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主　論　文　の　要　旨

論文題目 SUSTAINABILITY OF PUBLIC DEBT IN SRI LANKA: AN ECONOMETRIC ANALYSIS
(スリランカにおける公債の持続可能性－計量経済学的分析)

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論　文　内　容　の　要　旨

Public debt, one of the main reasons for financial crises in some emerging markets, has become the most crucial topic among policymakers. Debt sustainability has become a popular topic among policy makers because of the negative consequences of the debt crisis in the Euro zone and the United States, and the recent global economic recession. The sharp increase in public debt and fiscal deficit in many countries over the past few years have further highlighted the issue of debt sustainability, and increased the need for significant monitoring of key debt and deficit indicators. The International Monetary Fund (IMF; 2003) indicated that the public debt to GDP ratio should not exceed 60 percent to guarantee that the debt is sustainable. However, some countries with lower debt to GDP ratio (Mexico, Thailand, Ukraine) are also facing a debt crisis. The primary objective of this study is to analyze the public debt sustainability in Sri Lanka using a fiscal reaction function. The sustainability of public debt can be achieved by satisfying the intertemporal budget constraint. According to this approach, debt sustainability can be established through positive, conditional response of the primary balance of public debt. The study used annual time-series data taken from the Central Bank of Sri Lanka and the World Development Indicators for the period from 1980 to 2017. The study used the more rigorous time series econometric techniques for the estimation of debt sustainability and introduced some specific policy measures of public debt sustainability. To check the stationarity of the time series data, the study first used the unit root test and the results showed that the series was stationary at different levels. Therefore, the study applied the ARDL cointegration technique to

find the long-run relationship among variables. The ARDL bound test results confirmed the existence of cointegration among variables. The coefficient of public debt is negative and 5% significant level in the long run and error correction models. According to the Bohn (1998) this shows the unsustainability of public debt of Sri Lanka. The ARDL long-run model and the Error Correction Model results confirm the unsustainability of public debt in Sri Lanka over the period of 1980-2017. The coefficient of GDP is negative as expected and significant at the 10 percent level in the long run and short run. This result suggests that a higher output increases the revenue of the country and that impact to reduce the budget deficit. Population coefficient shows the positive and insignificant relationship as expected in the long run and short run. Trade openness shows the negative coefficient as expected and 1% significant in the long run revealing that the move towards a more open economy is beneficial for debt sustainability and better fiscal stability in Sri Lanka. As expected the inflation coefficient is positive and insignificant in both long-run and short-run. Financial deepening is also shows the positive and 5% significant level in both the long run and short run in coefficient revealed that the banking openness in not positively impact to the better fiscal stability and debt sustainability in Sri Lanka. GDP, Population and the trade openness are important areas that can maintain the fiscal solvency which requires special attention of the policy makers in Sri Lanka. These finding prove that fiscal policy measures are not appropriate to maintain public debt sustainability and fiscal solvency in Sri Lanka during the period of 1980-2017. The study recommends shifting away from foreign sources to other sources to finance the budget deficit or reduce the budget deficit in Sri Lanka. The fiscal reaction function of the time series data of Sri Lanka that confirms the fiscal policy measures during the period under study were not appropriate in maintaining fiscal solvency and debt sustainability. These study also identified many factors that affect increase the public debt in Sri Lanka specially, terrorist war in past decades, the declining trend of the government tax revenue, increase the government expenditure, declining the official development assistance (ODA) from donor countries and poor debt management system in Sri Lanka.

Furthermore current study also examined the crowding-out effect of public borrowing on private investment in Sri Lanka. The government of Sri Lanka has been disproportionately borrowing from the domestic banking and non-banking sectors to finance its budget deficit. These sectors also serve as

funding sources for the country's private investors. The government's expansionary fiscal policy has increased its total income, but it may also raise interest rates and reduce private investment. Researchers have presented different views about the relationship between public and private investment. Some researchers have shown that public borrowing from domestic sources (internal sources) crowds out private investment. This study estimates the crowding-out effect of public borrowing from domestic sources on private investment in Sri Lanka.Using time-series data from 1960-2014 sourced from the Central Bank of Sri Lanka and World Development Indicators, we develop an investment function with three independent variables, public borrowing, interest rate, and gross domestic product. Unit root tests and the autoregressive distributed lag and vector error correction models are also utilized. To test the long-run relationships among the variables, we conduct a bound test of cointegration, and the results show that there is long-run co-integration between the variables. Vector autoregressive models, variance decomposition analysis, the Granger causality test, and impulse response functions are used to analyse the results. To test reverse causality, we used the Granger causality test, and the results show that private investment can affect GDP and public borrowing in Sri Lanka. Our estimated results show that when public borrowing from domestic sources is increased, it positively impacts private investment in Sri Lanka. This indicates an absence of the crowding-out effect due to public borrowing from domestic sources. Our results also proved that the Priyadarshani and Banda (2013) empirical tests based on the Neoclassical Flexible Accelerator and Mundell-Fleming models and Gupta (1992) empirical study conducted in Ten Asian countries. The ECM coefficient that shows the correct sign and fairly low speed adjustment towards to equilibrium after a shock. Granger causality results prove that private investment can cause the Gross Domestic Product of the Sri Lanka at the 1% significant level and also private investment can cause the public borrowing from domestic sources at the 5% significant level. The resulsts show that the Private investment in Sri Lanka does not seem to be very sensitive to interest rates (Chowdhary, 2004), but it does react strongly to public investment and the demand expectations. Public investment represented the main factor in determining private investment in the long run and demand expectations, represented here by the GDP are a main factor in determining private investment in the short run in Sri Lanka. The theory of investment in conditions of uncertainty was backed by the fact that the

statistical insignificance of the interest rate coefficient in both the long run and short run.

This study also attempted to present the some findings for this positive effect of public borrowing for private investment from the macroeconomic point of view. CBSL has effectively mitigated the crowding out effect of expansionary fiscal policy through accommodative monetary policy. The monetary expansions appear to have been financial through short term capital inflows resulted from financial liberalization. Graduation from the poorest country status to the level of a middle income country would have caused reduction of Official Development Assistance (ODA). Though this could have reduced the scope for accommodative monetary policy, the Government of Sri Lanka appears to have managed to cope with this development by shifting away from her conventional foreign borrowing sources to emerging lenders such as China, India and Iran.Thus , Government of Sri Lanka appears to ability to employing accommodative monetary policies to reduced the negative impacts of the country expansionary fiscal policy. Foreign remittances, which have increased during the last few decades, also appear to have eased the constraints. Furthermore, Development Expenditure that is the biggest part of the overall budget balance becomes negative because of the Annual Development Program (ADP) component of the budget in Sri Lanka. The government has to borrow to finance that part of ADP because that not covered by surplus revenue balance. It is important to note that by definition most outcome of ADP expenditure, by means of positive externalities. Some of the sectors under ADP such as water resources, electricity, oil and gas etc. make for direct and significant external economies. Considering the structure of development expenditure and associated government borrowing it may be summed up that the crowding – in is a natural consequence of public borrowing. The absence of the crowding out effect, that emphasizes the possibility of the government finance the budget deficit through the domestic sources without influencing to the private investment. Also possible to apply the such Keynesian-type demand management policies in Sri Lanka as the economy has been operating well below the its full employment level.

The ARDL long-run model and the ECM results confirm the unsustainability of public debt in Sri Lanka over the period of 1980-2017. So, this study also identified the some policy recommendations. The government is for priority projects funded through borrowed money that generate high returns. Furthermore, the policy makers should consider the movement of surplus to

GDP ratio and debt to GDP ratio. If the debt to GDP ratio is increasing and surplus to GDP ratio in falling the government should react with appropriate fiscal policy measures to increase the surplus to GDP ratio in order to maintain the public debt sustainability. The reduction of the budget deficit would constitute an important fiscal adjustment measures towards a more sustainable deficit. The adjustment can be made in mainly two ways: Increased tax revenue and decreased government expenditure. However, increasing tax revenue will become the difficult task because the inelastic nature of the tax base in Sri Lanka. So, the government can improve the tax administration, introducing new tax and introduce the broad tax system. Although the revenue could be increased through the taxes, there will be a limited opportunity because higher taxed reduce the private sector participation in the production activities. Another alternative way to reduction in the expenditure: the minimization of welfare, expenditure, better targeting of welfare programs, reduction of transfer to corporation and specially reduce the defense expenditure can be introduce as important policy implications. The absence of the crowding out effect, that emphasizes the possibility of the government finance the budget deficit through the domestic sources without influencing to the private investment. Also possible to apply the such Keynesian-type demand management policies to Sri Lanka as the economy has been operating well below the its full employment level. The ARDL long-run model and the ECM results confirm the unsustainability of public debt in Sri Lanka over the period of 1980-2017. Therefore, government is to priorities projects funded through borrowed money that generate high returns. Furthermore, the policy makers should consider the movement of surplus to GDP ratio and debt to GDP ratio. If the debt to GDP ratio is increasing and surplus to GDP ratio in falling the government should react with appropriate fiscal policy measures to increase the surplus to GDP ratio in order to maintain the public debt sustainability. The reduction of budget deficit would constitute an important fiscal adjustment measures towards a more sustainable deficits. The adjustment can be made in mainly two ways: Increased tax revenue and decreased government expenditure. However, increasing tax revenue will become the difficult task because the inelastic nature of the tax base in Sri Lanka. So, government can improve the tax administration, introducing new tax and introduce the broad tax system. Although the revenue could be increased through the taxes, there will be a limited opportunity because higher taxed reduce the private sector participation in the production activities. Another alternative way to reduction in the expenditure: the minimization of welfare, expenditure, better targeting of welfare programs, reduction of transfer to corporation and specially reduce the defense expenditure can be introduce as important policy implications.