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Report on Alexandr Černý's doctoral dissertation

Essays on Stock Market Integration and on the Curse of Natural Resources

General remarks

Doctoral dissertations serve two main purposes, one scientific (to contribute new knowledge) and the other educational (to demonstrate the ability of the doctoral candidate to master and analyze existing knowledge). The assessment to follow is based on the second and third chapters of the dissertation under review. To my mind, those two chapters satisfy both of the above criteria as they deal clearly and competently with two well chosen and closely related aspects of applied macroeconomics having to do with the relationship between long-run economic growth and natural resource wealth. Those two chapters demonstrate the doctoral candidate's mastery of the relevant and extensive literature on this topic as well as his ability to throw new light on his chosen topic, and they thus satisfy the requirements for a doctoral degree. The dissertation is clearly presented and well organized. Even so, as is common, both chapters need more work before they can be published in refereed journals, especially Chapter 3.

Chapter 2

This chapter explores the robustness of earlier literature on the relationship between long-run economic growth and natural resource wealth. The chapter can thus be said to be an exercise in replication, a research undertaking that is, in principle, as commendable as it is rare. Here the replication is done by taking a cross-country data set for the years 1965-1998 that has been used in previous growth research by others and comparing and contrasting the empirical results obtained from those data with new results obtained (a) from a different data set where natural resource abundance or dependence is measured by the share of primary exports in gross domestic product (GDP) rather than by the share of natural capital in national wealth and where the period under study is also different, (b) by a different method of estimation, and (c) when new variables reflecting democracy and political regime stability are included as additional independent variables in the regression analysis. On the whole, the analysis is competently carried out. One of the main conclusions is this: Earlier results showing that natural capital and economic growth are inversely related across countries do not seem to carry over to the relationship between the share of primary exports in GDP and economic growth when democracy and political regime stability are included in the analysis, even if the inverse relationship between growth and the share of

natural capital in national wealth survives the introduction of the political variables into the growth framework. Hence, the candidate concludes, on page 50, that “the only cause for so dramatic differences between the estimates in the two samples can lie only in the different measures of natural resource dependence.” This inference is questionable, however, because the specification of the model under estimation is changed from the first data set to the second in that two important determinants of growth that are correctly included in the first specification are excluded from the second. The inference would, in other words, have been more convincing if the comparison had been based on the broader model applied to the two periods. Besides, the second data set covering the years 1980-2000 includes fewer years than is customary and desirable in econometric work on long-run growth. This casts additional doubt on the categorical conclusion cited above. To repeat, the suggestion that the use of a different measure of natural resource abundance or dependence suffices to explain why the inclusion of the political variables seems to weaken the empirical link between natural resources and growth would have been more convincing with a fuller specification of the growth equation used across the board, including investment and education, and perhaps other variables such as population growth or fertility as well, among the determinants of growth. Even so, the other main conclusion emerging from the empirical work, that in some model specifications natural resources may have less harmful effects on economic growth in democratic countries than elsewhere, seems well founded in theory and receives some empirical support in the dissertation. It is also interesting to see a comparison of the empirical results obtained by Smoothed Least Trimmed Squares to reduce without eliminating the weight of outliers in the sample with those from standard Ordinary Least Squares. On the whole, this is a useful empirical exercise that would have been strengthened by considering also the possible effects of disaggregation – that is, whether different types of natural resources (oil, minerals, land, etc.) seem to affect economic growth differently across countries. Further, in section 2, the list of mechanisms by which natural resource abundance or dependence may discourage economic growth is not quite complete as no explicit mention is made of either real capital or foreign capital; however, real capital is, however, mentioned in Chapter 3.

Chapter 3

This chapter differs from Chapter 2 in that here the main aim is to (a) distinguish between natural resource abundance (measured by resources per capita) and natural resource dependence (measured by resources relative to national output) and (b) offer a fresh interpretation of the observed and apparently robust empirical finding that natural resources are inversely related to long-run economic growth across countries. Concerning the first aim, the candidate finds that abundance can be good for growth even if dependence may still be bad for growth. This is not a new result, however, and, further, it could perhaps have been demonstrated here more definitively and systematically on the basis of the two data sets under review, one for 1965-1998 as in Chapter 2 and another one for 1970-1990 (not 1980-2000 as in

Chapter 2). The candidate lets it suffice to state on page 89 that the result that abundance is good for growth and dependence is bad for growth in the first of these data sets does not carry over to the second set where dependence is still bad for growth but abundance makes no significant difference; this is new. The candidate has chosen to use those two data sets because this allows him to replicate and extend earlier work, which is understandable. Here, however, it would have been desirable to go a little farther by, for example, applying the same logic to a new data set with more years and broader coverage. Concerning the second aim, it would, indeed, be interesting to know whether a large natural resource sector is the main problem in countries where natural resource dependence is observed to be inversely related to economic growth or whether a small manufacturing sector is the main problem, in an absolute sense (in a relative sense, the two hypotheses would be equivalent if agriculture is classified as a natural-resource-based industry and services are viewed as part of manufacturing). Apart from clearly stating and interpreting the hypothesis, the candidate does not set out to devise an explicit test of this important theory. This is the main weakness of this chapter. What the candidate could have done is formulate his hypothesis (e.g., by deriving it from an analytical model) and then test it on his data, thereby offering a fresh attempt at addressing the important and still largely unresolved issue of the simultaneous endogeneity of economic growth and natural resources, however measured. This would most likely require the development of an analytical model of the way economic growth and economic structure are jointly determined, a model that would give rise to a system of regression equations that can be estimated by econometric techniques. This is a tall order, indeed, and needs to be done also elsewhere in the growth literature to sort out the causal ambiguities in the relationship between growth and education, for example. Most likely, of course, the causation runs in both directions. As it stands, this chapter is not yet ready for submission for publication, even if it may be deemed to satisfy the requirements of a doctoral dissertation.

Conclusion

Based on Chapters 2 and 3 of the dissertation, I conclude that the candidate has demonstrated deep knowledge of the literature on economic growth and natural resources as well as adequate mastery of relevant econometric techniques. Moreover, the two chapters are clearly written. The candidate has thus clearly demonstrated his ability to master and analyze existing knowledge. Moreover, the dissertation offers some new empirical results. Accordingly, despite significant room for improvement, especially in Chapter 3, I conclude that the dissertation is worthy of being defended for the doctoral degree at CERGE-EI at Charles University in Prague.

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