

RESEARCH NEWSLETTER

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This newsletter presents a short summary of the Bank of Albania's research projects during 2020 H1. More concretely, it reflects the most recently concluded research papers, research work in progress, articles, and the main research activities organized mainly by Bank of Albania's economists in the course of this period.

I. RESEARCH PAPERS

1.1. RECENTLY CONCLUDED RESEARCH PAPERS

In 2020 H1, economic research at the Bank of Albania consisted of empirical studies and analyses on topics related to: non-linear models of forecast, the impact of the COVID-19 pandemic on the economy, liquidity, financial literacy and sustainable growth. A short summary is presented below.

“Forecasting Albanian time series with linear and nonlinear univariate models”, by Blerina Vika, Statistics & Applied Informatics Department, Faculty of Economy, University of Tirana, Ilir Vika, Research Department, Bank of Albania.

Albanian economic time series show irregular patterns since the 1990s that can affect economic analyses with linear methods. This study intends to assess whether nonlinear methods can produce forecasts that improve upon linear models. The latter are represented by the classic

autoregressive (AR) technique, which is regularly used as a benchmark in forecasting. The nonlinear family is represented by the logistic smooth transition autoregressive (LSTAR) model as a special form of the time-varying parameter method, as well as the nonparametric artificial neural networks (ANN) that mimic the brain's problem solving process. The analysis focuses on four illustrative economic indicators – output, consumer prices, the T-bill interest rate and the ALL/EUR exchange rate – that are commonly used in various macroeconomic models and their performance is subject for periodical discussions by policymakers. Comparing the forecast ability of the models in 1, 4 and 8 quarters ahead, we find that nonlinear models rank on the top for more than 75 percent of the out-of-sample forecasts, led by the feed-forward artificial neural networks. The linear AR models seem to only outperform in the case of consumer prices, and to some extent for output. Although the loss differential between linear and nonlinear model forecasts is often found

not statistically significant, the findings suggest that it can be worth trying various alternatives beyond the linear estimation framework.

1.2. RESEARCH PAPERS IN PROGRESS

“The impact of lockdown from Covid-19 in the economic activity”, by Bledar Hoda, Research Department.

The paper aims to measure the relative impact of the Pandemic on some economies for which it has been possible to find indicators of economic activity on a monthly basis. It is clear in advance that the decline in industrial production in the economies affected by Covid-19 will be a function of escalating restrictions. To measure the size of the lockdown, the monthly change of the “stringency index” built by Oxford University is used, which measures the escalation of the lockdown in the range from 0 to 100 for 40 economies in the world. Preliminary results suggest that industrial production is declining by about 2.5-4% for every 10 percentage points tightening of the “stringency index”. The stringency index reached its maximum level of on average 0.85-0.95 in April-May, for the group of economies. The monthly growth of industrial production is projected to fluctuate in proportion to the performance of the stringency index in the economies affected by Covid-19.

“Sustainable development goals: Multinational enterprises, economic growth, and poverty reduction in the Western Balkans”, by Margerita Topalli, Meri Papavangjeli, Research Department.

Using a panel database for 6 Western Balkan countries over the period 2002–2018, this study conducts an empirical investigation

of the effects of Foreign Direct Investment (FDI) inflows on poverty, considering also other country characteristics such as: human development index, corruption, investment freedom, economic freedom, trade openness and fertility. Whereas poverty remains high in this region, considerably little empirical studies have been conducted to examine how poverty has been affected by FDIs. Understanding the factors behind these high rates of poverty can help to orient efforts into encouraging a conducive environment for poverty reduction.

“Financial Literacy in Albania: Survey Results for Measuring the Level of Financial Literacy of the Population, 2019”, by Arlinda Koleniço, Kliti Ceca, Egnis Isaku, Research Department.

The Bank of Albania has assessed for the third time the level of financial literacy of the Albanian population. The survey “Financial Literacy in Albania” is designed according to the OECD/INFE guidelines and methodology and was conducted in collaboration with INSTAT during September-October 2019. The data obtained from this survey provide crucial information on identifying the issues that need attention and intervention through financial education projects.

“Forecasting with a time-varying VAR model: evidence from the Albanian economy”, by Meri Papavangjeli, Research Department.

Widely used by the most prestigious central banks, the time-varying Bayesian VAR model takes into account the structural changes of the economy, uncertainties and instabilities that characterize macroeconomic developments. The project aims to assess whether the use of time-varying parameters brings about any significant improvement in

the forecast accuracy of the main Albanian economic indicators.

“Forecasting the short-term and long-term need for operational market liquidity in the Albanian financial sector”, by Gerti Shijaku, Research Department.

The Bank of Albania regulates the need for liquidity in the financial sector over a specific time horizon to reflect its policy stance by injecting and withdrawing liquidity in the open market. This also serves as a guide for short-term trading rates in the interbank market to approach the policy rate and reduce the deviation from this rate. From this standpoint, the central bank analyses and forecasts the demand for short-term and long-term liquidity in the market, which changes as a result of movements in discretionary and autonomous factors. Thereupon, this paper develops a series of empirical models with daily data for the period 2008 - 2019 in order to predict the need for liquidity of the interbank market based on binary indicators and the approach of distributing liquidity according to autonomous and discretionary factors.

1.3 ARTICLES

“Microeconomic Evidence on the price-setting behavior in the Albanian economy”, by Ola Çami, Research Department.

This paper aims to analyze price behavior in Albania during the period 2008-2019 based on the calculation of three main indicators: frequency, size and duration of price adjustment. The paper uses disaggregated CPI data and statistical calculations to provide evidence about

price rigidity as well as the heterogeneity of behavior between different groups in the consumer basket. The results suggest that the price-setting behavior is heterogeneous in the range of goods where in general the prices of services are more rigid than those of goods. Nevertheless, in general terms, the results are in line with the description of the four characteristics of Taylor (1999) on the price-setting process.

Assessing the interest rate channel: the Albanian case”, by Denada Rada, Research Department.

The objective of this paper is to examine the impact of short-term policy 7-Day REPO rate imposed by Bank of Albania as policy reference in the implementation of monetary policy on macroeconomic variables: real GDP growth, inflation, money supply growth M3 and the ALL/EUR exchange rate, using data during 2002-2018 in a VAR model.

“Investigating how output growth and labor flows relate to the unemployment rate”, by Orion Garo, Research Department.

This paper, based on the approach of Lim et al, 2018, analyzes the relationship between changes in the unemployment rate and economic growth based on data on labor market flows in Albania, generated by the IPF (Iterative Proportional Fitting) method. Using a VAR model, the reactions of the labor market in Albania during the period 2001-2019 to the shocks suffered by the economy are analyzed. Estimates show a negative relationship between changes in the unemployment rate and economic growth, as well as an important role played by the dynamics of labor market flows in the unemployment rate change in Albania.

1.4 ARTICLES FROM OTHER CENTRAL BANKS

“Does the liquidity trap exist?”, by Stéphane Lhuissier, Benoit Mojon, Juan Rubio-Ramírez, BIS.

The liquidity trap is synonymous with ineffective monetary policy. The common wisdom is that, as the short-term interest rate nears its effective lower bound, monetary policy cannot do much to stimulate the economy. However, central banks have resorted to alternative instruments, such as QE, credit easing and forward guidance. Using state-of-the-art estimates of the effects of monetary policy, we show that monetary easing stimulates output and inflation, also during the period when short-term interest rates are near their lower bound. These results are consistent across the United States, the euro area and Japan.

<https://www.bis.org/publ/work855.htm>

“Macroprudential regulation and leakage to the shadow banking sector”, by Stefan Gebauer, Falk Mazelis, European Central Bank.

Macroprudential policies are often aimed at the commercial banking sector, while a host of other non-bank financial institutions, or shadow banks, may not fall under their jurisdiction. We study the effects of tightening commercial bank regulation on the shadow banking sector. We develop a DSGE model that differentiates between regulated, monopolistic competitive commercial banks and a shadow banking system that relies on funding in a perfectly competitive market for investments. After estimating the model using euro area data from 1999 – 2014 including information on shadow banks, we find that tighter capital requirements on commercial banks increase shadow bank lending, which may have adverse financial stability effects.

Coordinating macroprudential tightening with monetary easing can limit this leakage mechanism, while still bringing about the desired reduction in aggregate lending. In a counterfactual analysis, we compare how macroprudential policy implemented before the crisis would have dampened the business and lending cycles.

<https://www.ecb.europa.eu/pub/pdf/>

“Social Distancing and Supply Disruptions in a Pandemic”, by Martin Bodenstein, Giancarlo Corsetti, Luca Guerrieri, Federal Reserve.

Drastic public health measures such as social distancing or lockdowns can reduce the loss of human life by keeping the number of infected individuals from exceeding the capacity of the health care system but are often criticized because of the social and the economic cost they entail. We question this view by combining an epidemiological model, calibrated to capture the spread of the COVID-19 virus, with a multisector model, designed to capture key characteristics of the U.S. Input Output Tables. Our two-sector model features a core sector that produces intermediate inputs not easily replaced by inputs from the other sector, subject to minimum scale requirements. We show that, by affecting workers in this core sector, the high peak of an infection not mitigated by social distancing may cause very large upfront economic costs in terms of output, consumption and investment. Social distancing measures can reduce these costs, especially if skewed towards non-core industries and occupations with tasks that can be performed from home, helping to smooth the surge in infections among workers in the core sector.

<https://www.federalreserve.gov/econres/feds/social-distancing-and-supply-disruptions-in-a-pandemic.htm>

“Forecasting macroeconomic risk in real time: Great and Covid-19 Recessions”, by De Santis, Roberto A., Van der Veken, Wouter, European Central Bank

We show that financial variables contribute to the forecast of GDP growth during the Great Recession, providing additional insights on both first and higher moments of the GDP growth distribution. If a recession is due to an unforeseen shock (such as the Covid-19 recession), financial variables

serve policymakers in providing timely warnings about the severity of the crisis and the macroeconomic risk involved, because downside risks increase as financial stress and corporate spreads become tighter. We use quantile regression and the skewed t-distribution and evaluate the forecasting properties of models using out-of-sample metrics with real-time vintages.

<https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2436~df6319728a.en.pdf>

II. RESEARCH ACTIVITIES

During 2020 H1, research activities at the Bank of Albania have been limited as a result of the social distancing measures taken in order to minimize the risk of spreading the Covid19 infection. Below are presented the activities carried out in January and February 2020.

2.1. FRIDAYS SEMINARS

“Implications of QE policies of ECB”, by Bledar Hoda, Research Department.

The aim of this study is to assess the implications of Quantitative Easing (QE) policies of the European Central Bank (ECB) and of the potential risks following the eventual exit from these policies. Simulations suggest that the shocks of unconventional monetary policy have strong positive effects on the financial conditions of the Albanian economy, but small negative effects on the real sector. The negative effects of unconventional monetary policy shocks through the portfolio rebalancing channel neutralize its positive effects through the financial channel. In addition, the risk indicator, calculated as the difference of interest rates with a term in

Albania of 12 months compared to interest rates with the same term in the euro area is a potentially important factor in the Albanian economy, especially for investment and domestic product.

“Financial Sector and Macroeconomic Interconnections in the Macro Model of the Albanian Economy MEAM”, by Lorena Skufi, Monetary Policy Department, Bank of Albania.

This paper describes the link between the financial sector and the real economy in the MEAM macro model. The focus is on credit interest rates, in terms of impacts from macroeconomic indicators such as the probability of private sector bankruptcy and economic developments. This paper is an attempt to enrich the MEAM macromodel with financial indicators.

2.2. OTHER ACTIVITIES

“Visit of Prof. Massimiliano Marcellino at the Bank of Albania”, 29 September- 4 October 2019 and 27-31 January 2020, Bank of Albania.

In the framework of the cooperation agreement between the Bank of Albania with SECO (Swiss State Secretariat for Economic Affairs), Prof. Massimiliano Marcellino from Bocconi University in Italy, has made two visits to the Research Department on September 29-October 4, 2019 and January 27-31, 2020. The trainings and discussions that took place were aimed at strengthening the human resource capacity of the Bank of Albania, in order to improve and develop new methodologies for forecasting macroeconomic indicators.

Workshop on the topic “Strengthening research capacity in central banks”, Bank of Albania, March 2020.

During March 2020, Bank of Albania in cooperation with the Graduate Institute of

Geneva, would have organized a workshop on “Strengthening research capacity in central banks”, which was cancelled due to the situation created by the Covid-19 pandemic outbreak. The aim of the activity was to exchange experiences in the field of scientific research with participants from central banks of BCC program partner countries (Azerbaijan, Bosnia & Herzegovina, Colombia, Peru, Tunisia, Ukraine) and some of the countries in the region and beyond, such as: Austria, Italy, Kosovo, Montenegro, Northern Macedonia, Serbia. The main issues planned to be discussed include: the role of research in central banks and how to organize the research process; strategies to improve the research quality; research methodologies and software currently used by central banks, etc.

III. LINKS OF OTHER INSTITUTIONS:

Banca d'Italia

[\(http://www.bancaditalia.it/studiricerche/\)](http://www.bancaditalia.it/studiricerche/)

Bank of Canada

<http://www.bankofcanada.ca/research/>

Banco de Espana

<http://www.bde.es/informes/be/docs/docse.htm>

Bank of England

<http://www.bankofengland.co.uk/publications/workingpapers/index.htm>

Bank of Finland

http://www.bof.fi/en/julkaisut/bofit_julkaisut/index.htm

Bank of Greece

<http://eng.bankofgreece.gr/en/publications/research.asp>

BIS Central Bank Research Hub

<http://www.bis.org/cbhub/index.htm>

Czech National Bank

<http://www.cnb.cz/en/research/>

Deutsche Bundesbank

http://www.bundesbank.de/vfz/vfz_diskussionspapiere_2009.en.php

European Central Bank

<http://www.ecb.int/home/html/researcher.en.html>

Federal Reserve

<http://www.federalreserve.gov/econresdata/default.htm>

International Journal of Central Banking

<http://www.ijcb.org/>

National Bureau of Economic Research

<http://www.nber.org/>

International Monetary Fund

<http://www.imf.org/external/pubind.htm>

Oesterreichische Nationalbank

http://www.oenb.at/en/presse_pub/research/research.jsp

