



# Endogenous supply side constraints to export-led growth and aggregate growth implications in transition economies



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## ABSTRACT

This paper analyses the endogenous limits to export-led growth inherent in an economy's supply side. The supply side determination of export growth relates it, as well as the cross-sectoral subsidy, to the economy's industrial structure and difference in productivity growth between sectors. Starting off from fixed sector sizes we endogenise the relation between sector sizes and the productivity growth differential and highlight an economy's structural flexibility. We also highlight the differing implications for the economy from whether a widening productivity growth gap is due to higher productivity growth in the tradable sector or lower productivity growth in the non-tradable sector. When analyzing a transition economy's ability to transform differences in productivity growth into aggregate growth we find a highly context specific relation. We show how transition might be characterized by aggregate growth exceeding tradable sector productivity growth or vice versa depending on the combination between industrial structure, the prevailing incentives for structural change and the ability to take advantage of such incentives. We identify tipping points for endogenous phase shifts where aggregate growth changes from accelerating to diminishing growth and vice versa.

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## 1. Introduction

This paper highlights the endogenous limits to export led growth inherent in the interrelation between an economy's sectoral structure and its productivity growth differential and the accompanying implications for an economy's aggregate growth.<sup>2</sup> As such the paper is a contribution to the literature on structural economic dynamics

– a genre of literature that has been relatively under-communicated. At its core stands the insight that changes in macro-economic aggregates over time are tightly associated with the evolution of their sectoral composition – as argued by [Pasinetti \(1993,1981\)](#). This has consequences for growth theory in that it departs from the 'proportional dynamics' of orthodox growth theory, which assumes that the structure of the economy, i.e. the relative contributions of the economic sectors to GDP (or their employment shares) are constant over time. In parts of the structural dynamics literature shifts in the economy's sectoral composition have a significant bearing on the path of aggregate growth.

Structural dynamics has taken its place on the agenda of contemporary analysis of economic growth, it embraces a variety of approaches, and appears to be receptive to innovative development ([Arena and Porta, 2012](#)). Among its constituents are to be found models attributing structural

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<sup>2</sup> [Suzuki \(2012\)](#) describes an export led growth strategy as a strategy comprising the encouragement of- and support for production of exports.

change to long-run shifts in consumer tastes – thereby placing the origins of structural change on the demand side (see for example Echevarria, 1997; Laitner, 2000; Caselli and Coleman, 2001; Gollin et al., 2002) – while others source the origins of structural change mainly on the supply side (Pasinetti, 1993, 1981; Ngai and Pissarides, 2004). Some models reconcile shifts in sectoral composition with a balanced path of macroeconomic aggregates, while others do not.

The current paper focuses on supply side drivers of structural change with the latter being endogenous to the model. A variety of aggregate growth paths are associated with distinct developments of industrial structure, originating from a tension between an expanding export sector and constraints imposed by how the export sector relates to the rest of the economy.

Limits to export led growth can be sought among demand side factors, be it increased international competition (Razmi, 2007) or currency appreciations due to successful export strategies (Magud and Sosa, 2010), or alternatively among factors on the supply side, related to resource scarcity or domestic institutional factors hampering export supply. UNESCAP (2004), for instance, highlights poor policymaking, ineffective regulatory framework, inefficient institutions and poor governance, poor transport and information technology and infrastructure as the main supply-side constraints to export.

Instead of focusing on such *exogenous* supply side constraints our approach relates to – while not mimicking – the multi-sector approach of Blecker (2006) and Storm (1997) analyzing export-led growth within a macroeconomic framework. Extending Borgersen and King (2014) our *endogenous* supply side constraint is derived from how the tradable sector interacts with the rest of the economy.

The paper contributes to the literature by providing an alternative explanation for the recognized U-shaped relation between an economy's sectoral structure and aggregate growth. Relative to, for example Sasaki (2012), the current paper reverses the causal ordering between sectoral structure, sectoral productivity imbalances and aggregate growth. One of the consequences of this ordering is that it extends Sasaki's result. In addition to the U-shaped relation the model also delivers an inverted U-shaped relation. This means that the model provides two scenarios for the relation between sectoral productivity gap, industrial structure and aggregate growth. In one scenario an increasing productivity gap first is associated with an increasing phase of aggregate growth, followed by a phase of decreasing aggregate growth. In the other scenario the sequence of the two phases is reversed. In which of the two ways an economy organizes itself depends on the initial condition of status quo of the industrial structure. Relative to Sasaki (2012) (where sectoral productivity growth is an endogenous variable) the current paper assigns a more prominent role to an economy's industrial structure – industrial structure is endogenous to our model and dependent on the sectoral productivity growth differential.

In addition to the U-shaped and inverted U-shaped relation the analytical framework of this paper allows

for a scenario where an increasing productivity growth gap is associated with monotonically increasing aggregate growth. Which scenario prevails depends on which sector of the economy experiences shifts in productivity – again pointing to the pre-eminent role of industrial structure as a determinant of economic aggregates.

We apply a model with two sectors of production. One is an export-oriented sector of tradables, with the other sector producing non-tradables. The tradable sector is modeled to have higher productivity growth than the non-tradable sector, reminiscent of the Balassa–Samuelson effect. This finds support by observed regularities found in the empirical literature.<sup>3</sup> Despite differences in productivity growth between sectors wage growth is equalized to keep the relative distribution of income fixed across sectors of production via a subsidy from the more productive to the less productive sector. The kind of redistribution that the subsidy represent is often referred to as the Baumol–Bowen effect. How much an economy spends on subsidies is endogenously determined by the interaction between the industrial structure and the extent of unbalanced growth between sectors.<sup>4</sup>

In this framework will changes in the industrial structure and in the productivity growth differential impact both the growth of exports *and* the growth of subsidies. While the former stimulates economic growth, the latter impedes growth, as it does not bring value added but finds expression in (structural) inflation (see Borgersen and King, 2011). Subsidy growth introduces a macroeconomic cost to unbalanced growth which has to be taken into account when discussing the gains of export led growth.

We consider two stylized scenarios of a widening productivity growth gap. While the first, which is related to an increasing tradable sector productivity growth rate, shows rather conventional effects in terms of its implications for aggregate growth, is the second, where a widening gap is driven by a declining productivity growth rate in the non-tradable sector, more intriguing.

When a widening gap is driven by increasing tradable sector productivity are the implications for aggregate growth unambiguously positive. When sector sizes are fixed, is it the size of the tradable sector that determines the impact on aggregate growth. When sector sizes are allowed to change, is it the economies' structural flexibility which matters for how strong the growth response is.

A widening gap driven by declining productivity growth in the non-tradable sector carries with it more context specific results. When sector sizes are fixed will a growing

<sup>3</sup> Differences in productivity growth between the tradable and the non-tradable sector (in favor of the former) have been empirically verified for transition economies by, for example, Jazbec (2002), Bah and Brada (2009) and Mas (2010). Also, Mihaljek (2003) shows significantly larger sectoral productivity growth differentials for transition economies than for mature market economies.

<sup>4</sup> This extended version of the Scandinavian Model of Inflation (SMI) bridges two schools of thought regarding how sectoral composition and growth relate to each other. According to a view often associated with neo-classical economics is an economy's sectoral composition a (side-) effect of growth. However, other scholars, such as Kaldor (1966, 1967) and Baumol (2001, 1967), and Kuznets (1971) advance the view that it is changes in sectoral composition that cause growth.

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