.”<sup>2</sup> Furthermore, Blatchford (2005: 131) suggests that the energy transport routes have developed a sustainable investment program, namely, “the community investment program, the environmental investment program, and the regional sustainable development program” in the host countries.

Nevertheless, the development of the energy transit routes has circumvented Armenia and Russia. More specifically, the construction of these energy transportation corridors has created alternative energy supply to the Russian energy transit routes (Kalicki, 2001), and, also, excluded Armenia from foremost local development projects in the South Caucasus region (Cornell et al., 2005). These events have shaped the economic, social and political integration in the South Caucasus. According to Correljé and van der Linde (2006: 535), the disintegration of the former Soviet Union has contributed to more transport countries, and, also, increased the “political and commercial risk of projects” in the region.

The supply of energy and global integration has important implications for long-term economic growth in the South Caucasus. As such, the purpose of this paper is to investigate the impact of energy

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<sup>1</sup> The Asia Pacific Energy Research Centre (2007: 6) describes energy supply security as the “ability of an economy to guarantee the availability of energy resource supply in a sustainable and timely manner with the energy price being at a level that will not adversely affect the economic performance of the economy.”

<sup>2</sup> Moreover, Cornell and Ismailzade (2005: 64) indicate that the energy transport corridor has advanced “sustainable economic and social development in the country with projects in the fields mainly of health awareness, social infrastructure and agricultural development, and to promote income generation opportunities.”

exports and globalization on economic growth employing annual data over the 1990–2009 period covering five South Caucasus countries: Azerbaijan, Armenia, Georgia, Russia and Turkey. Moreover, we examine the interaction effects of energy exports and global integration as these two forces may possibly interact in influencing economic growth across countries. More specifically, higher energy exports may potentially lead to higher growth rates particularly in the period of increasing global integration in the South Caucasus region.

We develop two models in the empirical analysis: a panel 5-country model (Azerbaijan, Georgia, Turkey, Armenia and Russia) and a panel 3-country model (Azerbaijan, Georgia and Turkey). We group the countries into two models in order to provide greater understanding on the relationship between energy exports, global integration and economic growth in the South Caucasus. It is especially imperative to investigate a panel 3-country model given that the energy transportation routes have circumvented Armenia and Russia in the South Caucasus region. We attempt to discover differences, if any, on the effect of energy exports and globalization on economic growth in a panel 3-country model and a panel 5-country model.

We use the bias-corrected least square dummy variable (LSDVC) model developed by Kiviet (1995, 1999), Judson and Owen (1999), Bun and Kiviet (2003), and, more recently, Bruno (2005), who proposed a methodology to approximate the small sample bias of the LSDV estimator, constructed this estimator and demonstrated that the LSDVC estimator is more efficient and robust compared to numerous instrumental variable estimators in dynamic panel data models, including LSDV, first differenced and system generalized method of moments (GMM) estimators. A useful feature of the LSDVC model is that it is especially appropriate for small samples (Bruno, 2005).

To anticipate our results, we find that higher energy exports and globalization expand economic growth. We also provide evidence that higher economic, political and social integrations are associated with higher growth rates. Furthermore, we find that greater energy exports contribute to higher growth rates in the course of globalization. More specifically, higher energy exports lead to higher growth rates in the period of increasing economic and political integration. Overall, our findings are consistent in the 3-country and 5-country models. We conduct a number of robustness tests. The results from the robustness tests continue to support our earlier findings. We therefore emphasize that energy exports, global integration, and their interaction effects are important determinants of economic growth in the South Caucasus region.

The rest of the paper is structured as follows. In Section 2, we provide a general background based on the literature. Section 3 explains

the econometric methodology used in the empirical analysis, while Section 4 describes the data. Section 5 presents the empirical results for the 3-country and 5-country models, and conducts a number of robustness tests. The final section summarizes the major findings.

## 2. General background

The energy transit corridor is considerably important in the South Caucasus region. Therefore, Azerbaijan, Georgia and Turkey have started the development of the East-West energy transit routes in the early 1990s. The East-West energy transportation corridor is a system of infrastructure that unites Azerbaijan, Georgia and Turkey to Europe and Asia (Petersen, 2007). More specifically, the energy transportation routes include the Baku–Tbilisi–Ceyhan (BTC) oil pipeline, the Baku–Tbilisi–Erzurum (BTE) gas pipeline and the recently established Baku–Tbilisi–Kars (BTK) railroad (see Fig. 1).

The BTC pipeline transports oil from Baku in Azerbaijan to Tbilisi in Georgia and to Ceyhan in Turkey. The construction of the BTC pipeline began in 1998, and was completed in 2005 (Bacik, 2006). The BTE pipeline carries natural gas from Baku in Azerbaijan to Tbilisi in Georgia and to Erzurum in Turkey. The construction of BTE gas pipeline started in 2004, and was finished in 2007 (Petersen, 2007). The BTK railroad is anticipated to transport goods and passengers from Baku in Azerbaijan to Tbilisi in Georgia and to Kars in Turkey. The construction of BTK railroad began in 2007 (Lussac, 2008) and is listed for completion in 2013.

These energy transportation routes have significantly shaped energy supply security in the South Caucasus. İpek (2006: 2) emphasizes that “long-distance, cross-border pipelines are important to expand energy security and make an alternative to the many vulnerable chokepoints along the sea transportation routes.” It is important to note however that the construction of the energy transportation routes has circumvented Armenia and Russia, which, in turn, has shaped the economic, social and political integration in the South Caucasus region (Cornell and Ismailzade, 2005).

As such, considerable amount of literature has been devoted into understanding the nature and significance of the South Caucasus region. According to Polyakov (2001), the trade capacity for Azerbaijan and Armenia has been restrained because of interrupted transport routes. This is the case as the dispute over the Nagorno-Karabakh area between Azerbaijan and Armenia stays unsolved (Wittich and Maas, 2009). The energy transit routes have therefore circumvented Armenia, which, in turn, have excluded Armenia from foremost local development projects in the South Caucasus (Cornell et al., 2005).



Fig. 1. - - - BTC pipeline — BTE pipeline — BTK railroad.

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