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New Zealand: Selected Issues Paper

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NEW ZEALAND

Selected Issues

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Contents Page

I. Fiscal Policy, Rebalancing, and Growth in New Zealand

A. Introduction

New Zealand has weathered the global financial crises relatively well but faces a number of challenges. A key policy challenge is to rebalance the economy and reduce external vulnerabilities. Persistent current account deficits have increased net foreign liabilities to 90 percent of GDP, which presents a major macro-economic and financial vulnerability. The recent improvement in the current account (CA) is likely to be temporary. Fund staff forecast a return to CA deficits of a similar magnitude as in recent years. Low household savings have been the fundamental factor behind large current account deficits. Moreover, per capita income growth has lagged behind many other advanced countries.[1] Against this background, the present paper provides model-based estimates of the potential contribution fiscal consolidation can make to external rebalancing and economic growth in New Zealand.

Higher government savings would lower current account deficits and raise long-run GDP. Simulations with the IMF's GIMF model show that raising government savings by 1 percent of GDP durably improves the current account balance by about ½ percent of GDP. Short-term output costs are transitory, GDP recovers and will remain above baseline in the long term. The way government savings are achieved matters for growth, with largest benefits if transfers to middle-income households are cut. Growth and the current account are sensitive to the changes in the sovereign risk premium.

Shifting taxes away from labor and capital, reducing the size of the state, and making public spending more productive raises long run output. Increasing the share of investment spending in overall government spending has a direct impact on growth, as it adds to a publicly provided infrastructure capital stock and raises the productivity of private capital. Reducing taxes on labor increases incentives to work and shifting taxes from capital to consumption increases incentives to invest, whereas tax-financed transfers reduce incentives to work.

The paper is structured as follows: chapter B briefly describes the GIMF model; chapter C provides some background on macro-economic vulnerabilities and challenges in New Zealand; chapter D presents simulations of the impact of raising fiscal; and chapter E looks into fiscally neutral changes in taxes, expenditures, and transfers.

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[1] See Challenges and Choices—New Zealand's Long-term Fiscal Statement, Treasury October 2009 and Treasury WP 10/01; Treasury Report: Getting Started on Closing the Income Gaps: Some Economic Scenarios and Options for Reform and Rebalancing, August 2009; and Answering the $64,000 Question: Closing the Income Gap with Australia by 2025, first report of the 2025 Taskforce, November 2009; and A Tax System for New Zealand's Future, Report of the Victoria University of Wellington Tax Working Group, January 2010.

B. The Global Integrated Monetary and Fiscal Model (GIMF)

The IMF's GIMF model is a well-suited tool to analyze the macroeconomic impact and current account implications of fiscal and monetary policies. Strong non-Ricardian features make it possible to analyze current-account developments from a savings-investment perspective. Overlapping-generations households with finite planning horizons in the model are key to tackling long-term issues, such as the crowding out effects of permanent increases in government deficits. GIMF's fairly detailed representation of taxes, transfers, and government spending enable us to look at the big picture of tax and expenditure reform.

A three-country version of GIMF is used here, calibrated for New Zealand, a block of countries using the US$ (or pegging to it) and the rest of the world. The frequency is quarterly, to better match the monetary policy decision cycle. Households' planning horizon is set at 12 years, and the productivity (and therefore labor income) of each household is assumed to decline over time, reaching zero after 20 years. Together, these two assumptions produce a high degree of myopia. Nominal and real rigidities are set to reflect typical adjustment dynamics. New Zealand's net foreign assets are denominated in $NZ while commodity exports are denominated in US$. Risk premiums are endogenous.[2]

The impact of government savings on the current account balance depends on the reaction of private households and firms. In accounting terms, with unchanged private savings and investment, there would be a one-to-one relation between government savings and the current account balance—for given government investment. Conversely, the empirical literature finds a significantly smaller impact of fiscal deficits on the current account. Reduced form equations, however, have difficulties dealing with the consequences of permanent changes in government savings. Therefore an open economy dynamic general equilibrium model (such as GIMF) is used here that captures the most important economic interrelationships. Of particular importance for the present exercise are: the fiscal measure taken to achieve public savings, the degree of household myopia, the reaction of monetary policy and risk premiums and their combined impact on interest and exchange rates, the elasticity of demand with respect to real interest rates and relative prices. Commensurate with New Zealand's sizeable foreign debt, the income balance in the external current account also plays a major role.

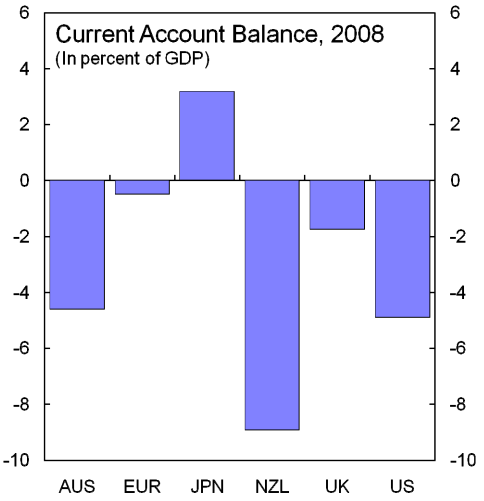
C. New Zealand's Imbalances and Growth Challenges[3]

New Zealand has a long history of current account deficits. In 2009, the recession, an improvement in terms-of-trade (mainly due to higher dairy prices), the lagged effects of a

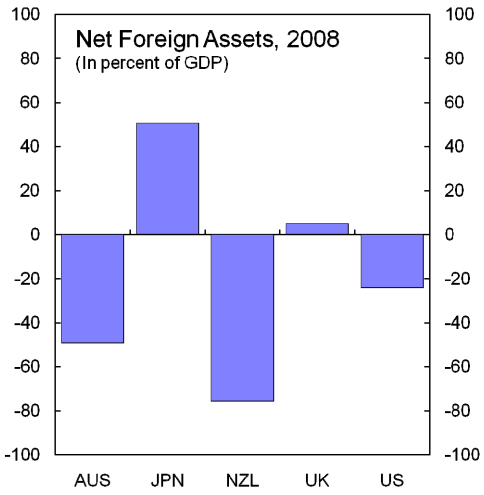
[2] For more information about the calibration see Annex I. A detailed description is provided in Kumhof, Laxton, Muir, Mursula, 2010, The Global Integrated Monetary and Fiscal Model (GIMF)—Theoretical Structure, IMF WP/10/34.

[3] For a more in depth discussion, see Staff Report for the 2010 Article IV Consultation.

$NZ depreciation until March 2009, and temporary factors contributed to a sharp improvement of the CA balance. However, IMF staff forecast that the deficit is likely to widen over the medium term to more than 8 percent of GDP, if the real effective exchange rate stays at present levels. As a result, the negative net foreign asset position is expected to rise above 100 percent of GDP in the next 5 years. Moreover, gross foreign debt has reached 135 percent of GDP, almost ½ of which is short term (maturity of 1 year or less) and held primarily by banks. New Zealand has also a history of credit-fuelled household spending. It stands out as having one of the lowest saving rates and one of the largest net foreign liabilities positions of any advanced country.

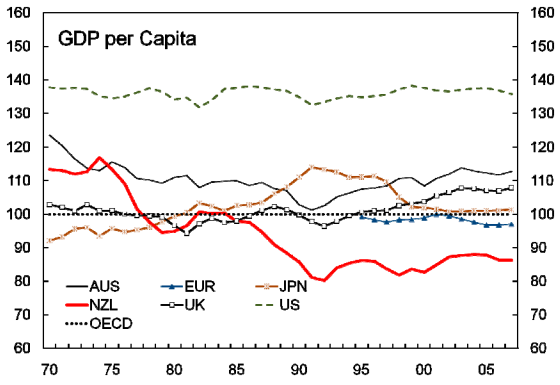


Sources: World Economic Database; and Fund staff estimates.



Sources: World Economic Database; International Financial Statistics Database; and Fund staff estimates.

Weak productivity growth has pushed New Zealand's per capita income below the average of advanced countries. GDP per capita was above that average and on par with Australia in the early 1970s, but is now about 25 percent lower. The 2025 Task Force and the Tax Working Group have presented detailed policy options to close that gap over 15 years including reducing the size and role of government, improving regulation, restructuring the welfare state, and reforming the tax system.



Sources: OECD.

D. Will Higher Government Savings Lead to Higher National Savings?

The GIMF model, calibrated for New Zealand, is simulated to assess whether higher government savings leads to higher national savings. Initially, we simulate an increase in savings by lowering government consumption spending (the central-case), and then assess

whether it matters how the savings are achieved and how sensitive the results are to a change in the sovereign risk premium.

A permanent reduction in government consumption leads to long-run gains in real GDP. In the central-case simulation, government consumption spending is permanently reduced by 1 percent of GDP which leads to a 20 percent of GDP lower public debt ratio in steady state. Initially, aggregate demand falls because the government reduces its direct use of resources. However, household wealth increases with lower interest rates and lower expected future taxes. In addition, the government hands back second round savings of debt servicing costs to households in the form of tax cuts. As a result private consumption rises. Firms also benefit from lower interest rates and higher corporate net worth, though investment is at first held back by a fall in capacity utilization. Led by private demand, the economy recovers and GDP exceeds baseline after about 4 years following the fiscal adjustment and rises ½ percent above baseline after 8 years. In the long run, after some 25 years, real GDP settles at about 2 percent above baseline. The trade balance returns gradually to baseline as imports recover (Figure 1).

The initial fall in aggregate demand lowers inflationary pressures, which creates room for easier monetary policy. Policy interest rates are lowered to stem the expected fall of inflation below the RBNZ's target and rein in a negative output gap.[4] Uncovered interest rate parity holds, augmented by an endogenous sovereign risk premium, which falls—modestly—as public finances improve. With interest rates elsewhere unchanged, lower nominal interest rates in New Zealand cause the nominal $NZ effective exchange rate to depreciate.

Real interest rates fall and remain below baseline following the reduction in the sovereign risk premium. Household total wealth increases gradually, due to a higher net present value of expected future after-tax labor income. Financial wealth declines marginally as falling government bond holdings are partly compensated by rising foreign asset holdings.[5] The positive wealth effect on consumption dominates the negative impact of lower real interest rates on the marginal propensity to consume.[6] The private saving ratio drops initially by about ½ percent of GDP. Investment is supported by lower interest rates too, and the investment/GDP ratio increases gradually over time, largely mirroring the recovery in the private saving ratio.

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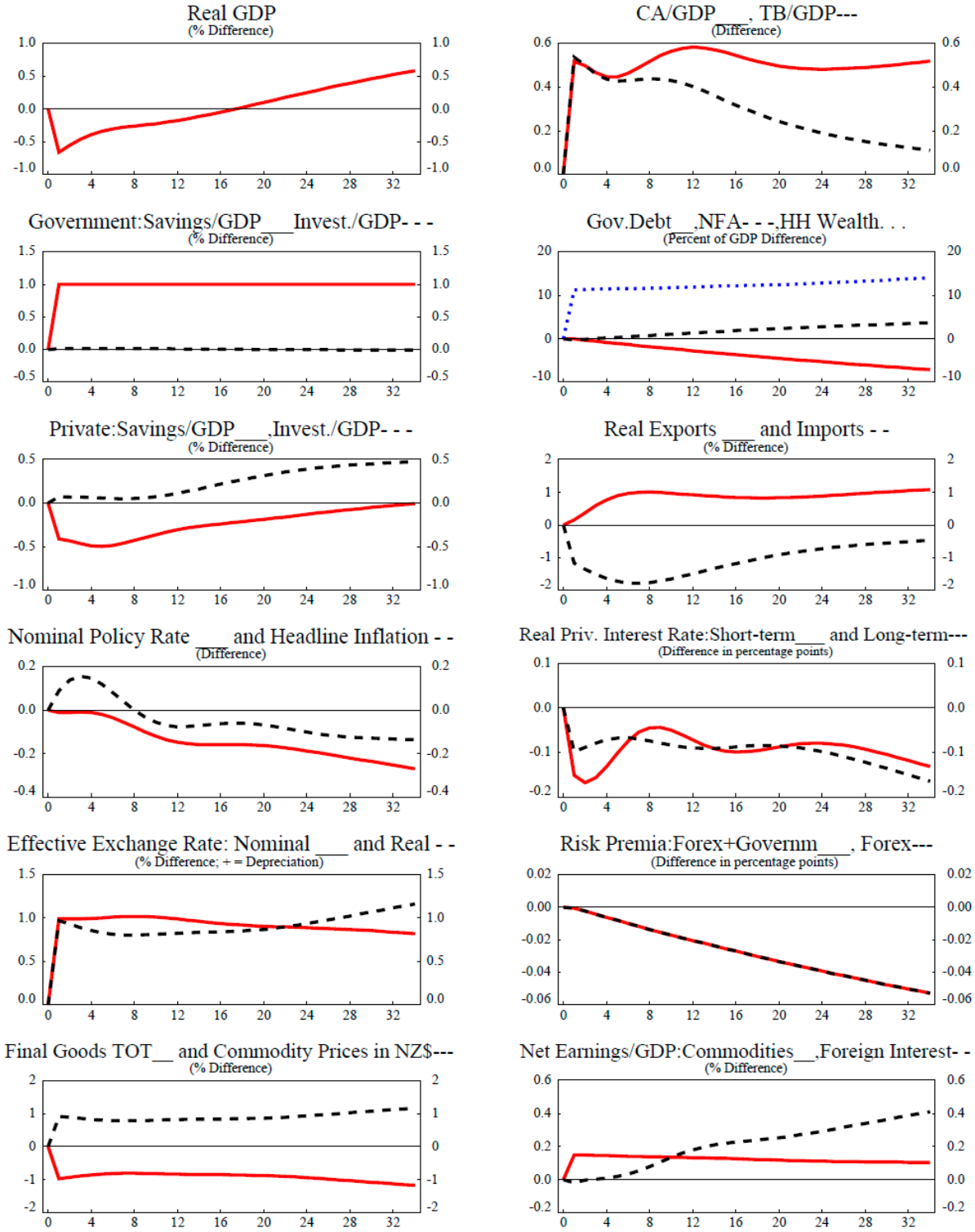
[4] The present calibration assumes that monetary policy puts a very large weight on inflation, and that households and firms correctly anticipate the monetary policy reaction.

[5] All variables are in deviations from baseline. For example the net foreign asset position improves from -90 percent of GDP to -85 percent of GDP over an 8-year period (32 quarters).

[6] The income effect of lower interest rates dominates the substitution effect, given the conventional assumption that the inter-temporal rate of substitution is smaller than 1.

Figure 1. Permanent Decrease in Government Consumption by 1 percent of GDP

(Deviations from baseline in percent)



Source: Simulations with GIMF. Quarterly frequency. A permanent 1 percent of GDP improvement in the overall government balance is achieved by cutting government consumption spending. Second round interest savings are handed back to the private sector in form of proportional tax cuts for households and firms.

The current account balance stabilizes at about ½ a percent of GDP above baseline. However, the composition of the CA improvement changes over time. Initially, it is entirely due to gains in net trade, following the depreciation of the REER and the drop in domestic demand. Over time, lower foreign interest payments, which fall steadily as the NFA position improves and interest rates decline, become dominant.

Does it matter how the government savings are achieved?

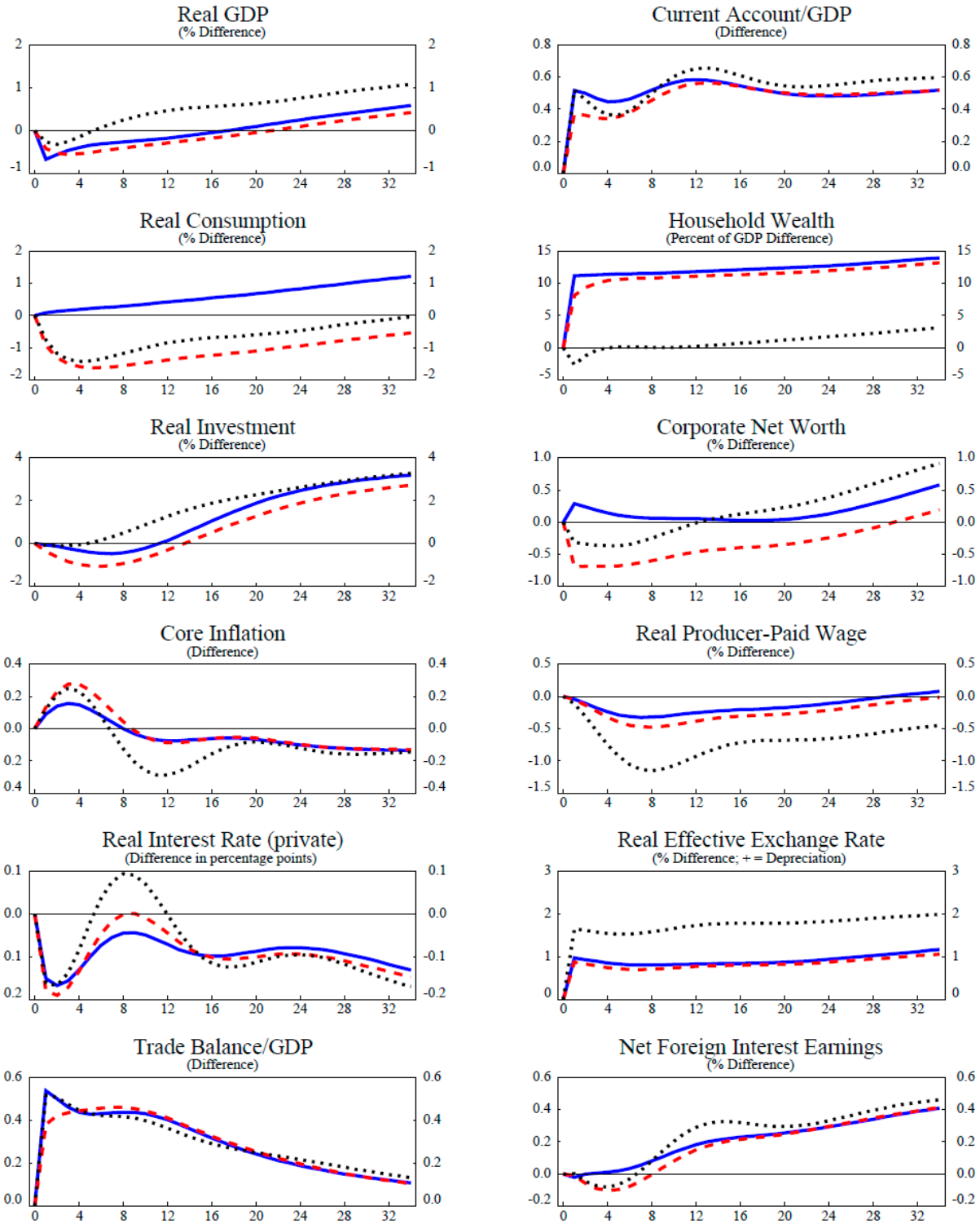
Lower transfers to middle-income households have the lowest short-term cost and produce the largest permanent gain in GDP (Figure 2). Unlike in the base case where government consumption falls, with a cut in transfers the government does not reduce its own demand for goods and services. Household's wealth remains little changed as the loss in transfers is largely offset by lower future taxes and interest rates used to discount future income streams. To sustain consumption, households supply more labor and accept lower real wages. The REER depreciates by more than in the base case, and enhanced competitiveness boosts real net exports. Private investors take advantage of lower labor and capital costs and improved competitiveness, and GDP rises by 1 percent after 8 years and converges at 2½ percent above baseline in the long run.

Higher consumption taxes (GST) have a similar impact on GDP as lower government consumption. However, in this case it is the household sector that reduces consumption spending, and the initial fall in aggregate demand drags private investment down. Nominal household wealth increases with lower interest rates and lower expected future income taxes, although by a little less than in the base case. However, the consumption tax increase raises the relative price of consumption goods and lowers households' marginal propensity to consume. Real wages abate, but by less than the increase in the GST tax rate as firms cannot fully pass on higher taxes to retail prices. This hurts profits and corporate net worth. Lower investment contributes to lower output until the recovery in demand and lower capital cost reverse its direction.

The way government savings are achieved matters little for the current account. In each of the three simulations, an increase in public saving by 1 percent of GDP leads to a lasting improvement in the current account balance of similar magnitude (between 0.4 and 0.6 percent of GDP).

Figure 2. New Zealand: Permanent Increase in Government Savings by 1 percent of GDP

Achieved by: ___lower public consumption, - - - higher consumption taxes, . . . lower transfers



Source: Simulations with GIMF. Quarterly frequency. A permanent 1 percent of GDP improvement in the overall government balance is achieved by cutting government consumption spending, raising consumption taxes, or lowering transfers to OLG households.

How sensitive are the simulation results with respect to the risk premium?

There is considerable uncertainty about the quantitative impact of changes in the foreign and government debt on the size of New Zealand's sovereign risk premium. In the central case, simulations assume that the sovereign risk premium is linked to public debt and that real interest rates paid by the government and by the private sector are affected equi-proportionally. A relatively flat risk premium profile was chosen to reflect the presumption that markets are likely to punish a deterioration in the fiscal position more than they are likely to give credit for an improvement (See Annex: Modeling the risk premium in GIMF). The central-case parameter choice translates into a reduction in real interest rates of 0.25 percentage points in the long run.

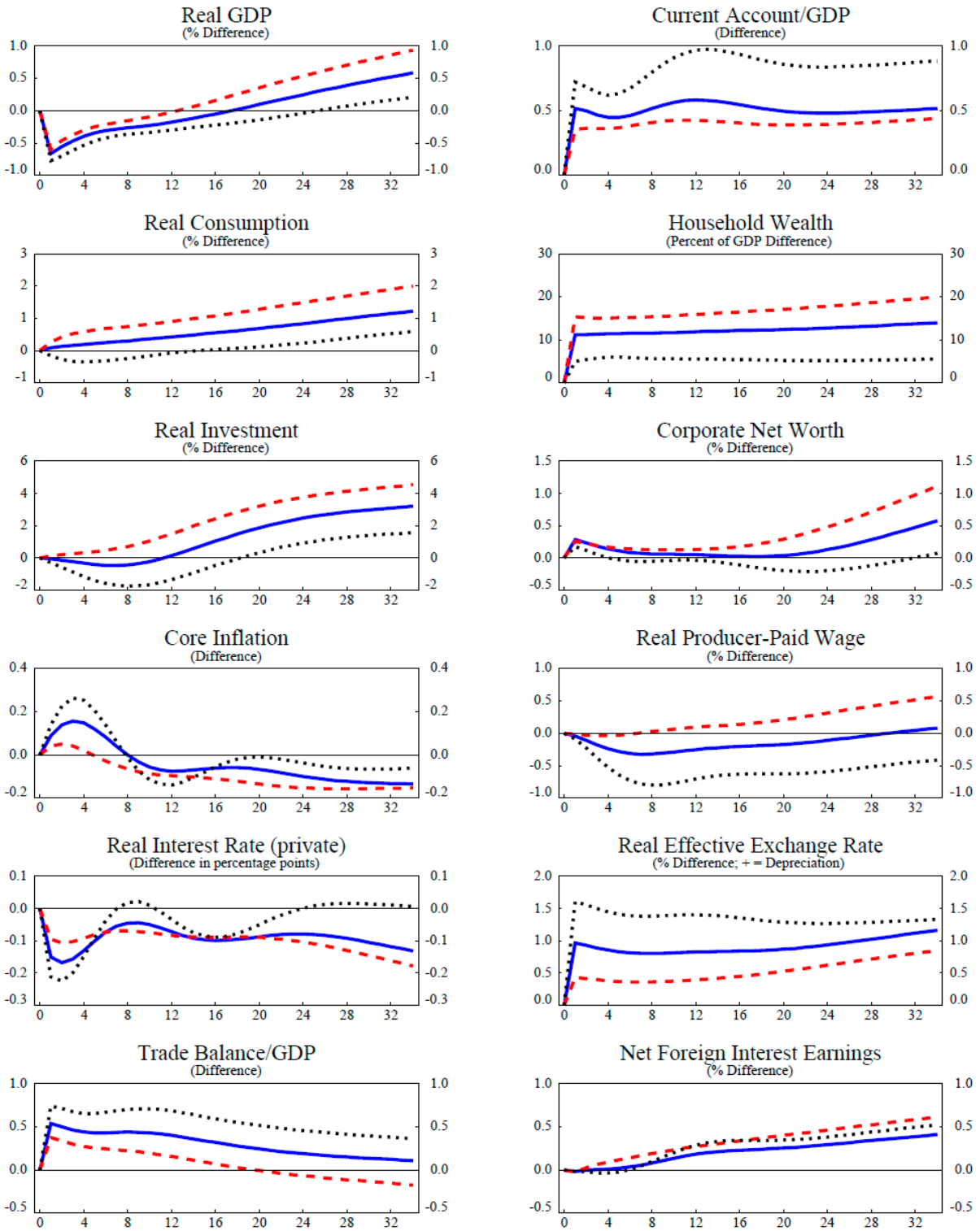
Simulation results are sensitive to the size of the decline in the sovereign risk premium. The impact of raising government saving on output and on the current account depend on the size of the risk-premium decline and the extent to which lower interest rates are passed through to private sector borrowers. Figure 3 shows the results of a fall in the sovereign risk premium that is twice as large as in the baseline. In one case, the lower risk premium is fully passed on to both the government and private sector borrowers; in the other case only government interest rates are reduced:

- **A larger decline in the risk premium boosts GDP growth but lessens the current-account improvement.** For a given reduction in government debt, a larger fall in the sovereign risk premium reduces the real interest rate by more and depreciates the REER by less. Private consumption and investment benefit from the lower real interest rate, and GDP recovers faster and more strongly. However, with a smaller depreciation and higher domestic demand the trade balance improves by less, and can even turn negative, whereas the income balance improves by more due to lower interest rates. On balance, the current account is likely to improve by less than in the central case, though the difference is not very large, except for extreme risk premium assumptions (see Annex).

- **If private sector interest rates do not fall, the current-account improves almost one-to-one with government savings, but economic growth does not benefit from the lower risk premium.** With an unchanged medium-term private real interest rate, the recovery in consumption and investment is slow, but the improvement in the trade balance is larger and longer lasting. As foreign debt falls, savings on foreign interest payments become more important. On balance, the CA improvement approaches 1 percent of GDP in the long run.

Figure 3. New Zealand: Impact of a Larger Fall in the Risk Premium

__central case, --- government and private interest rates fall, . . .only government rates fall



Source: Simulations with GIMF. Quarterly frequency. A permanent 1 percent of GDP improvement in the overall government balance is achieved by cutting government consumption spending.

E. Fiscally Neutral Changes in Taxes and Expenditures

The government is considering various structural reform options to raise productivity and long-term growth. The focus here is on the macro-economic impact of changes in the fiscal structure, including a revenue-neutral shift in taxation from capital and labor to consumption, a deficit-neutral reduction in the size of the state, and an increase in the share of productive government spending. [7]

Revenue-neutral shift in taxes from labor and capital to consumption (Figure 4)

Lowering both labor and capital taxes in the model produces significant long-term GDP gains. Households increase labor supply and real producer-paid wages fall initially but start recovering after about two years following an increase in employment. Higher after tax consumer goods prices reduce households' marginal propensity to consume. However, after 3 years the combined effect of higher labor income and rising household wealth dominates and household spending rises above baseline. The driving force of medium-term GDP growth is investment, which responds strongly to a cut in capital taxes. Corporate net worth rises, initially by more than external financing, and corporate leverage falls. Higher supply of capital and labor reduce marginal costs and make domestic production more competitive. Output prices fall and the REER depreciates, net exports improve, in turn contributing to output gains. In the long run, GDP is about 1 percent above baseline.

Lowering only labor taxes produces similar GDP gains in the short run, but long-run benefits are smaller. If only labor tax rates are cut, they can be reduced by more than in the above simulation. As a result, the increase in labor supply is stronger and real producer-paid wages fall by more. Lower wages reduce firms' marginal cost, but not by as much as in the case where capital tax rates are cut as well. Accordingly the investment response is weaker. In the medium term, the gains in output are only about half as large and real wages remain below the level reached when capital-income taxes are cut also because a lower capital-labor ratio reduces labor productivity.

The impact on GDP is diminished if higher revenues from consumption taxes are used to compensate consumers through higher transfer payments. If the entire revenue gains from consumption taxes are redistributed to households in the form of transfers, there is no room to lower income taxes. In the simulation reported in Figure 5 this was assumed and 80 percent of the transfers are targeted to liquidity constrained households. The initial small increase in consumption is rapidly reversed by the negative impact on labor supply, investment, and international competitiveness. A partial compensation of only the lowest income households would reduce the scope for income tax cuts and positive supply effects.

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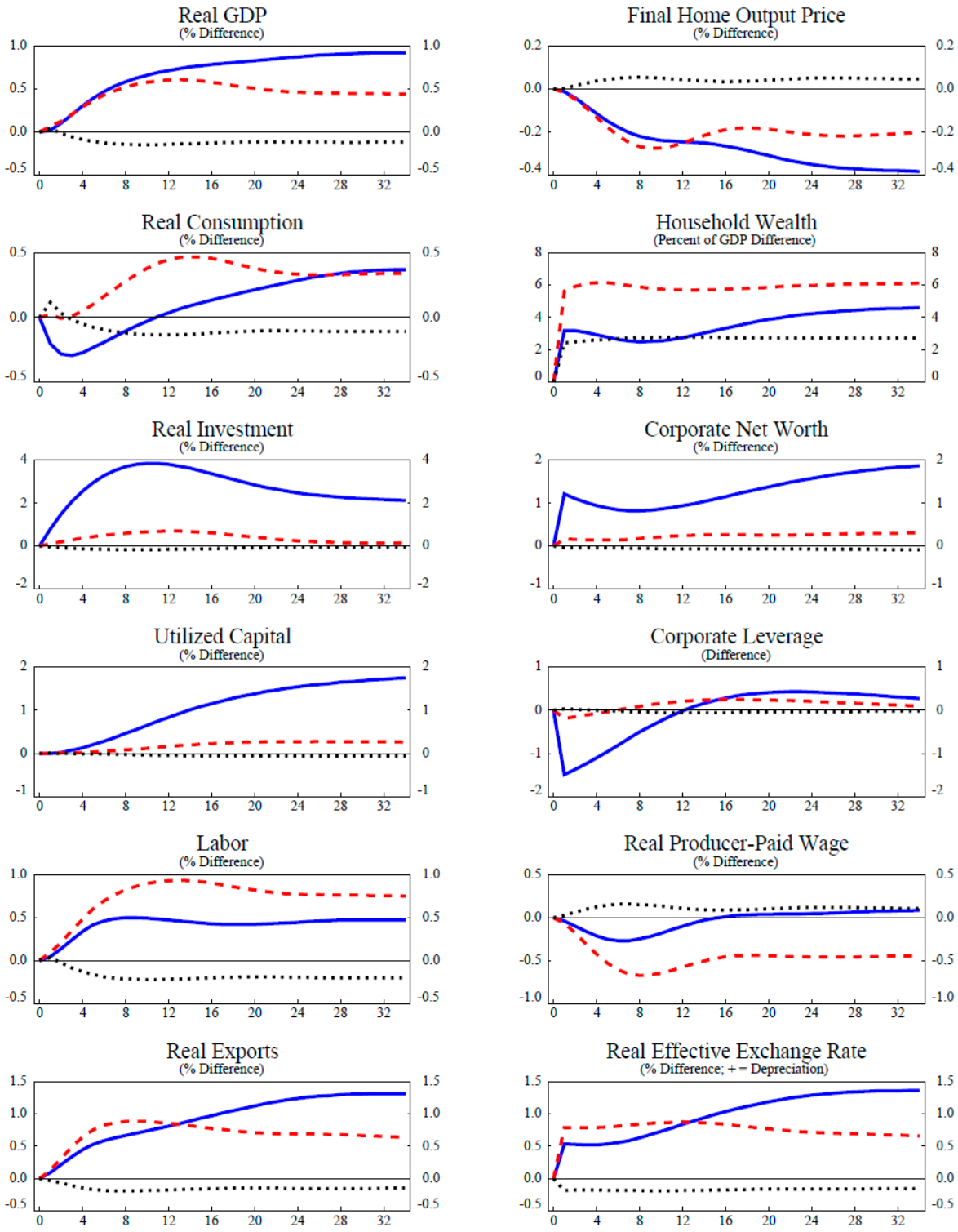
[7] Background papers for the Working Group on Tax Reform look more deeply at microeconomic aspects of fiscal reform. See http://www.victoria.ac.nz/sacl/cagtr/twg/ . See also N. Gemmell and others, 2009.

Figure 4. New Zealand: Shifting Taxes on Consumption (fiscally neutral, 1 percent of GDP)
__lower labor and capital taxes, ---lower labor taxes, . . .higher transfers to households



Source: Simulations with GIMF. Quarterly frequency.

Reducing the size of the state by cutting spending and taxes (Figure 5)

A fiscally neutral cut in government consumption spending raises GDP permanently. As above, GDP gains most from a reduction in transfers to middle-income households (OLG consumers), which is matched by lower taxes on income from labor and capital. The main reason is the large impact the measures would have on labor supply and on investment. Domestic tradable prices fall relative to import prices and the resulting real effective depreciation helps to market part of the additional output abroad. A one percentage point of GDP reduction in income taxes made possible by the cut in transfers would raise the level of GDP by about 2 percentage points above baseline in the long run. If non-productive government consumption spending is cut, the impact on growth is qualitatively similar but of smaller size. The main difference is the more muted reaction of labor supply.

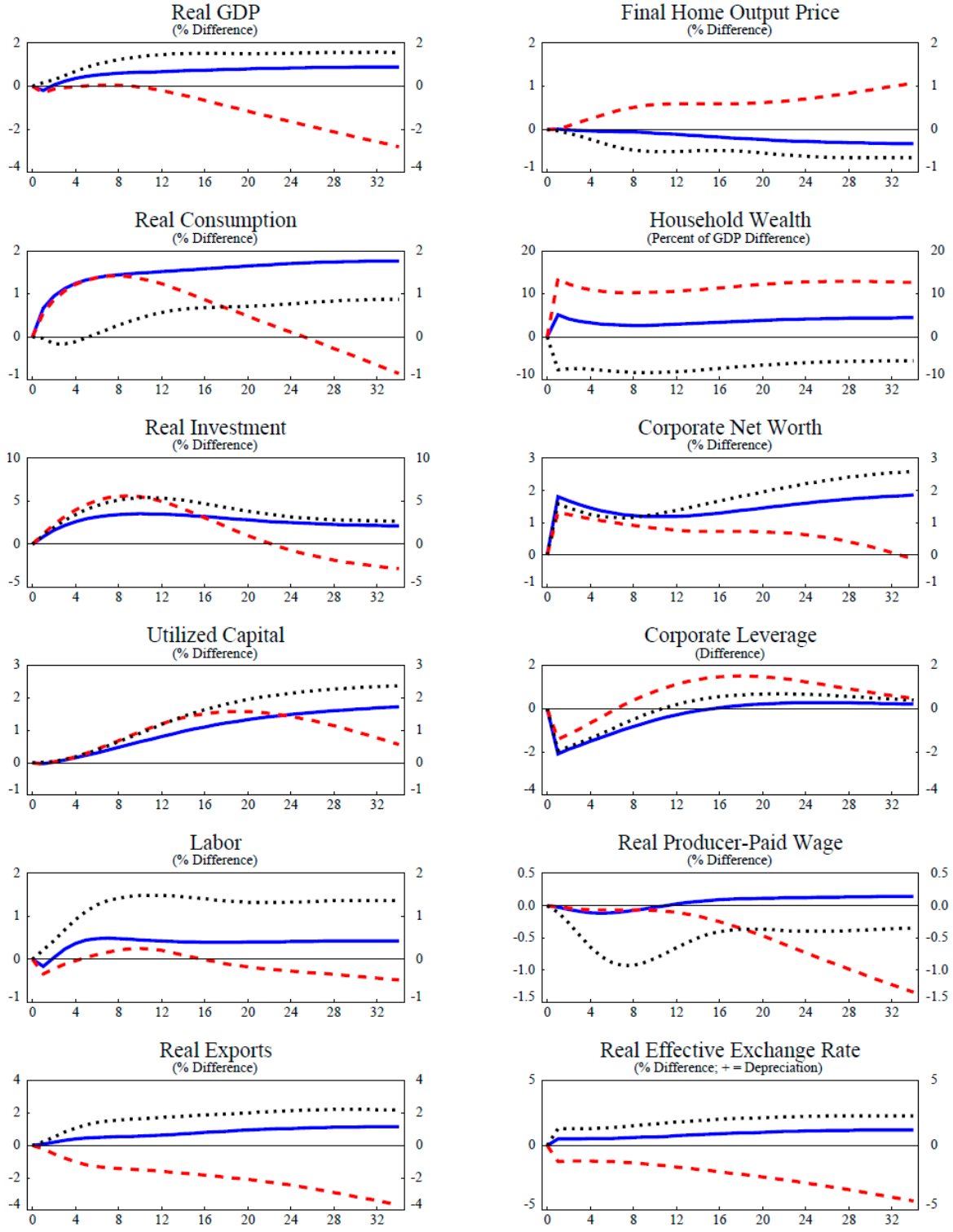
However, cuts in government investment spending can reduce GDP in the medium run. In GIMF, public investment spending raises the stock of publicly-provided infrastructure capital, which enters the production function of final goods and increases the productivity of private capital. In the short term, private investment increases to make up for the shortfall in the capital-output ratio. But over time, the lack of infrastructure capital reduces productivity and output falls. This reflects the idea that public infrastructure is a complementary input that cannot be easily replaced by private capital. With lower productivity real wages fall, hurting consumption in particular of hand-to-mouth consumers. Nonetheless, final output prices rise pushing the real effective exchange rate up and real exports decline.

Changing the composition of government spending to productive uses (Figure 6)

In practice, drawing a line between productive and non-productive public spending is not trivial. Not all public consumption spending is necessarily non-productive, and not all public investment turns out to be productive. By contrast, in the present calibration of GIMF all public investment is by definition productive, and all public consumption is non-productive.

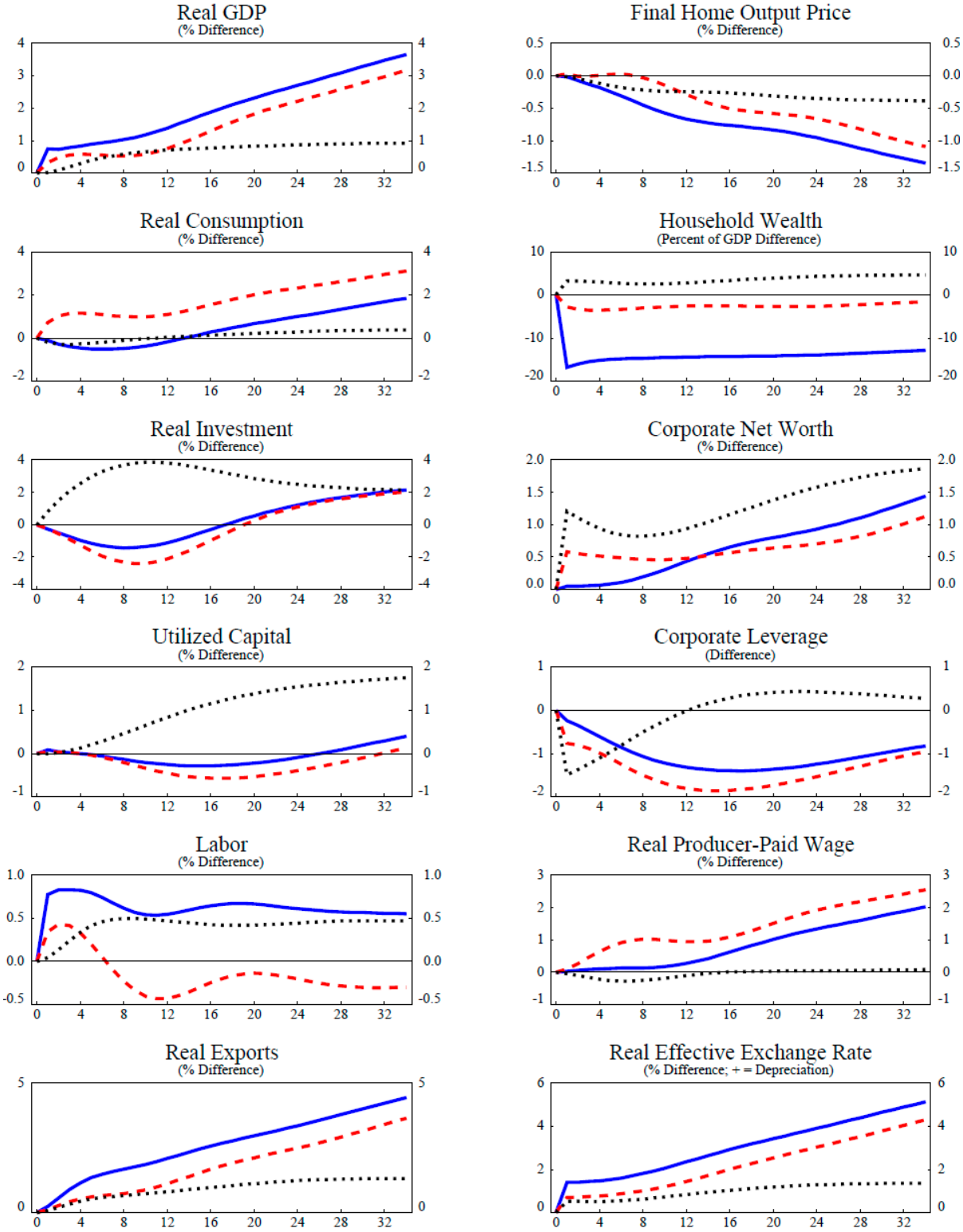
Shifting government spending from public consumption or transfers to infrastructure investment would result in sizeable income gains. Figure 6 shows the results for a 1 percent of GDP shift from either transfers to OLG households or government consumption to public investment in infrastructure. While the short run increase in GDP is similar to fiscally neutral tax reform or reductions in the size of the state, the longer term impact on output is significantly larger due to the productivity-enhancing effects of government investment. Shifting government spending from unproductive to productive uses—lower transfers or government consumption (GC) and higher government investment (GI)—would raise the level of GDP by about 4 percent in the long run. If spending cuts involve both productive and non-productive elements, their macro-economic implications will be a mixture of both types of spending reductions.

Figure 5. New Zealand: Reducing the Size of the State (fiscally neutral, 1 percent of GDP)
___government consumption, ---government investment, . . .transfers to OLG households



Source: Simulations with GIMF. Quarterly frequency.

Figure 6. New Zealand: Increasing Productivity of Government Spending (1 percent of GDP)
__lower transfers-higher investment, ---lower consumption-higher investment, . . .tax reform



Source: Simulations with GIMF. Quarterly frequency. Tax reform for reference: a 1 percent of GDP shift away from income to consumption tax.

ANNEX I. MODELING THE RISK PREMIUM IN GIMF

Uncovered interest rate parity holds in GIMF. It is augmented by a risk premium ζ , which can be split into a foreign exchange risk premium ζ^{FX} and a premium ζ^{B} that drives a wedge between the interest rates paid by the government and the private sector.

Both risk premiums are modeled as a non-linear function of the difference between asset positions – net foreign assets (NFA) and/or government debt (B) – and some limit, at which a further worsening would become prohibitively expensive. The slope of risk premium curve rises with α_2, β_2 and approaches infinity when NFA or B goes to their respective limits. An exogenous shock process was added to the risk premium functions.

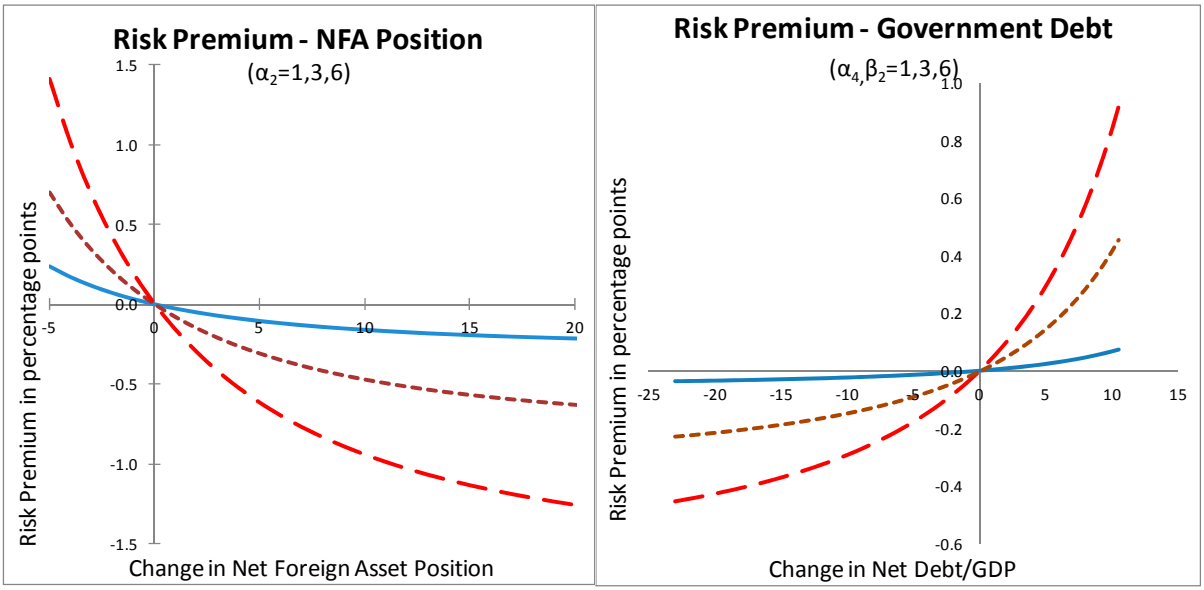
$$i_t = i_t^* \hat{e}_{t+1} \xi_t \quad ; with \quad \xi_t = \frac{\xi_t^{FX,a}}{\xi_t^{FX,b}} \xi_t^B$$

$$\xi_t^{FX} = \alpha_1 + \frac{\alpha_2}{\left(NFA_t / GDP_t - NFA \text{ limit}\right)^{\alpha_3}} + \frac{\alpha_4}{\left(B \text{ limit} - B_t / GDP_t\right)^{\beta_3}} + shk_t^{FX};$$

$$\xi_t^B = \beta_1 + \frac{\beta_2}{\left(B \text{ limit} - B_t / GDP_t\right)^{\beta_3}} + shk_t^B$$

The figure below plots the changes (deviations from steady state values) in the risk premiums against changes in the net foreign assets and net government debt. An improvement in New Zealand's NFA from a negative 90 percent of GDP to a negative 80 percent of GDP would lead to a decline in ξ_t^{FX} its foreign exchange risk of -0.2 , -0.5, or -1, depending on α.

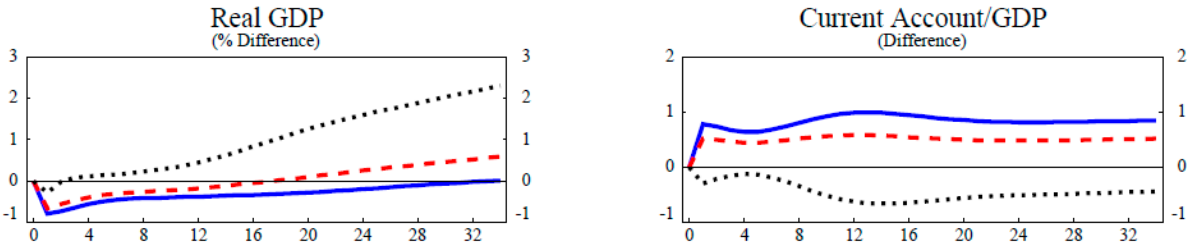
Figure I.1. New Zealand: Risk Premium Curves



The simulations in the main part of this paper have assumed moderate falls in the risk premium following a permanent increase in government savings by 1 percent of GDP. Figure I.2 shows the impact of two extreme cases, a fixed risk premium and a very large decline in the risk premium:

Figure I.2. New Zealand: Risk Premium Borderline Cases

___no decline in risk premium, ---central case, …very large decline in risk premium



Source: Simulations with GIMF. Quarterly frequency.

a) Without a fall in the risk premium the current account improvement is large, approaching 1 percent of GDP in the long run.[8] After a period of adjustment to the fiscal shock, real interest rates return to their baseline level, because New Zealand is too small to move world interest rates. Output remains below baseline for an extended period and settles at 0.75 percent above baseline in the long run. However, weak domestic demand and a depreciated REER boost the trade balance. Net foreign liabilities decline and over time the change in the income balance drives the current account improvement.

b) A very large decline in the risk premium could lead to a widening current-account deficit. A sufficiently large decline in interest rates—four times as large as in the central case—crowds in so much domestic demand that the fiscal contraction becomes expansionary (the case of a negative Keynesian multiplier). The deterioration in the trade balance offsets the improvement in the income balance, and the CA worsens.

Such a large fall in the risk premium is, however, not very likely. Recent cross-country estimates by Baldacci and Kumar found that a 1 percent of GDP increase in advanced countries' fiscal deficit increase 10-year nominal bond yields by approximately 20 basis points.[9] This result is very close to our base-case calibration, where a 1 percent cut in the deficit lowers the real interest rate by 25 basis points. Moreover, the market's muted reaction to recent lower-than-expected deficits suggests the size of the reduction may be even smaller. What is more, typically markets are more concerned with a deteriorating fiscal outlook than they are carefree with an improvement.

[8] Kumhof and Laxton (2009) find that without a change in the risk premium a 1 percent of GDP increase in the fiscal deficit leads to a long-run current account deterioration of 0.75 percent of GDP in a country of the size of the USA and 1 percent of GDP for a small open economy.

[9] Baldacci and Kumar, 2009, Deficits, Debt, and Interest rates, IMF internal surveillance note.

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