論 説

The Kyrgyz Economy: Growth Acceleration and Its Implications for Industrial Policy

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Abstract

Industrial policy plays a crucial role in economic development. Justin Yifu Lin (2012) on the New Structural Economics (NSE) emphasises that late developing countries should focus on a targeted export-oriented industrial growth strategy and dynamic factor endowment. However, the NSE faces major gaps in understanding the complex internal dynamics of the less developed countries. Recent developments, such as the disruption of the global supply chain, severely affected by a global pandemic while the global economy is in full prosperity, lead us to reconsider mixed industrial policy strategies. The purpose of this research is to contribute to this direction. Using Hausmann et al., (2005) analytical growth acceleration technique, we analysed growth dynamics at the level of the economic sectors as described in the International Standard Industrial Classification for Kyrgyzstan. Our findings show that there have been episodes of rapid growth in Kyrgyzstan, but this growth has lost momentum in recent years. The significant contribution of non-export-oriented activities to growth and development, less discussed in the literature, leads us to consider some lines of thinking for late developing countries in designing new industrial policy. We propose that selective/vertical industrial policy can complement conventional policy in the case of Kyrgyzstan.

Keywords: *Kyrgyz economy, growth acceleration, industrial policy, structural change, selective policy*

1. Introduction

The economy of Kyrgyzstan has undergone a remarkable transformation in recent years. Located in Central Asia, Kyrgyzstan is classified as a "low-income" economy by the World Bank. It saw a per capita gross national income (GNI) double over just a decade. If Kyr-

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gyzstan's GNI in 2005 was only US$ 450, it increased in 2018 to US$ 1200 (World Bank, 2019a). Similarly, the proportion of the poor was experiencing a substantial decline. While the proportion of the population living below the US$ 1.90 daily threshold was 39.9% of the population in 2006, it dropped to 22.4% in 2018 according to World Bank statistics (2020). The performance of the Kyrgyz economy is not only limited to its national income and the number of poor people, but it has also undergone a structural transformation. The main feature of this transformation is a decrease in the share of gross domestic product (GDP) in agriculture and a rise in the service sector. While agriculture accounted for just 36% of GDP in 2000, in 2018 it dropped to 13.1%. According to estimates from the United Nations Statistical Division, the service sector accounted for 65.9% in 2018 (UNSD, 2019). Finally, Kyrgyzstan reported an annual average growth rate of 4.7% between 2004 to 2018.[1)] But relying on these results can be misleading. Although Kyrgyzstan has made a major leap in some areas of its development, it still has a very fragile economy. Such positive statistics are largely attributed to gold and remittances but not to the manufacturing sectors.

The gold sector and remittances are key drivers of Kyrgyzstan's growth. The economy of the country is heavily dependent upon these two factors. Unlike its neighbours, Kazakhstan and Uzbekistan, Kyrgyzstan lacked natural gas and oil resources and had little choice but to depend on the extraction of its gold deposit, one of the largest in the world. The gold sector plays multiple roles in Kyrgyzstan. Firstly, it is the largest industry that constitutes a major share of the economy. According to data from the Observatory of Economic Complexity (OEC, 2020), it accounted for 37% of total exports in 2017. Secondly, it is also an important source of revenue for the government. It constitutes 5 to 10% of the overall budget of the country, according to the estimation of Mogilevskii (2015). Remittances, like gold, have become a pillar of Kyrgyzstan's economy. Remittances were booming around 2005. In particular, this is due to the massive increase in the number of Kyrgyz migrants seeking opportunities abroad due to a lack of work at home. Remittances in 2018 accounted for 33.22% of GDP (World Bank, 2020). Money sent from abroad is not only a source of household income but also contributes significantly to consumption. That partly explains the rapid decline in the proportion of people living below the poverty line of the last few years. It also means that the skilled and non-skilled Kyrgyz labour forces are fleeing the country. The Kyrgyz economy, however, cannot rely on these two sectors because they are vulnerable to external shocks such as gold price fluctuation, or political friction with the host countries of the Kyrgyz migrants. Therefore, the challenge of policymaking is to decouple the economy from those two exogenous factors.

Industrial policy (IP) remains the chief response to these challenges. While IP is characterised in several ways, its main concept is related to government intervention to promote a particular sector (Chang, 2011; Landesmann, 1992; Pack & Saggy, 2006). Two types of

industrial policy are identified in the literature: functional/horizontal IP and selective/vertical IP. The first type of IP aims at improving the business environment while the second type of IP consists of policies aimed at changing the structure of economic activity toward a specific sector (Warwick, 2013). In practice, public policies have tended to favour horizontal IP as reluctance has emerged regarding the capacity of governments to respond to market failure. As such, IP for Kyrgyzstan is more inclined toward the horizontal policy of improving the business environment. The approach is the elimination of so-called constraints. Those include, for example, the informal sector in the case of private companies, political stability, corruption, lack of labour force training, and access to finance, to list just a few examples from the enterprise surveys of the World Bank (2019). Reforms include, for example, institutional change, improvement of the business environment to attract foreign capital. Aid policy in recent years has also moved in this direction in the financing of economic and social infrastructure to facilitate the creation of new economic activities. However, in terms of the country's performance in attracting foreign direct investment, these types of interventions have not yielded significant results. Recent debates on IP and the way forward, including the one inspired by Justin Yifu Lin (2012), are guiding countries lagging in their development to invest in activities that have comparative advantages and to move towards an export promotion strategy. Although we agree with Justin Yifu Lin's proposal, recent events on the disruption of the global value chain lead us to rethink mixed strategies that do not depend only on external factors. Kyrgyzstan is exposed to significant vulnerabilities when it comes to its external factors as it depends on gold exports, remittances from abroad, and foreign aid, among other things.

Several studies have been published on the analysis of the potentials of different sectors of the economy in Kyrgyzstan. However, these analyses cover only one specific aspect of an industry, such as agriculture, textiles, and finance. The recurring themes in the agricultural sector, for example, concerns the creation of cooperatives and the organisation of farmers' associations, as well as mitigation of climate change risk (ADB, 2019; Broka et al., 2016; OECD, 2014a; Oroshbekovna, 2006), but they also cover important recommendations such as improving access to finance for farmers, particularly in terms of equipment to be able to produce high value-added products and services. The Asian Development Bank (ADB, 2019) supports the integration of Kyrgyz farming into the global value chain and therefore recommends promoting the construction of the infrastructure and logistical facilities required to modernise farming. The existing literature on the textile sector deals with competitiveness. Most of the debates highlight the impact of the re-exporting sector on the Kyrgyz economy, as well as the importance of bazaars as a trade vector across Central Asia (Birkman et al., 2012; Kaminski and Raballand, 2009; Tarr, 2016). Furthermore, there are proposals for granting preferential conditions for imported fabrics, combined with measures to reduce export costs. It also discusses the problem of certification and transport

(Mogilevskii, 2012). Also proposed as an approach in this sector are the creation of cooperatives, the promotion of trade and investment in the sector, as well as the improvement of production facilities (OECD, 2014b). Early publications on financial sector development focus on the transition period, with plenty of discussion on market-based financial intermediation and credit institutions. It also discusses the potential for capital and stock market development (Bonin and Wachtel, 2003; Brown et al., 2009). Nevertheless, the most recent literature emphasises that, despite Kyrgyzstan's huge credit growth at the national level, banks and microfinance institutions are reluctant to extend credit, particularly to small and medium-sized enterprises and farmers (OECD, 2014c). Recent publications in the financial sector focus on the effects of remittances on growth. The findings show that remittances have a significant long-term impact on the Kyrgyz economy (Brown et al., 2013; Kumar et al., 2018). The results also show that remittances discourage the use of intermediation and formal banking services (Brown et al., 2013). The disadvantage of Kyrgyz people's mass migration is that it has an impact on human capital development. Empirical studies reveal that children left behind by parents going to work abroad are more likely to be out of school and suffer from malnutrition (Kroeger and Anderson, 2014). In summary, despite its potential, agriculture needs financial and technical support. Similarly, for textiles and garment, Kyrgyzstan needs the same support and foreign investment to harness its productivity and competitiveness. The advent of migrant remittances does not contribute to the financial sector or human capital development. The interest rates are still very high for lending money. According to World Bank data (2020), it was about 18.8% per annum. Also, an overview of the existing literature on the analysis of economic sectors shows that it does not provide a better perspective on the dynamics of other economic sectors, despite the rich information that can be drawn from it. There is a need to analyse other sectors of the economy from a broader perspective to understand the dynamics that could lead to the decoupling and diversification of the Kyrgyz economy. A better understanding of the dynamics of these sectors will also make it possible to tackle the challenges of IP.

The objective of this paper is to analyse the dynamics of the sectors of the Kyrgyz economy from a broader perspective. In particular, it seeks to examine how the acceleration and sustainability of growth are manifested in each sector of the Kyrgyz economy. And how can this inspire new strategies for IP? This approach has its rationale in the fact that numerous empirical studies have shown that strong, rapid, and sustainable growth plays a predominant role in economic development.

The approach used here is based on the work of Hausmann et al., (2005) and utilises the growth filter, hereafter referred to as the "HPR filter", to detect episodes of accelerated or decelerated growth. They presented interesting facts about growth in their analysis. They concluded that growth accelerations from the 60 economies out of the 110 that they studied were relatively frequent, with at least one having accounted for acceleration over

the 35 years between 1957 and 1992. We use a modification of this method to adapt it to our specific application. While the HPR filter was applied to 110 countries using non-disaggregated growth statistics. In our case, the study is broken down to the level of each sector according to the International Standard Industrial Classification of all economic activities (ISIC). The scope of our analysis is not only limited to Kyrgyzstan but also extends to Armenia, Belarus, Kazakhstan, Russia, Tajikistan, Turkmenistan, and Uzbekistan.

The organisation of this paper is as follows. In the section that follows, we will present recent developments in the economy of Kyrgyzstan. Next, we will proceed to analyse the acceleration or deceleration of growth for Kyrgyzstan. Finally, after having obtained results on this issue, we will make a few discussion points and then conclude.

2. Recent developments in the Kyrgyz economy

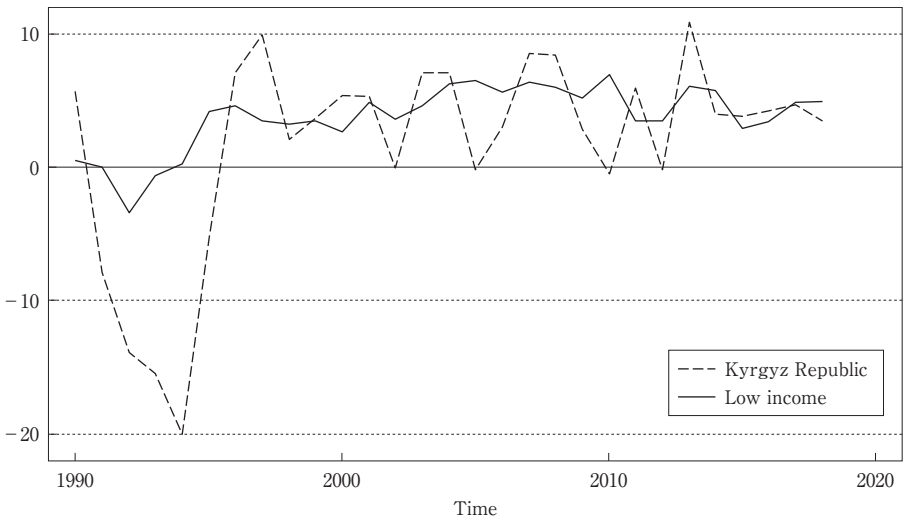
2.1 Post-independence growth

Kyrgyzstan has experienced ups and downs in its development. Its growth dropped dramatically just after gaining its independence. According to statistics from the World Bank, there was a negative average annual growth rate of 10.31% between 1990 and 1995. The factors behind the collapse of the Kyrgyz economy during this period are discussed in depth by Mogilevskii and Hasanov (2004: 224-47) and Pomfret (2006: 82-83). Their explanations include the discontinuation of subsidies from the Soviet Union, the disintegration of the traditional Soviet market on which Kyrgyzstan depended, and the impact of the creation of new borders that created new barriers to trade. Besides, the abrupt transition to a market economy also played a major role in this decline. Kyrgyzstan's decision to opt for the big bang reforms when it left the rubble zone in 1993 by introducing its currency had an impact on price increases. In this decadence, the radical implementation of deregulation, privatisation, and liberalisation, a policy associated with the Washington Consensus, is also mentioned as a source of setbacks in the Kyrgyz transition (Pomfret, 2006: 73-74).

The Kyrgyz economy was showing positive results after the first five years of turbulence. During the period of positive growth, it gradually became dependent on gold exports and remittances. Observation over a five-year cycle, from 1995 to 2018, shows that Kyrgyzstan experienced an average annual growth rate of 4.22%. When comparing Kyrgyzstan's growth with that of low-income countries in the graph shown below, it can be seen that Kyrgyzstan performed better than these countries on average. However, peaks of contraction in the years 2002, 2005, 2010, and 2012 can be observed.

Kyrgyzstan's downward trend in growth is largely the result of a decline in gold production. Several factors can be related to the underlying causes of this negative trend in growth. Landslides and adverse weather conditions restricting hydroelectric power produc-

Figure 1 Kyrgyzstan growth versus Low-income countries' growth in 1990–2018



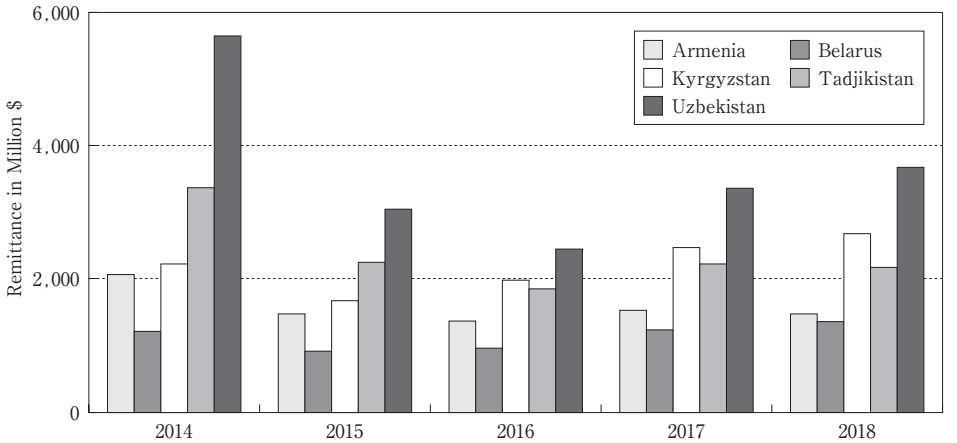
Source: Data compiled from the World Bank Indicator (2019)

tion, for example, contributed to the 2002 decline in gold output at the Kumtor mine. The 2008 Bertelsmann Transformation Index published by the Bertelsmann Stiftung (BTI, 2008), a German Think Tank, underlines that the contraction in growth in 2005 is due to the political crisis that occurred the same year in which President Askar Akayev was pushed out of power. Several factors can explain the slowdown in economic growth in 2010. Much of this is attributable to the effects of the global financial crisis and the domestic political event that took place in the same year. While gold exports remain the backbone of the economy, remittances from Kyrgyz migrants have also become increasingly significant. According to a joint study released by the IMF (2010), the 2010 shock has been triggered by the second Kyrgyz revolution coupled with the stagnation of the world economy. The 2012 slowdown is the consequence of reduced activity at the Kumtor site. While gold output was 164,167 ounces in 2011, this was reduced by 63% in 2012 (Kumtor Gold Company, 2012). The macroeconomic implications for Kyrgyzstan were significant as exports were reduced while imports remained substantial, leading to a widening trade deficit. Such disturbances show major implications for the Kyrgyz economy. First, Kyrgyzstan's gold sector exposes vulnerabilities to any shock, such as a decrease in production. Second, along with gold, remittances from abroad also begin to play a significant role in the economy. This is particularly detrimental in the event of shocks in countries hosting Kyrgyz workers, such as exchange rate fluctuations or economic recession.

2.2 Importance of gold and remittances

Exports of gold and remittances from Kyrgyz nationals who work abroad remain the mainstay of the economy of the country. However, questions arise about the impact of gold

Figure 2 Remittances figures for Central Asia Countries



Source: Data compiled from the World Bank Development Indicators (2019)

on social and economic development. Additionally, the importance of these elements to structural change is repeatedly examined. The study of their importance was discussed extensively in the analyses conducted by international development institutions as well as independent researches. The report of the World Bank (2012), for example, points out that gold is not good enough to stimulate growth. Other researchers like Moglevskii et al., (2015) emphasise the paramount importance of the Kumtor Gold Mining Company in the Kyrgyz economy. According to these researchers, on the macroeconomic level, gold accounts for 6.5–11.4% of GDP. It equally represents the most sizeable share of the country's foreign trade, which in the years 2013–2017 accounts for an average of 15% of total exports. The gold sector equally contributes 5–10% to the state budget. The Kumtor Gold Company produces more than 95% of the gold from Kyrgyzstan. The company reported that between 1994 and 2019 it contributed $4.14 billion directly and indirectly to the Kyrgyz economy (Kumtor Gold Company, 2012).

Since 2005 Kyrgyz migrants' remittances saw a strong upward trend. The economy's share of remittances is estimated at 30% of GDP. Kumar et al., (2018) performed research on the impact on the growth of these money transfers. Empirical evidence suggests that the remittances have made a positive contribution to growth. In terms of social development, it also plays a role in poverty reduction. The transfer of money contributes to consumption and in most cases covers household expenses (Schmidt and Sagynbekova, 2008). However, migration also has its negative sides, particularly in terms of its social impacts. It directly affects human capital, especially the future Kyrgyz generation. The results of household survey studies show that there is a risk of boys aged between 14 and 18 dropping out of school, while for girls, phenomena of malnutrition are more likely to be observed.

The remittance is not an isolated phenomenon to Kyrgyzstan but extends to all Central

Asian countries and also covers the case of countries such as Belarus. Countries such as Armenia, Kyrgyzstan, Tajikistan, and Uzbekistan record substantial remittance figures.

Though gold mining and remittances are significant, this reliance on external factors further weakens the Kyrgyz economy and makes it vulnerable to shocks. It also extends to the fragility of the capacity to negotiate politically. A minor change in the supply of gold, whether due to bad weather or political events, is likely to lead to economic contraction. Similarly, vulnerability leads to reduced bargaining power.

2.3 Kyrgyz economy and structural transformation

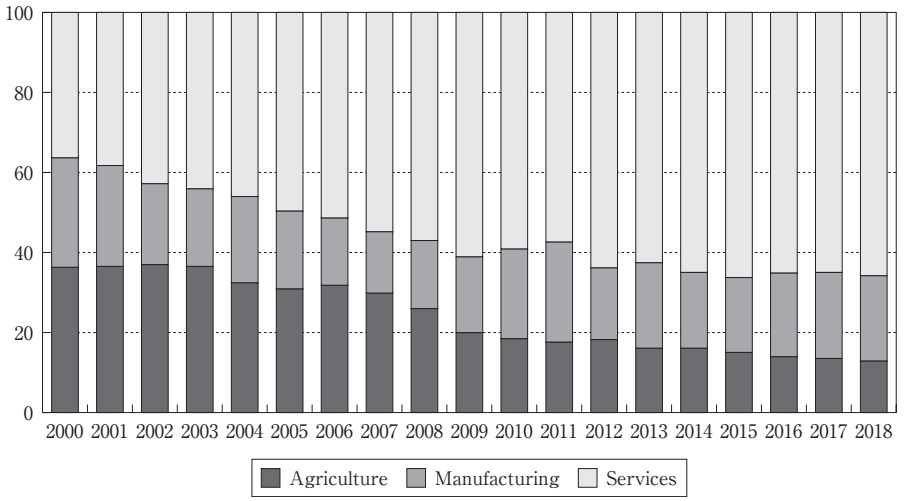
Structural transformation is a key element in the study of economic development. It is manifested in the reduction of agriculture's share of GDP. It is also accompanied by changes in indicators such as the decline in the infant mortality rate, improvements in life expectancy, and the emergence of urbanisation. Moreover, at this stage, growth and structural transformation are mutually reinforcing (Timmer, 2009). The principles of structural change concern the transformation of national economic structures from traditional subsistence agriculture to a more modern, urbanised, and diversified manufacturing and service economy. Theoretical knowledge about structural change offers a wide range of perspectives in the construction of any comprehensive development strategy. It facilitates, for example, an understanding of the dynamics of economic sectors and their importance in time and space. It also makes it possible to situate a country in a context that is influenced by national and international constraints and, finally, clarifies the allocation of resources, infrastructure investments, and policy coordination mechanisms.

Two major lineages of theory inform the structural approach: the two-sector model of Lewis (1954) and the patterns of development of Chenery and Taylor (1968). Lewis, in his analysis of development problems, stresses the need to break the traditional social and cultural structures of developing countries. To this end, Lewis suggests using labour migration from the traditional sector to the modern sectors to facilitate the growth and accumulation of capital that finances expansion. Following the rationale of Lewis, Chenery and his colleagues' research places particular focus on the interrelated forces that drive structural change, such as changes in supply and demand associated with the level of income of a country, demographic and geographic conditions, and their efforts to establish a favourable business environment (Chenery and Syrquin, 1975).

Observation of the dynamics of the various sectors of the economy shows that Kyrgyz experienced structural transformation moving from an agricultural-based to a service-based economy. While the country has limited cultivable land, its agrarian transformation is recognised as the most successful in the region.

Following the logic of structural transformation, the graph below shows how this transformation has taken place in recent years in Kyrgyzstan. It can be seen that agriculture

Figure 3 Structural transformation of the Kyrgyz economy (2000-2018)



Source: Author's calculation using UNSD National account data (2019)

has been considerably reduced toward the years 2009. In the same year, the service sector also experienced a substantial increase. The service sector here includes construction, transport, wholesale and retail trade, and other activities. The World Bank report underlined that land reforms and the subsequent growth of its agriculture have recorded an "unusual" success among transition economies (World Bank, 2004). Measured in terms of growth in gross agricultural output, the country outperformed its Central Asian neighbours — and all the countries of the former USSR to a larger extent during the first decade of transition. Manufacturing, unlike other sectors, does not exhibit the same trend of development. Its relative share in percentage of the GDP was 26% only over the first three years after the independence. In recent years, on average, it accounted for only 16% of GDP. Since 2009, a major transformation has taken place with the rise of the service sector. On average, it accounted for 65% of GDP for 2014-2018.

3. Growth dynamics in Kyrgyzstan

3.1 Theoretical background

Sustainable economic growth matters for a country to reach a certain level of prosperity. Our first task is then to identify whether Kyrgyzstan and the extended neighbouring countries of the Eurasian Economic Union (EAEU) and Central Asia managed to reach such level, when, and at which pace. To assess sustainable growth, we use the framework of growth acceleration developed by Hausmann et al., (2005). According to Hausmann et al., (2005) to be considered a growth acceleration, the growth rate of the least-squares growth

must be greater or equal to 3.5% per year. Also, it must be at least two percentage points higher than in previous years. Finally, the third condition that applies to this growth acceleration is that the level of real GDP per capita must be higher at the end of the acceleration than in all the years preceding it. More specifically, the formulation is as follows:

The logarithm of real GDP per capita is regressed on time for every eight years (n=7).

$$\ln(y_{t+i}) = a + g_{t,t+n}{}^{*}t + \varepsilon, \quad i = 0, \quad \cdots, \quad n \tag{1}$$

Growth rate $g_{t,t+n}$ at the time t over horizon n is the growth rate of GDP (y) from t to $t+n$. The change in growth rate is expressed as follows:

$$\Delta g_{t,n} = g_{t,t+n} - g_{t-n,t} \tag{2}$$

The three conditions are formalised as follows:

i Growth is rapid, $g_{t,t+n} \geq 3.5$;
ii Growth accelerates; $\Delta g_{t,n} \geq 2.0$;
iii The post-acceleration output is above pre-acceleration output.

The analysis of Haussmann and his peers is divided into two parts. First, they study and attempt to identify periods of accelerated growth using a filter (hereafter HPR filter), and then they use Probit and Tobit statistical method to analyse the precursors of these growth episodes. Since the publication of the paper on HPR filter, several debates have taken place. Discussions are broken down into two distinct segments. There are, on the one hand, those who criticise the approach adopted to define growth acceleration using the HPR filter (Kar et al., 2013). And on the other hand, some criticise the way these authors have analysed the precursors of growth, in particular the centrality of the change in regime and its links to the episodes of growth that have been identified (see. Jong-A-Pin and De Haan, 2011).

The present study focuses only on the first discussion, namely the HPR filter. Criticisms of the filter-based method include Kar et al., (2013). These authors point out that the filter-based approach does not include a coherent structure that can be used to define all forms of growth transition. Other efforts to use the statistical approach based on the *structural break* have attempted to provide empirical interpretations of growth cycles. Such an approach is used by Jones and Olken (2008). They use a detection algorithm based on the work of Bai and Perron (1998, 2003) to identify structural breaks. The problem with this second technique is that large datasets are needed to be sufficiently accurate.[2)] The filter continues to be widely implemented despite these debates. For example, it has recently been applied by Bhattacharyya and Resosudarmo (2015) who study the relationship between rapid growth and poverty reduction in Indonesian provinces. Imam and Salinas (2015), applied the growth acceleration method to the case of West African countries. An-

other example is Haraguchi et al., (2019) examined factors accelerating growth in manufacturing using a sample of 134 developing countries over the period 1970-2014. They used an approach similar to that of HPR and identified 119 growth episodes. Finally, Gruss et al., (2020) also examine the dynamics of accelerated growth in emerging and developing countries, focusing on external conditions and domestic amplifiers. Since we do not have a large enough sample to apply the structural break methodology proposed by Kar et al., (2013), a more cautious and simple approach should be adopted following Hausmann et al., (2005).

The following is how we are going to apply this approach to our case. We substitute real GDP per capita with the main aggregates of GDP represented in value-added. This makes it possible to illustrate the dynamics at the level of each sector of the economy. The data we use was obtained from the website of the United Nations National Account Database (UNSD, 2019). These data consist of main economic aggregates organised in time series from 1990 to 2018 current prices in 2015 dollars. Economic sectors are organised according to the ISIC definition: Agriculture, hunting, forestry, fishing (ISIC A-B), Mining, Manufacturing, Utilities (ISIC C-E), Manufacturing (ISIC D), Construction (ISIC F), Wholesale, retail trade, restaurants and hotels (ISIC G-H), Transport, storage and communication (ISIC I), and other activities (ISIC J-P). The countries covered in the series are Armenia, Belarus, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, and Uzbekistan. We organise the data we have collected into panel data. This gives us coverage of eight countries over 29 years. We used STATA 14 statistical tools to perform our analyses. The logarithm of each aggregate is regressed against time to obtain coefficients over an eight-year rolling window as suggested by Hausmann et al., (2005).

3.2 Mechanism and pattern of growth acceleration over time

Since we are interested in the particular case of Kyrgyzstan, we will first look in detail at the dynamics of growth in this country. Then, as a reference, we will make some comparisons with the performance of other countries. We begin this analysis by identifying periods of accelerated growth in each economic sector by country. The analysed sector includes ISIC A-B, C-E, D, F, G-H, I, J-P as defined above. We organise the presentation of the results as follows: we first identify periods of rapid growth that are greater or equal to 3.5% on average per year. Then, when this rapid growth is confirmed, we will report the periods over which acceleration is observed. Finally, we will report the cases where this accelerated growth is persistent.

Growth dynamics in the different sectors of the economy

- *Agriculture, hunting, forestry, fishing sector* — Kyrgyzstan over the period after its independence sees its agriculture lose important points of growth. This growth is below zero between 1990 and 1997. It is only positive around 1998. Towards the year 2000, this growth will be rapid, i.e. more than 3.5% annually until 2005. However, the accel-

Table 1 Description of the variables

Name	Variable label
year	year
agriculture	Agriculture, hunting, forestry, fishing (ISIC A-B)
minman	Mining, Manufacturing, Utilities (ISIC C-E)
man	Manufacturing (ISIC D)
const	Construction (ISIC F)
wholetrade	Wholesale, retail trade, restaurants and hotels (ISIC G-H)
transport	Transport, storage and communication (ISIC I)
other	Other Activities (ISIC J-P)
totalva	Total Value-Added
country	country
lnag	Logarithm of agriculture
lnmin	Logarithm of mining
lnman	Logarithm of manufacturing
lnconst	Logarithm of construction
lnwholetrade	Logarithm of wholesale trade
lntransport	Logarithm of transport
lnother	logarithm of other activities
_Nobs	No of observations
_R2	R-squared
_adjR2	Adjusted R-squared
_b_year	Coefficient of year
_b_cons	Constant of the regression
gpi	growth point per year
growth	Growth in %

Source: Authors' elaboration based on the data collected from UNSD (2019)

eration in agriculture is only short-lived, as the effects of this rapid growth fade away in 2006. After that, Kyrgyzstan will no longer experience so-called rapid growth, i.e. agriculture between 2006 and 2018 will only grow by less than 3.5% per year.

- *Mining, Manufacturing, Utility sector* — The ISIC C-E covers categories, as specified by the United Nations Statistics Division (UNSD, 2008), that include mining and quarrying activities, production and supply of electricity, gas and water. Industries grouped under these categories play a key role in the economy of Kyrgyzstan. At the beginning when the country gained its independence, its mining sector recorded a negative performance of up to −30%. Growth was rapid between 2001 and 2005. It was accelerated in 2002. That is to say, the growth reached more than 3.5% per year and then increases by 2 points per year. However, this acceleration faded just afterwards, and Kyrgyzstan will not reach this performance for the remaining year this study covers. The 2011-2017 period records fairly lower growth, nevertheless it is less than 3.5%.
- *Manufacturing sector* — according to the United Nations Statistics Division Manufacturing ISIC D is defined as the "physical or chemical transformation of component materials into new products, whether the work is done using powered machinery or by

hand, whether it is done in a factory or the worker's home, and whether the products are sold wholesale or retail. This includes the assembly of components into manufactured products and the recycling of waste". The manufacturing industry gives us a picture that is no different from what we have seen in the two previous sectors. After its independence, Kyrgyzstan saw its manufacturing industry deteriorate and collapse with all the systems put in place during the Soviet era. Growth in this sector was only rapid in 2001–2004. It was accelerated in 2002. However, this acceleration phase is only of short duration, as it is disrupted after 2003 to return to a relatively low level. What we will see afterwards is that growth will no longer be in a rapid phase.

- *Construction sector* — Compared to other sectors of the economy, the construction industry has a very different and distinctive characteristics. This sector of activity, as defined by the United Nations Statistics Division, includes the construction of buildings, civil engineering and specialised construction activities. It can be observed that they share the same characteristics of the development just after independence, i.e. a negative growth rate. Growth is rapid between 2005–2018. Not only is growth in this sector robust, i.e. more than 3.5% annually, but it has also achieved remarkable double-digit performance. It recorded an acceleration episode in 2005 with an upward trend until 2009, when this phase reaches its peak. A slowdown can be observed, but this is followed by a recovery in 2016.
- *Wholesale, retail trade, restaurants and hotels sector* — The ISIC G–H is an aggregation of the economic activities related to wholesale and retail trade; repair of motor vehicles, motorbikes and personal and household goods and hotels and restaurants (UNSD, 2008). The same pattern can be observed for Kyrgyzstan after independence until 2001, followed by a rapid growth phase between 2001 and 2009. A deceleration phase follows, but growth remains at a fairly high level of over 3.5% until 2018. Performance in this sector has also reached a double-digit record. An episode of acceleration is observed in 2001.
- *Transport, storage and communication* — Similar to what we explained earlier, independence and the 10 years that followed had a profound effect on Kyrgyzstan's economy. The recovery in this sector, however, began to take off in 2001 and quickly reached double-digit figures by 2010. Growth is rapid in 2005 and acceleration episode is observed in 2009. This is followed by a deceleration phase until 2017 with a fairly high record above 3.5%, i.e. growth remains rapid in Haussmann et al. sense.
- *Other activities* — This sector, according to the UN Statistics Division, regroups the following categories: "the aggregation of economic activities of Section J Financial intermediation, Section K Real estate, renting and business activities, Section L Public administration and defence, compulsory social security, Section M Education, Section N Health and social work, Section O Other community, social and personal service activi-

Table 2 Growth dynamics in Kyrgyzstan and neighbouring countries

Country	Episode of growth acceleration
Agriculture, hunting, forestry, fishing	
Armenia	No observations
Belarus	No observations
Kazakhstan	No observations
Kyrgyzstan	2000
Russia	No observations
Tajikistan	2002
Turkmenistan	2008–2011
Uzbekistan	No observations
Mining, manufacturing, utilities	
Armenia	2002
Belarus	2001
Kazakhstan	2002
Kyrgyzstan	2002
Russia	No observations
Tajikistan	2002, 2017
Turkmenistan	2008, 2011
Uzbekistan	No observations
Manufacturing	
Armenia	2003
Belarus	2000
Kazakhstan	2002
Kyrgyzstan	2002
Russia	No observations
Tajikistan	2002, 2017
Turkmenistan	2008
Uzbekistan	No observations
Construction	
Armenia	2002
Belarus	2005
Kazakhstan	2002, 2006
Kyrgyzstan	2005, 2015
Russia	2003
Tajikistan	1999, 2005, 2016
Turkmenistan	2014
Uzbekistan	2009
Wholesale, retail trade, restaurants and hotels	
Armenia	1998
Belarus	1999
Kazakhstan	2001
Kyrgyzstan	2000
Russia	2005
Tajikistan	2003
Turkmenistan	2005, 2014
Uzbekistan	1999, 2008
Transport	
Armenia	2005
Belarus	No observations
Kazakhstan	2002
Kyrgyzstan	2007
Russia	No observations
Tajikistan	2002
Turkmenistan	2000, 2014
Uzbekistan	No observations
Other activities	
Armenia	1998, 2006
Belarus	2000
Kazakhstan	2003
Kyrgyzstan	No observations
Russia	No observations
Tajikistan	2018
Turkmenistan	2001, 2008
Uzbekistan	No observations

Source: Author's calculations using data from UN National Account Database (2019)

ties and Section P Activities of private households as employers and undifferentiated production activities of private households". It does not show any phase of rapid growth or accelerated growth. Growth in this sector will be rather weak in the coming years. It remains relatively below 3.5%.

Table 3 Count table for the case where the growth has been greater than or equal to 3.5% for agriculture, hunting, forestry, fishing

country	N	mean	sd	min	max
Armenia	17	7.459	3.864	5.018	16.751
Belarus	9	4.654	0.461	3.848	5.137
Kazakhstan	7	4.115	0.225	3.853	4.403
Kyrgyzstan	8	4.963	0.835	3.662	6.186
Russia	3	4.983	0.193	4.773	5.152
Tajikistan	17	6.804	0.647	6.198	8.002
Turkmenistan	22	10.78	3.97	4.042	15.986
Uzbekistan	17	5.765	0.306	4.873	6.107

Source: Author's elaboration.
Notes: N is the number of times the growth was greater than or equal to 3.5%. sd denotes the standard deviation between observed growth rates. min denotes the minimum growth rate. And max denotes the maximum observed growth value.

Where does Kyrgyzstan stand in relation to its neighbours ?

As a comparison, we sought to apply the filter of Hausmann et al., (2005) to other member countries of the Eurasian Economic Union and neighbouring Central Asian countries such as Turkmenistan, Uzbekistan and Tajikistan.

- *Agriculture, forestry and fisheries sector* — Kyrgyzstan is one of the countries experiencing an episode of accelerated growth in this sector. Other countries such as Tajikistan and Turkmenistan are also included. Applying the Haussmann filters, there are no observations for Armenia, Belarus, Kazakhstan, Russia and Uzbekistan. However, the summary statistics presented in Table 3 show that these countries have recorded a growth of more than 3.5%. There are 17 observations for Armenia with an average rate of 7.4%. For Belarus, there are 9 observations with an average rate of 4.6%. For Kazakhstan, there are 7 observations with an average rate of 4.1%. For Kyrgyzstan, there are 8 observations with an average rate of 4.9%. For Tajikistan, there are 17 observations with an average of 6.8%. For Turkmenistan, there are 22 observations with an average of 10.7%. Finally, Uzbekistan also has 17 observations with an average of 5.7%.
- *Mining, manufacturing and utility* — in this particular sector, except for Russia, all the countries we studied have recorded at least one episode of accelerated growth. Most of these episodes are observed around the beginning of the 2000s, except for Turkmenistan in 2008. Similarly, Tajikistan and Turkmenistan have experienced 2 episodes of accelerated growth. While there are not many episodes of exponential growth, the

Table 4 Count table for the case where the growth has been greater than or equal to 3.5% for mining, manufacturing and utility

country	N	mean	sd	min	max
Armenia	14	6.483	2.336	3.62	10.603
Belarus	14	7.02	1.744	4.009	9.672
Kazakhstan	13	6.63	2.3	3.62	10.253
Kyrgyzstan	6	7.762	3.745	3.531	12.652
Russia	7	5.422	1.078	3.789	6.873
Tajikistan	8	7.329	2.18	4.463	9.676
Turkmenistan	20	12.361	9.905	3.506	44.004
Uzbekistan	13	5.184	0.536	3.79	5.953

Source: Author's elaboration.
Notes: N is the number of times the growth was greater than or equal to 3.5%. sd denotes the standard deviation between observed growth rates. min denotes the minimum growth rate. And max denotes the maximum observed growth value.

summary statistics given in Table 4 indicate figures for the growth of more than 3.5 %. Thus, for Armenia, 14 observations were recorded with an average growth rate of 6.4%. For Belarus, 14 observations were recorded with an average growth rate of 7.02%. For Kazakhstan, 13 observations were recorded with an average growth rate of 6.6%. Kyrgyzstan recorded 6 observations with an average growth rate of 7.7%. Russia also recorded 7 observations with an average growth rate of 5.4%. Tajikistan recorded 8 observations with an average growth rate of 7.3%. Turkmenistan has 20 counts with an average growth rate of 12.3%, while Uzbekistan has 13 observations with an average growth rate of 5.1%. Turkmenistan has 20 counts with an average growth rate of 12.3%, while Uzbekistan has 13 observations with an average growth rate of 5.1%. Turkmenistan has 20 counts with an average growth rate of 12.3%, while Uzbekistan has 13 observations with an average growth rate of 5.1%.

- *Manufacturing sector* — this sector is very similar to what was presented previously. For analytical purposes, it is often included with mining. However, it is also treated separately to highlight the importance of the manfucturing industries from mining industries particularly for resource-rich countries. Kyrgyzstan recorded 4 observations with an average growth rate of 8.5%. Russia recorded 7 observations with an average growth rate of 5.7%, Tajikistan recorded 8 observations with an average annual growth rate of 7.3%. Turkmenistan records 19 observations with an average growth rate of 12.34% and Uzbekistan records 13 observations with an average growth rate of 5.8%.
- *The construction industry* — in this sector, countries have also experienced episodes of accelerated growth according to the HPR filter. However, while these episodes are few, there are cases where growth is greater than 3.5%. For example, Armenia has 12 observations with an average growth rate of 17.3%. It has 13 observations with an aver-

Table 5 Count table for the case where the growth has been greater than or equal to 3.5% for manufacturing

country	N	mean	sd	min	max
Armenia	14	7.137	2.719	3.545	11.737
Belarus	15	8.861	2.357	4.504	12.294
Kazakhstan	15	5.831	1.978	3.583	9.029
Kyrgyzstan	4	8.585	2.755	4.881	11.528
Russia	7	5.773	1.016	3.786	6.844
Tajikistan	8	7.329	2.18	4.463	9.676
Turkmenistan	19	12.348	6.408	4.071	27.906
Uzbekistan	13	5.811	1.103	3.801	7.364

Source: Author's elaboration.
Notes: N is the number of times the growth was greater than or equal to 3.5%. sd denotes the standard deviation between observed growth rates. min denotes the minimum growth rate. And max denotes the maximum observed growth value.

Table 6 Count table for the case where the growth has been greater than or equal to 3.5% for construction

country	N	mean	sd	min	max
Armenia	12	17.388	5.882	8.107	25.115
Belarus	13	10.524	5.505	3.611	17.636
Kazakhstan	14	12.748	6.154	3.531	20.475
Kyrgyzstan	14	11.086	2.901	6.218	15.114
Russia	10	7.648	2.216	3.735	10.238
Tajikistan	11	8.859	3.265	4.548	15.105
Turkmenistan	14	8.942	2.668	4.308	12.043
Uzbekistan	17	9.708	4.149	3.508	13.889

Source: Author's elaboration.
Notes: N is the number of times the growth was greater than or equal to 3.5%. sd denotes the standard deviation between observed growth rates. min denotes the minimum growth rate. And max denotes the maximum observed growth value.

age growth rate of 10%. Kazakhstan has 14 observations with an average growth rate of 12.7%. Kyrgyzstan, 14 observations with an average growth rate of 11%. Russia, 10 observations with a growth rate of 7.6%. Tajikistan, 11 observations with an average growth rate of 8.8%. Turkmenistan also 14 observations with an average growth rate of 8.9%. And finally, Kyrgyzstan, 17 observations with an average annual rate of 9.7 %. Growth in the construction sector is quite high with double-digit results for Armenia, Belarus, Kazakhstan and Kyrgyzstan.

- *Wholesale trade, restaurants and hotels* — all countries are experiencing at least one episode of accelerated growth in this sector. Turkmenistan and Uzbekistan are experiencing 2 episodes of accelerated growth in the accounting sector. Table 7 provides a summary of the growth in this sector if it has been rapid, i.e. above 3.5%. Armenia has 17 observations for an average growth rate of 10.3%. Belarus has 18 observations with an average growth rate of 9%. Kazakhstan has 18 observations for an average

Table 7 Count table for the case where the growth has been greater than or equal to 3.5% for wholesale, retail trade, and restaurant

country	N	mean	sd	min	max
Armenia	21	10.329	5.844	3.552	25.225
Belarus	18	9.06	2.525	3.58	12.384
Kazakhstan	18	7.584	1.842	4.076	10.219
Kyrgyzstan	19	8.464	2.63	4.133	12.522
Russia	10	7.553	2.161	4.156	10.447
Tajikistan	16	10.758	2.223	5.778	14.321
Turkmenistan	15	8.352	2.866	4.221	12.047
Uzbekistan	20	9.374	3.397	4.156	14.404

Source: Author's elaboration.
Notes: N is the number of times the growth was greater than or equal to 3.5%. sd denotes the standard deviation between observed growth rates. min denotes the minimum growth rate. And max denotes the maximum observed growth value.

Table 8 Count table for the case where the growth has been greater than or equal to 3.5% for transport

country	N	mean	sd	min	max
Armenia	20	7.331	3.226	3.613	13.66
Belarus	14	5.229	0.868	3.501	6.12
Kazakhstan	17	8.035	1.692	5.481	10.709
Kyrgyzstan	13	10.99	4.785	4.836	17.523
Russia	8	5.526	0.926	3.934	6.341
Tajikistan	15	13.973	5.533	4.41	20.688
Turkmenistan	17	12.989	5.408	4.13	22.888
Uzbekistan	18	7.913	2.476	3.632	11.653

Source: Author's elaboration.
Notes: N is the number of times the growth was greater than or equal to 3.5%. sd denotes the standard deviation between observed growth rates. min denotes the minimum growth rate. And max denotes the maximum observed growth value.

growth rate of 7.5%. Kyrgyzstan has 19 observations with an average growth rate of 8.4%. Russia, 10 observations with an average growth rate of 7.5%. Tajikistan, 16 observations with an average growth rate of 10.7%. Turkmenistan, 15 observations with an average growth rate of 8.3%. Uzbekistan, 20 observations with an average growth rate of 9.3%.

- *The transport sector* — countries that have experienced accelerated growth are Armenia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan. No episodes of accelerated growth are observed in Belarus, Russia and Uzbekistan. However, whether or not the results show growth episodes, there have been cases where growth has been high, above 3.5 per cent. Table 8 provides summary statistics on this sector. It can be seen that in Armenia there were 20 observations where growth was above 3.5%. With an average growth of 7.3%. Belarus, 14 observations with an average growth rate of 5.2 %. Kazakhstan, 17 observations with an average growth rate of 8%. Kyrgyzstan, 13

Table 9 Count table for the case where the growth has been greater than or equal to 3.5% for construction

country	N	mean	sd	min	max
Armenia	22	8.032	3.779	3.842	17.653
Belarus	8	4.534	0.344	3.976	4.902
Kazakhstan	10	7.674	2.236	3.86	10.407
Kyrgyzstan	1	3.703	n/r	3.703	3.703
Russia	6	5.213	0.792	3.984	6.004
Tajikistan	9	5.192	0.59	3.96	5.794
Turkmenistan	18	7.833	2.632	3.515	10.808
Uzbekistan	17	5.754	1.957	3.653	8.505

Source: Author's elaboration.
Notes: N is the number of times the growth was greater than or equal to 3.5%. sd denotes the standard deviation between observed growth rates. min denotes the minimum growth rate. And max denotes the maximum observed growth value.

observations with an average growth rate of 10.9%. Russia, 8 observations with an average growth rate of 5.5%. Tajikistan, 8 observations with an average growth rate of 13.9%. Turkmenistan, 17 observations with an average growth rate of 12.9% and Uzbekistan, 18 observations with an average growth rate of 7.9%.

- *Other activities* — countries such as Kyrgyzstan, Russia and Uzbekistan have not experienced episodes of accelerated growth. Here are some summary statistics where growth has been above 3.5%. 22 observations in Armenia for an average growth rate of 8.03%. Eight observations in Belarus with an average growth rate of 4.5%. 10 observations in Kazakhstan with an average growth rate of 7.6%. Only one observation in Kyrgyzstan with a growth rate of 3.7%. 6 observations in Russia with an average growth rate of 5.2%. 9 observations in Tajikistan with an average rate of 5.19%. 18 observations in Turkmenistan with a rate of 7.8%. 17 observations in Uzbekistan with an average rate of 5.7%. Kyrgyzstan records a very low activity in this sector.

A comparison of Kyrgyzstan with other Central Asian countries shows that the country has experienced episodes of accelerated growth in almost the same way as other neighbouring countries. However, the sectors where Kyrgyzstan shows significant weaknesses compared to other countries are mining, manufacturing, utilities and other activities. This is due to the inequality of natural resources over Central Asia. Other countries are better off with gas and oil reserves as well as gold, while Kyrgyzstan has only its gold deposit and the water that flows upstream from its land.

Taken as a whole, the results we have obtained suggest that it is possible to generate growth in various sectors of the economy in Kyrgyzstan. This is in line with the conclusion of Hausmann et al., (2005) for those who are pessimistic about growth. This pessimism has often led to development policy choices that are not in line with existing conditions in various sectors of the economy. In the next section, we will discuss the

implications of these findings for Kyrgyzstan's IP.

3.3 Implications for IP in Kyrgyzstan

In this article, we have sought to analyse the dynamics of growth in the Kyrgyz economy at the level of each sector of economic activity. For this purpose, we used the growth acceleration filter proposed by Hausmann et al., (2005). This is to identify potential sectors that can help rethink IP, whose ultimate goal will be to create employment but also to decouple the Kyrgyz economy from sectors that depend on external factors. Despite the economic success of Kyrgyzstan, which is at the threshold of graduating from a low to a middle-income economy, according to World Bank opinion surveys (2019), employment remains a key concern of the Kyrgyz population. The low absorptive capacity of industries does not allow for the creation of new jobs. The employment problem is also directly linked to the outward migration flow which pushes the Kyrgyz nationals to find better opportunities abroad.

Against all expectations, Kyrgyzstan is showing positive results in terms of economic growth in all sectors of economic activity. The construction, wholesale trade, retail trade, catering and hotel sectors are particularly noteworthy in this context. The particularity of these sectors is that they are not directly linked to export activity.

Industrial policies towards the construction sector are crucial for job creation, accumulation of fixed assets, and contributes to the development of the financial sector. The construction sector, after agriculture, is the second largest sector which can absorb both skilled and unskilled workers. Policy action in this sector offers possibility for job creation. The construction sector also allows for the accumulation of fixed assets. If Kyrgyzstan can accumulate significant fixed assets, this will have a significant impact on access to finance. The lack of securities is often highlighted as the main obstacle to access to finance. The accumulation of fixed assets will therefore enable lower cost of borrowing.

The transport sector plays a special role for the country because, given the geographical difficulties linked to its isolation, the development of the transport sector can facilitate the movement of goods and services as well as people. If improved, it can also become a springboard for connecting the country to the outside world. This type of transport should not only concern land transport but also air transport. Policies to facilitate access to transportation and related facilities should be a priority for the government. Besides, assistance to transport companies could improve the country's competitiveness and ease of circulation. However, transport also depends on sufficient and well-maintained infrastructure to function well. Both horizontal and selective IP actions in this sector should therefore be oriented in this direction.

The wholesale and retail trade, catering and hotel sector has also experienced significant development between 2000 and 2018. This sector also has great potential for job creation.

Wholesale and retail sales play a particular role in maintaining jobs at the bazaar level but also in the re-export sector. Despite the pessimism about Kyrgyzstan's accession to the Eurasian Economic Union, according to which it would have strong implications for bazaar activities, there has been a clear rebound in recent years. Moreover, the development of an IP towards this sector should be both horizontal and selective. The support to restaurants, hotels and services will enable Kyrgyzstan to improve its capabilities in this industry. Potential to develop activities open to regional and international tourism can also be envisaged.

The results we have obtained here, however, show significant potential particularly for the construction sector, wholesale, retail, restaurant and hotel sector, and transport activities. These activities are largely independent of external factors, yet they are often ignored in IP, as the priority has always been to focus on the capacity to increase exports. However, the growth of these sectors of the economy, which moreover shows double-digit results, calls for a certain way of approaching IP differently.

4. Conclusion

This study offers an overview of the growth dynamics in Kyrgyzstan. Disaggregated National Account data were used to investigate episodes of rapid, accelerating, and sustained growth. The research was expanded to countries of Central Asia and the Eurasian Economic Union. Current Kyrgyzstan figures show the economy is booming. To take just a few examples, Kyrgyzstan has experienced a decline in poverty alongside an increase in per capita annual income.

Our results show that in the countries we analysed, there have been several periods of rapid development, rapid expansion, and sustained growth. For its part, Kyrgyzstan has seen many episodes of development in all sectors of its economy. But the sectors that have experienced many more episodes of sustained growth are construction, wholesale and retail trade, as well as transport. This provides some indication of potential which will allow strategies to lessen the dependency of the economy on the gold sector and foreign remittances to be developed.

Nonetheless, current mainstream research adopts approaches such as those defined as horizontal or functional policies encompassing financial development, infrastructure building, and governance reform. We propose that horizontal policy needs to be supplemented with selective IP. This justifies government intervention through the application of selective industrial policies for the three sectors we identified for Kyrgyzstan.

The theoretical contribution of this study is manifold. Firstly, to our knowledge, this is the first time that the HPR filters have been applied at disaggregated levels of sectors of

the economy. Secondly, the results of these studies allow us to understand interesting periods for studying the acceleration of growth in the economic sectors of Kyrgyzstan. The analysis of episodes of accelerated growth also contributes to a better understanding of developments in the countries of Central Asia and, by extension, in the countries of the Eurasian Economic Union. The limitation of our study is that we have not studied the precursor of growth episodes as it was done in other instances. For that purpose, we need to study more countries to be able to draw a theoretical generalisation. Also, if Kyrgyzstan is to rise above the competition that currently exists, the strategic contours of its IP must be redefined by positioning strategies. This opens up new research perspectives for the future, particularly about the nature and modalities of the positioning strategies.

Notes:

1) Author's calculation based on the data from the World Bank's World Development Indicators 2019.

2) This problem is discussed by Antoshin et al., (2008). they point out that the method developed by Bai and Perron gives good results when the sample size is sufficiently large, i.e. $T=100$. However, these authors acknowledge that they find a significant discrepancy when the sample is small. But even in the case of Antoshin et al., (2008), what they consider to be a small sample is $T=50$. in our case, the data are only for 29 years.

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