REVIEW
For the acquisition of an educational and scientific degree "doctor"
in SA "D. A. Tsenov" - Svishtov

Reviewer: Krasen Stanchev, associate professor at SU

Author of the dissertation: Julian Voinov

Dissertation topic:

"Lag modeling of public finances through stress testing"

I. General presentation of the dissertation:

1. The subject of the dissertation is the testing of the dynamics of the main "health indicators" of public finances in an environment of atypical and numerous challenges, although the author's aspiration is to focus on the "cyclically smoothed" indicators.

2. The volume of the work is 196 (according to the copy of the work in "portable-documentary form").

3. The structure of the work is logical and, I would say, unusual in its direct way of writing down the work: for example, the introduction is devoid of the usual typical general explanations of the situation under analysis. Instead, Julian Voinov focuses on the EU's methods for assessing the macro-prudential parameters of the member states' fiscs and their evolution. The empirical analysis of gaps and errors (chapter II) is built on the principle of deduction - from the general in the design of the stress tests to the typical for individual countries, by reviewing the gaps in the modeling of (or taking into account) the stress risks typical for Bulgaria the tests. Chapter III is an exposition that combines methodology and empiricism applied specifically to Bulgaria. But also applicable to other EU member countries and beyond the Union.

4. The list of used literature is also logical both in terms of content and volume. Knowing the author's publications outside the academic arena, it seems to me that he consciously limited the bibliography to only the most directly relevant sources.

5. The idea of putting the regressions and tests in appendices is not quite typical (calculations are usually inserted into the text of dissertations, in search of respect), but it is very good and, in my opinion, facilitates the perception of the main merits of the analysis.

II. Assessment of the form and content of the dissertation.

Technical details can be found in the abstract and some of the other documentation on the defense and peer reviews. I allow myself to focus mainly on the substantive aspects.

1. Actuality. It is beyond doubt.

It even seems much timelier than the time when the topic of labor was formulated. I.e. before the COVID-19 pandemic and many other external shocks and unforeseen events in the management of the public finances of the EU countries and especially Bulgaria.

The pandemic had many strange economic consequences, but directly related to the subject of the dissertation is the fact that most, if not all, models for assessing economic and fiscal developments "failed to work". Most relevant international financial institutions (to use a colleague's terminological hint) changed their ratings at least five times in one year.

The regression analysis with the inclusion of the so-called "output gap" or "output gap" (pp. 127-133) when comparing the author's reconstructions and forecasting ability with those of the Treasury shows greater accuracy than the Ministry's model. Mr. Voinov notes this feature in one of the conclusions of the analysis.

The subject of his work is precisely the prognostic capacities of the various models, their use by the EC and the Bulgarian tax authorities through the application of their possible modifications (lag modeling) and the inclusion of risk indicators such as the "production gap" (usually established post factum).

The object of analysis is the application of these models and their alternatives through a combination of bug modeling and stress testing.

Dissertation thesis PhD thesis ("the application of a stress test on an empirical model including economic and fiscal components and their lag shifts" corrects and overcomes "the existing imperfections of the applied budget forecasts caused by the "discrepancy" between the budget forecast and the actual budget execution " - p. 11, in stylistic editing) is heuristic, original and has allowed the doctoral student to arrange and present the hypotheses of the analysis, and research goals and tasks.

The research approach and methods, although applied by colleagues at home and abroad, are original and innovative precisely in the indicated combination. I should note that in my opinion, applied individually, the models and the output gap did not produce credible results in 2020 and especially 2021, when the counterfeit and post-pandemic impacts were particularly visible.

The approach of the analysis is justified by its application itself. The combination of regressions in the lags and the verification through stress indicators confirm the privilege of the design of the dissertation work, its fresh newness and validity of the conclusions (pp. 159 et seq.).

2. Analysis of the degree of development.

As mentioned, the development of the researched issues by other authors is typical, but the combination of methods and approaches is not.

One very important circumstance mentioned by the dissertation deserves attention: the changes in the GDP calculation methodology, which make inapplicable or lower the Cobb-Douglas heuristic and far less sophisticated models, even the elementary comparisons of the ones developed in our country in the 1990s and in the last decade years.

The problems with the application of this and other models are very well explained by Mr. Voinov in the relevant section of the dissertation (pp. 52-53 and 55-57). This done sparingly, but with a clearly discernible appreciation of flaws and omissions.

I would not be particularly parsimonious in explaining demographic processes after the 1960s, life expectancy, and other implicit components of the models.

3. Opinion on the volume of the dissertation work.

As can be seen from what has just been said, I would extend it to several pages. But the author's parsimony in the presentation of the entire analysis (from the hypotheses to their verification) is a merit of the dissertation work.

4. Evaluation of the quality and quantity of the proposed illustrative material

These materials (diagrams, graphs and explanations of the regressions) are completely adequate and sufficient to orient the reader in the qualities and correctness of the conclusions drawn.

5. Evaluation of scientific, linguistic and stylistic editing

I do not see in the work elements of incorrectness in the exposition, in the explanation of the meaning of the concepts used or logical inconsistency of the text.

In fact, the exposition and style allow the reader to verify for himself the conclusions drawn in the dissertation.

6. Assessment of the applied econometric methods and the adequacy of the statistical data used.

As already mentioned, the explanations of terms, calculation methods and data used enable the reader to verify the author's conclusions. This is a very essential merit of the dissertation work.

7. Opinion to what extent the candidate has complied with the rules of scientific ethics.

I see no compromises with the principles of this ethics and with the generally accepted ways of observing them. I would like to point out that my style in these obvious conclusions would be much more "polemical" than that of Mr. Voinov.

8. Opinion as to how far the abstract accurately and completely reflects the work.

There are no inconsistencies and discrepancies between the dissertation work and its presentation in the abstract.

III. Scientific and scientific-applied contributions of the dissertation work.

1. The following merits of Julian Voinov's work are of significant, - I do not say "exclusive" only because of uncertainty - theoretical and scientific-applied value:

   a. The combination of lag modeling with risk indicators such as output gap and total factor productivity;

   b. The delineation of the limits of applicability of these methods and indicators, together with the explanation of the shortcomings in the available database and ways of collecting them.

   c. The obvious benefit of correcting predictions through "stress tests".

2. So far, there is no evidence that the proposed ideas and results have been applied in the analysis of public finances in our country. Yulian Voinov's scientific popular appearances, his noticeable presence in the media obviously have the charge to spread his innovative analytical approaches or at least the result of their application.

3. Regarding their response and recognition in the specialized scientific literature, I did not check.

4. Post-pandemic economic developments and the accumulation of political risks only emphasize the need to apply approaches such as those proposed in the dissertation. In the last two and a half to three

years, the Fiscal Council of Bulgaria (which in its opinions often mentions the concepts used in Mr. Voinov's analysis) has called for this.

IV. Critical notes, questions and recommendations on the dissertation work.

I have already said that in the place of the author, with these conclusions, I would be more polemical. However, he makes up for this objectivity and restraint in his dissertation work with his media appearances. However, they are also distinguished by academic decency, despite the polemical charge and atmosphere.

A key assumption in the thesis is that modeling and regressions are capable of predicting or at least directing attention to macro prudential risks. For this, he also suggests ways of more detailed risk reporting and stress testing.

This is both true and false: what might be called "pure political risk" remains outside the focus of the dissertation. For example, in two places in the thesis it is stated that there is a certain "consistency of errors" ("especially in certain sub-periods") "which may be politically motivated".

I'm missing some details of the fiscal landscape and institutions that can be used to verify the "political motives" or at least compare the "mistakes".

Here's what it's all about:

a. In the fiscal, there are "behavioral" thresholds of admissibility of certain policies, approaches and measures; for example thresholds of direct income taxation around them accumulate incentives for behavior that represent a risk for the revenue part of each budget. The "political motive" for introducing such thresholds (from MRZ to progressive taxation) is obvious, but cannot be recognized and described using these methods.

b. It is possible to recognize an outcome – such is the case with the tax burdens on labor, shouted down and pointed to as forecasting errors in at least a dozen places in the dissertation. The problem here is not simply causality, but system nature of the impacts. For example, the non-payment of social security can be a consequence of both regulatory reasons (e.g. minimum wages, etc.) and socio-worldview attitudes behind the letter of essential laws such as the Labor Code and/or the Civil Code. And even more elusive is the influence of the rule of law. Obviously, these factors also create grayness of the economy. It is also obvious that behind this grayness is state and fiscal policy, it is not an independent phenomenon or a separate variable in statistical calculations.

c. By the way, I do not think that the values for the gray economy in our country, in Europe and the world obtained by Schneider are correct, although unfortunately they are widely accepted. Including from Mr. Voinov. In my opinion, they should be adjusted with the "contract-intensive-money" calculations.

d. Work would benefit from comparing the results obtained for the fiscal with some already classic indices such as the Economic Freedom in the World, of the Fraser Institute (because compared to other similar indices it is based on verified GDP data) or the Rule of Law Index (which is essentially evaluative). A cursory examination of them while reading the dissertation showed that clear correlations were possible between what was found about the fiscal and the observation of economic freedom and the rule of law.

V. Summary Conclusion and Opinion.

The indicated shortcomings are, of course, important to me. If desired, the doctoral student can further develop his analysis. For me, there is no doubt that Julian Voinov's work corresponds to the most demanding Bulgarian and international standards, and I propose to the jury to award him the aspired knowledge. Personally, I do this with absolute conviction.

Date: 2/26/2023

Reviewer:

(Krasen Stanchev)