

HARNESSING WINDFALL REVENUES IN DEVELOPING ECONOMIES*

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A temporary windfall of foreign aid or natural resource revenues poses interesting policy challenges. Should the revenues be used for government investment in public infrastructure to stimulate economic activity? Should the government use the windfall income to reduce government debt and thereby lower interest rates and boost private sector investment? Should the extra income be used to provide more education, health care and other public goods to improve the quality of life or transferred directly to citizens through tax cuts? Alternatively, windfall revenues could be used to transform exhaustible resource assets into interest-earning foreign assets by setting up a Sovereign Wealth Fund for future generations. This is a bewildering array of policy options and the most appropriate option depends on what stage of development the economy is and what kind of constraints the economy faces.

The traditional consumption smoothing and debt management guidelines for economies experiencing an anticipated and temporary windfall in natural resource or aid revenues based on the permanent income hypothesis are familiar from the tax smoothing literature originally developed by Robert Barro (1979). These arguments underlie much of the advice for the setting up of a Sovereign Wealth Fund (SWF) proffered by the International Monetary Fund as outlined in, for example, Barnett and Ossowski (2003). However, this advice is only relevant for countries that are not heavily indebted and

*Based on van der Ploeg and Venables (2008).

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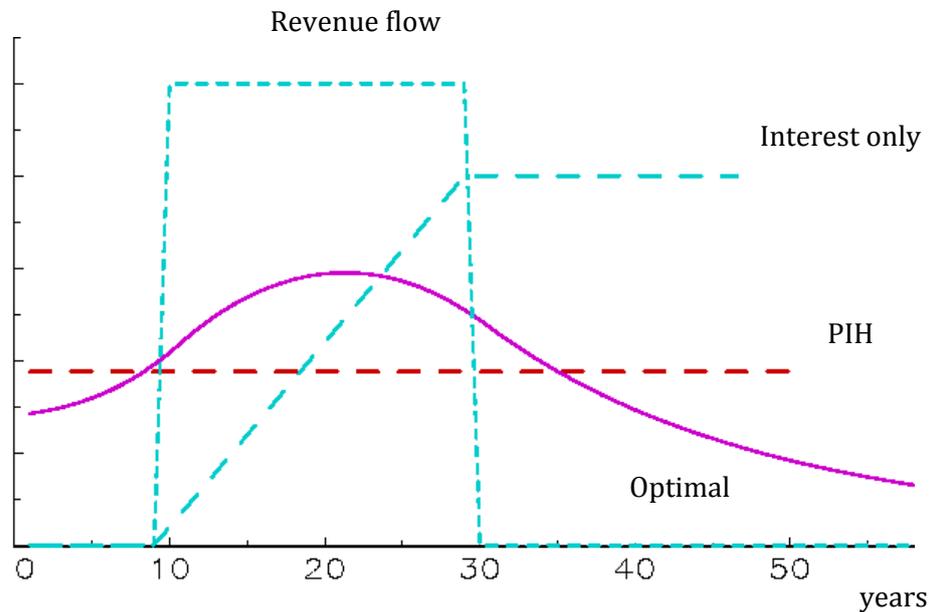
whose interest rate is closely tied to the world interest rate. This does not apply to many heavily indebted developing economies, which have to give priority to domestic economic growth before thinking of building up a sovereign wealth fund.

Alternative strategies are illustrated in figure 1. This example is based on a pre-announced increase in oil revenues, assumed to flow for a 20 year period, anticipated to start in 10 years time and end in 30 years time.

One possibility is to simply consume the revenue as it comes in, so the increment in consumption is the revenue flow – a highly suboptimal strategy.

The conventional permanent income hypothesis yields the following advice. The permanent income generated by the windfall is its annuity value at the date of discovery. Smoothing of expenditure requires that this finances a permanent increase in consumption (through the mechanisms of increased transfers, lower taxation, or higher public spending) illustrated by the line PIH on the figure. Notice that this involves borrowing ahead of the revenue flow, then during the period of flow first repaying debt and subsequently accumulating assets in a sovereign wealth fund (SWF). After the windfall, the interest on the SWF pays for the permanent increase in public spending and private consumption.

The permanent income hypothesis makes the case for smoothing consumption through time, but has the implication that countries should borrow against future flows that enter permanent income. A much more conservative strategy is that countries should place resource revenues in an overseas fund and only consume the interest on the fund. This yields constant consumption once revenue flows have ceased, but leads to a very slow build up of consumption. For our hypothetical economy this strategy is illustrated by the dashed line labeled 'interest only'. This strategy, sometimes referred to as 'bird-in-hand', says: ignore resource wealth until it has been extracted and converted into financial assets. There is no economic rationale for this rule, and it is a highly conservative strategy that allows consumption to reach its maximum only when the resource has been depleted.

Figure 1: Profiles of incremental consumption

Although these guidelines may be applicable for developed economies (and underlie Norway's policy) these lessons should be modified for developing economies suffering from two market imperfections. First, citizens do not have good access to capital markets and are unable to smooth consumption. Second, the country struggles with high domestic interest rates due to the premium faced on large levels of foreign debt in view of the relatively large risk of default. The consequence is that it suffers from high domestic interest rates, little investment in public infrastructure, and thus low wages and low per capita income. With these imperfections, the traditional advice based on the permanent income hypothesis is no longer valid. From this starting point there is the potential of making high return investments and putting the economy on a growth path that involves capital deepening, with the rate of return converging to the world rate and, accompanying this, wages, consumption and income on an upwards trajectory.

In these circumstances the optimal strategy is a combination of three elements. First, there should be some immediate increase in consumption, to raise incomes of the present generation, individuals who are poorer (given expected future growth) than are future generations. Second, there should be investment in domestic assets. From the government perspective, this takes the form of investment in infrastructure and human capital. Third, there should be some repayment of foreign debt, this having the value of bringing down interest rates in the domestic economy.

The optimal path is illustrated in the figure, based on the analysis of van der Ploeg and Venables (2008). Consumption rises immediately because of consumption smoothing, particularly given the poverty of the current generation. However, the increment to consumption is less than it would be under the permanent income hypothesis, because of the need to finance infrastructure and debt reduction. This investment has direct benefits and also raises the rate of private investment, putting the economy on a more rapid growth path. This is associated with rising wages, and it is this that drives the rapid increase in consumption (the increment relative to the non-oil path) that is illustrated on the figure.

Looking beyond the point at which the resource flow stops we see that the consumption increment remains positive, but tends to zero. Instead of building up an overseas fund, the resource wealth has been used to bring forward the development of the economy, this giving higher consumption at future dates, but with the increment steadily declining.

The message from the socially optimal path is therefore an intuitive one, that smoothes the time path of consumption. Immediate consumption for the relatively poor current generation is optimal, but so is investment to put consumption on a steeply rising path. This higher level of investment ensures that benefits of the resource revenue continue to accrue once the resource has been depleted because the domestic capital stock is larger than it otherwise would have been.

Needless to say, many extensions need to be – and will be – developed to this work, in particular dealing with uncertainty and volatility about future revenues. But this central case makes the point that heavily indebted, developing countries struggling with high interest rates should use windfall revenues to pay off debt and grow their economies not, as sometimes suggested, to build a sovereign wealth fund for future generations, advice that is better suited to high income countries with modest debt levels.

References

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