Global Public Model: Application

Public administration, e-government, public-private partnerships, high-performance public service and the developed world

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As demonstrated by the analysis provided in chapter I, simple continuation of past growth patterns would fail to generate sustained high growth for developing countries and would also fail to generate the energy saving and emission reduction needed to avert potentially catastrophic consequences for the world as a whole. To e□ect a change in course towards a low-emissions, catch-up development pathway, high, upfront public investments are needed. A big push of public investment, along with other measures, is expected to "crowd in" the private investments that are also needed to achieve the desired structural change. However, as the mobilization of large amounts of public resources would be needed, it could well be that the measures would induce some private investors to direct their spending towards the greening of the economy, while discouraging others from investing, inasmuch as interest rates might rise and available savings in □nancial markets might be "crowded out" by public sector demand for such resources. The prospect of possibly substantial increases in public debts could further erode private investor con□dence in respect of making long-term investments.

Existing global models used for the economic analysis of climate change typically do not capture these □nancial dimensions. The greatest di□culty lies in modelling investment and □nancial behaviour adequately in a context of great uncertainty and over long periods of time, as required by climate change analysis. The United Nations Global Policy Model (GPM) has been designed to analyse global macroeconomic interactions, but inasmuch as it encompasses the global production and use of di□erent sources of energy, it contains the elements needed to analyse the global □nancial implications of a big energy and technology push aimed at addressing climate change. The Global Policy Model considers the channels through which a public investment push could crowd in private investment (namely, growth and targeted incentives) and crowd out private resources (namely, interest rates and changes in market con□dence and expectations along with shifts in levels of public debt, in□ation, the value of private assets and other □nancial variables).

The □gure shows the results of simulations with the Global Policy Model in a scenario with three types of policy adjustment: (a) one where countries worldwide are assumed to increase public spending levels by between 1 and 5 per cent of GDP;[a] (b) one where high-emission energy demand is constrained (re□ecting, for instance, a cap-and-trade mechanism) to yield lower emissions and greater energy e□ciency;[b] and (c) one where economic resilience of developing countries is strengthened by providing them, especially the poorest countries, with full and duty-free market access to developed-country markets, leading to greater economic diversi□cation.[c]

The policy changes would yield faster growth (2.5 per cent per year in developed countries and 6 per cent per year in developing countries), allowing for growth in private incomes and consumption spending and promoting private investments. By the model's parameter estimates,[d] these positive e□ects of the public investment-led strategy towards achieving low-emissions economies outweigh the crowding out e□ects through the □nancial channels. By 2030, the level of private investment would be 1-4 per cent higher than in the business-as-usual scenario. The crowding-in e□ect would be stronger in the least developed countries, where the □scal stimuli are greater. Rising private incomes would also help increase the tax base, but not enough to prevent public debt ratios from increasing to relatively high levels. Over the longer run, public indebtedness would stabilize in the developed countries, but at levels of over 100 per cent of gross domestic product (GDP) (see the three right-hand graphs), which many Governments may consider too high for comfort. By 2030, public indebtedness in developing countries would also have risen signi□cantly (by 26 percentage points of GDP over the baseline scenario). In virtue of the assumed international coordination of these strategies, the model suggests that, even at these levels of public indebtedness, continued economic growth, energy saving and trade impulses would continue to crowd in private investment. Nonetheless, public debts cannot rise in□nitely. Complementary measures will need to be considered to prevent public indebtedness from becoming explosive. For developed countries, these would need to be sought in the form of new taxes (such as a carbon tax), while developing countries might utilize both □scal measures and alternative non-debt creating □nancing support (for example, through a foreign direct investment stimulus in some cases or foreign aid in the case of the poorest

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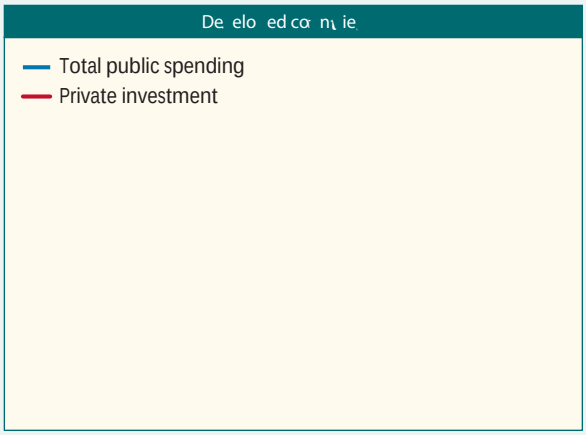

S . ce: UN/DESA, based on simulations with the United Nations Global Policy Model.

a Namely, China, major oil exporters in Western Asia, and newly industrialized countries of East Asia.