Saving, Investment and Growth: A Causality Test

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2006

DEPENDENCY, INTERDEPENDENCY, AND ECONOMIC DEVELOPMENT: A THIRD WORLD CATCH 22?[1]

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I- INTRODUCTION

Why cannot all countries succeed in economic growth and development? In the second half of the last century, tremendous efforts have been devoted to identifying sources of success by some countries, albeit by ebb and flow and by crisis management,[1] and causes of failure by countries. All these efforts have failed to lead to a universally acceptable, malleable, and understandable framework of analysis for all to use.

The neo-classical literature has advocated free trade and open markets[2] on the basis of the belief that it leads to division of labor, specialization, expansion of output, and increase in collective economic welfare.[3] In this "lifting all boats"[4] theoretical context, there is no distinction made between the northern or southern countries. They are all treated as the same and therefore the same rules apply to each and everyone.

The capitalist development theories, modeled on the neo-classical theory, and make a distinction among the developed and less developed countries. Less developed countries (LDCs) are analyzed mostly based on the "dual society" or "dual economy" concept.[5] They maintain that LDCs lack certain characteristics necessary for capitalist economic development that are present in developed countries.[6] Also, there are some undesirable characteristics present in less developed countries that have contributed to their underdevelopment that are removed or mitigated in their significance in developed countries. Therefore, LDCs need to add the desirable characteristics of the developed world while removing the undesirable ones if they want to follow in the footsteps of the wealthier and more prosperous capitalist countries– i.e., they need to go through the modernization process.[7] That is, they need to move toward learning and acquiring modern economic, political, and social attitudes[8] and institution of free market,[9] free enterprise, entrepreneurial spirit, social and political mobility, work ethic, democracy, rule of law, civil liberties, and associated modes operandi.[10]

Development literature[11] also includes a large number of neo-Marxian books, articles, and monographs that maintain, not only free trade and foreign direct investment have *not* always benefited the third world countries[12], in majority of cases, they probably have contributed to their poverty.[13] As a matter of fact, they argue that the capitalist system of trade and investments have been hurdles to third world economic development rather than the engine that pulled the west to economic prominence.[14] This is partly because profits (surplus) of international trade and investment are taken out rather than reinvested in the dependent (periphery) countries, which have retarded the economy of the periphery and stimulated the core countries.[15] The new theoretical construct,

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[1] Versions of this paper were published in English in "Saving, Investment and Growth: A Causality Test, *The Iranian Economic Review*, 11 (16), 165-175 and in Persian in "Targeting Saving or Investment First: A Catch 22?" *Political & Economic Ettela'at*, No. 217-218, pp. 106-111, 2006.

dependency theory, celebrated the demise or the death[16] of the orthodoxy and introduction of a new paradigm in development analysis.[17]

The dependency and the world system theories have been unsuccessful in explaining the evolutionary or revolutionary dynamics of economic underdevelopment. That is they have not clarified whether it is a transitional or a permanent state. But by arguing that the periphery (satellite) changes to accommodate the core (metropolis) but does not crack the glass ceiling of underdevelopment, they imply that it is a permanent state of affairs. In order to break out of this rut, or the only way to break out of the underdevelopment rut, a country needs to become independent and sever the its relationship with the dominant imperialist forces in the core (metropolis) that have blocked its development— that is, the only way to prosperity i s to engage in an independent and autonomous development.[18,19] But they have not enumerated the process of development and sources of development capital and technology. What, then, is the real problem of the third world countries? All agree to the answer, i.e., they agree that accumulation of capital was, is, and will remain the most significant problem of the third world (the south) countries. The third world countries cannot accumulate capital because of low-income levels, which in turn, leads to low saving and investments. But low saving and hence low investments are responsible for low income. A catch 22 problem for the third world countries that is badly in need of solutions.

CAPITAL ACCUMULATION

Since capital accumulation and capital deepening are for the sake of higher economic growth, what we need to establish is the direction of causality between saving, investment, and economic growth. Therefore, the question to be answered is whether saving is the driving force behind economic growth or is it investment that drives economic growth and saving will follow economic growth? The answer determines the proper fiscal and monetary policies necessary for economic growth. If the determining factor is investment, we need fiscal and monetary policies to spur investment and, if it is saving that jump-starts the process, policies that include incentives to save are required.

From previous studies we know that there are high correlations between saving and income as well as between saving and investment.[20] But there are fewer consensuses on causality among them. That is, which one(s) is (are) the determining factor(s). Traditionally we have assumed that risks and profits drive investment, investment drives growth, and growth, in turn, is the driving force behind saving. But, it is maintained that without domestic saving,[21] investment will not materialize.

Empirical Results

A -- The data

All of the data are extracted from the International Monetary Fund's International Financial Statistics electronic files. As is the case, most macroeconomic data are non-stationary.[22] However, in this case, using the Dickey-Fuller test[23], the first differences are shown to be stationary at 1% level.

Name of the variable	D-F test statistic	critical value at 1%
DRPI: change in real private investment	-5.675	-3.605
DRS: change in real private saving	-6.509	-3.605
DRYD: change in real income	-5.277	-3.621

B -- The Granger Test

Econometric estimates of a relationship does not necessarily mean causality, it only implies dependence of one variable on a set of variables. In other contexts, there have been very lively discussions of causality, i.e., whether one variable, say DRPI, causes GDP to grow or GDP causes DRPI to grow.[24] That is whether we can detect a one way lead and lag relationship between the two variables. The granger causality test purports to do just that. It assumes that the information relevant for forecasting, say GDP is solely contained in DRPI and GDP. It is important to remember that Granger causality measures precedent and not "causation," as it is commonly understood.

$$GDP_t = \Sigma\, \alpha_k\, DRPI_{t-k} + \Sigma\, \beta_j\, GDP_{t-k} + \varepsilon_{1t}$$
$$DRPI_t = \Sigma\, \gamma_k\, DRPI_{t-k} + \Sigma\, \lambda_j\, GDP_{t-k} + \varepsilon_{2t}$$

ε_{1t} and ε_{2t} are assumed to be independent and uncorrelated. In the above specifications, GDP is assumed to depend on its own past values as well as those of DRPI. Similarly DRPI is assumed to depend on its own past values as well as those of GDP. For the existence of unidirectional causality from DRPI to GDP, we need to observe that α_k to be statistically significant (i.e., $\Sigma\, \alpha_k \neq 0$) and in the DRPI equation, λ_j need to be statistically significant (i.e., $\Sigma\, \gamma_k \neq 0$).

C – Granger Test Results

There are three causality hypotheses that we intend to test. In table 2 below, we present the test results for each of the Hypotheses using *Eviews 4*.

Table 2

	Null Hypothesis	# of obs.	F-Statistic	P-value
1-a	DRPI does not Granger cause DRS	40	0.52570	0.47298
1-b	**DRS does not Granger cause DRPI**	**40**	**7.85685**	**0.00801**
2-a	DRPI does not Granger cause DRYD	40	0.85727	0.36050
2-b	**DRYD does not Granger cause DRPI**	**40**	**6.05189**	**0.01868**

It appears that we would reject 1-b and 2-b and conclude one-way granger causalities running from savings to investment, and from disposable income to investment. This is true with one or more lagged values as independent variable. This means, we need undertake policies that foster savings to spur investment, and as a result, capital accumulation.

Endnotes

[1] Samir Amin enumerated OPEC, former USSR, industrialized nations, environmental concerns, degradation of mores as the potential villains responsible for capitalist system's "crisis" advocated by one or another groups. Samir Amin, et. al., *Dynamics of Global Crisis*, Monthly Review Press, 1982. p. 9. However, today, we need to add terrorism and individual freedom and liberties as a new culprit. Samir Amin and his

collaborators, however, believed that the "world capitalist system" itself is crisis prone and to be the cause of "crisis" in the capitalist system.

[2] See, for example, D. Dollar, "Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976-1985," *Economic Development and Cultural Change* 40 (1992): 523-44. For positive impacts of openness on development see, Zaki Eusufzai, "Openness, Economic Growth, and Development: Some Further Results," *Economic Development and Cultural Change* 79 (1996): 333-338. For opposing views on openness and growth, see, Tariq Banuri, *Economic Liberalization, No Panacea: The Experiences of Latin America and Asia,* Oxford, New York: Oxford University Press, 1991. Even though he concedes that openness contributes to growth, he contends that it comes at the cost of higher poverty rates and worsened income distribution. Evidence of positive influence of openness on growth for the former Eastern Bloc countries could be found in Lucian Cernat and Radu Vranceanu, "Globalization and Development: New Evidence From Central and Eastern Europe," *Comparative Economic Studies*, XLIV, no. 4 (Winter 2002), 119-136.

[3] The neo-classical theory does not, however, predicts which side is the beneficiary or which side benefits more from this extra output. This has been the subject of many books and articles on terms of trade. Developing nations have maintained that worsening of terms of trade (relative prices of primary products that they export to those of manufactured products that they need to import) has siphoned most, if not all of the benefits of international trade and investment to the developed world. This claim was supported by the United Nation's study on the subject. See Raul Prebish, *The Economic Development of Latin America and Its Principal Problems*, United Nations Commission for Latin America, New York, 1950. There are those who contend that even though there is a correlation between openness and growth, the causality is from growth to openness and not vice versa. On this point see, Dani Rodrik, *The New Global Economy and Developing Countries: Making Openness Work*, Overseas Development Council, Washington D. C., 1999.

[4] Andrew Berg and Anne Krueger, "Lifting All Boats," *Finance and Development*, pp. 16-19, September 2002.

[5] In a dual economy, there are two separate and disconnected modern and traditional sectors that operate independently without much interaction. Therefore, in order for development to take place, the traditional sector must be transformed to emulate the modern sector, which is itself built in the image of its own global counterparts. In this process, by creating forward and backward links, the modern technology and operational methods are defused throughout the economy and thence economic growth and progress will take root. Here, one must be cognizant of the ownership and their conflicts. It is very possible that the capitalists who own the modern sector and those who own and operate the traditional sector of the economy to be two completely separate and antagonistic groups. Traditionalist might not see their interests served by this transformation. That is, even though the capitalists desire for modernization of the traditional sector is self-evident, the traditional sector's owners might see this as a serious encroachment on their wealth and prerogatives.

[6] "[I]t is the European civilization that through centuries of geographical, political, and intellectual expansion has provided the matrix for economic growth… The intellectual

revolution with the introduction of science, the moral revolution with t he secularization of Christo-Judaic religions, the geographical revolution with th the formation of national states, all occurred within the context of European civilization, not in Asia, Africa, or the Americas." Simon Kuznets, "The Present Underdeveloped Countries and Past Growth Patterns," in T. Morgan and G. Betz, eds., *Economic Development* (Belmont, California: Wadsworth, 1970), p. 16.

[7] Of course, advocates of modernization theories do not let its adverse effects on the distribution of income explained by Baran and statistically verified by Irama Adleman and Cynthia Morris (A-M) affect their views. A-M tested the for 60 LDCs

[8] "Economic growth depends on attitudes to work, to wealth, to thrift…. There have been attempts to explain why these attitudes vary from one community to another. On can look to differences in religion…or …in the accident of history." Arthur Lewis, *The Theory of Economic Growth*, (Homewood, Illinois, Irwin, 1955) p. 14.

[9] Charles P. Kindleberger, *Economic Development* (NY: MacGraw-Hill, 1965), p. 15.

[10] Manning Nash, "Approaches to the Study of Economic Growth," *Journal of Social Studies*, vol. 19, no. 1, 1963.

[11] Paul Baran, *The Political Economy of Growth* (New York: Monthly Review Press, 1957; New York: Penguin, 1973), page 402; Arghiri Emmanuel, *Unequal Exchange* (NY: Modern Reader, 1972); André Gunder Frank, *Capitalism and Underdevelopment in Latin America* (NY: Modern Reader, 1969); "Development and Underdevelopment," in James Crockroft, ed., *Dependence and Underdevelopment*, (NY: Anchor, 1972), pp. 19-46; Immanuel Wallerstein, *The Modern World System* (NY: Academic Press, 1974); Samir Amin, *Dynamics of Global Crisis* (NY: Monthly Review Press, 1982).

[12] The use of the "third world" is probably defunct at this point in time that the "second world" no longer exists. However, we use the term to refer to countries that are not in the upper echelon of economic advancement.

[13] This is exactly the opposite of what Marx had predicted. According to Marx, capitalists (imperialists), in search of new markets and resources, would penetrate these underdeveloped economies and transform them into industrialized capitalist economies, which, in turn, would lead to socialism.

[14] "It is in the underdeveloped world that the central, overriding fact of our epoch becomes manifest to the naked eye: the capitalists system once a mighty engine of economic development, has turned into a no less formidable hurdle to economic advancement." Paul Baran, Opt. Cit., p. 402.

[15] One, therefore, needs to distinguish between the "Marxist" and "neo-Marist" who divides the countries into two groups; the "center" and the "periphery." The capitalists in the periphery are dependent capitalist (comprador bourgeoisie) and therefore, they do not behave in the same manner as the dynamic capitalists in the center. This distinction is crucial to the understanding of underdevelopment theories and their logical conclusions.

[16] See, for example, Duddley Seers, "The Birth, Life and Death of Development Economics," *Development and Change*, 10, 1979, p. 712; Deepak Lal, *The poverty of "Development Economics*" (London: Institute of Economic Affairs, 1983), p. 109.

[17] Interestingly enough, Samir Amin, et. al., opt. cit., argue that it is only possible to analyze individual states within the context of the "world capitalist system" and

compartmentalization of political, social, and economic aspects of the analysis are not feasible. Therefore, one needs to analyze a country as a part, and within the context of the political economy of the "world capitalist system."

[18] There are several points that one needs to be cognizant of. One, it is suggesting, in contradiction to Marxist arguments, that the transnational bourgeoisie is not interested in their development, which would be illogical because the transnational bourgeoisie must be interested in their enrichment so they could extract a larger surplus value from them. Second, it reduces the class conflict to a conflict between domestic and international bourgeoisie and disregards the contradiction internal class conflict. Therefore, presenting the domestic bourgeoisie as the savior and the progressive elements that would lead the country to the Promised Land.

[19] Samir Amin, Delinking: *Toward a Polycentric World* (London: Zed Books, 1990).

[20] See Matin Feldstein and Phillippe Bacchetta, "National Saving and International Investment," in B. Douglas and John Shoven, eds., *National Saving and Economic Performance*, Chicago, University of Chicago Press, 1991.

[21]There is some evidence that international movement of capital is limited despite the low barriers against its movement. Therefore, high correlation between saving and investment must be that of domestic saving and investment. Martin Feldstein, "Tax Policy and International Capital Flows," *Weltwirtschaltliches Archive* 130 (4), pp. 675-97, 1994.

[22]A time series is said to be stationary if its mean, variance, and autocovariances at various lags remain the same regardless of the time they are measured. A shock to the system gradually diminishes and over time it falls back to its mean value.

[23] See R. S. Pindyck and Daniel L. *Rubinfeld, Econometeric Models and Economic Forcasts*, 4th ed., Irwin-McGraw-Hill, pp.507, 1998.

[24] See for example, R. W. Hafer, "The Role of Fiscal Policy in the St. Louis Equation," *Review,* Federal Reserve Bank of St. Louis," pp. 17-22, January 1982.