Intervention in HIV is an Investment and not an expense

Despite remaining a major killer in Africa, the HIV pandemic has been tamed medically into a chronic disease through advances in treatment drugs – antiretroviral therapies (ARTs). However, the full economic costs, over a lifecycle horizon, of keeping people on treatment and implementing prevention measures, are still not fully quantified and are still unfolding. Indeed, the economic effects of the HIV/AIDS disease, and also the economic effects of various interventions need to be better understood. It turns, out that there are economic benefits to investing in HIV. Such benefits come from increased labour supply, higher productivity, higher consumption, impact on imports and exports. The overall impact is an increase in GDP growth of 2 percent per annum, for Uganda, for example, over the next 35 years (see Kabajulizi and Ncube (2015)). Given that Uganda's HIV 'debt' is 35 percent of GDP, then the rate of return from investing in HIV over 35 years is 186%! What an investment!

Actions for Policy Makers

Recognize that HIV interventions are an investment and not an expense

Recognize that HIV interventions raises labour supply, productivity, wages, consumption, and overall economic growth

Invest in HIV interventions

Increase domestic direct taxes to fund HIV interventions

Questions for Policy Makers

For national policy-makers: What are the implications of recognizing that HIV interventions increase economic growth? How high can you raise domestic taxes to finance HIV interventions?

For donors: How much extra funding can you commit to HIV interventions in order to increase economic impact

Commitment technologies: How can we make sure revenues raised from increases in direct taxes are targeted at HIV interventions? Would an HIV trust fund be the solution? Or is the introduction of an omnibus National Health Insurance Scheme the answer?

Findings from Kabajulizi and Ncube (2015)[1]

Scenario settings

The results from simulations by Kabajulizi and Ncube (2015) based on a Computational general equilibrium (CGE) model; show the negative impact of HIV prevalence in Uganda if government does not implement targeted treatment and prevention strategies. Relative to the base case, the economy experiences an increase in the cost of production from the rising cost of labour, all sectors of the economy shrink and overall GDP growth rates decline while the domestic government debt as a share of GDP rises. On the other hand, if the government intervenes by scaling up treatment and prevention of HIV, the negative impacts are reversed and the economy thrives from a growing labour force supply and resource flows to HIV interventions. Foreign-aid and direct taxation are both potential sources of fiscal space for HIV albeit the differential impacts on sectoral growth and government debt levels. The results demonstrate that there is capacity for Uganda – and other LICs grappling with similar fiscal challenges - to mobilise domestic resources to fund HIV interventions by increasing revenues from direct taxes. This paper also proposes that in the short to medium term, aid-for-health be increased in order for government to meet the future HIV/AIDS obligations.

The impact is captured in two sets of simulations namely: the labour force growth scenarios and the source of funding HIV interventions scenarios. The first set of simulations captures household population growth and labour supply dynamics of HIV/AIDS. Two scenarios are modelled under this assumption.

[1] Kabajulizi, J and M. Ncube (2015) The economy-wide impact of HIV/AIDS and the funding dilemma in Africa: Evidence from a dynamic life cycle horizon of Uganda, Blavatnik school of Government, University of Oxford, BSG-WP-2015/006 September 2015

In total, four (4) scenarios are considered.

Scenario 1: AIDS without targeted treatment and prevention. This scenario assumes that government does not make significant improvements towards treatment and prevention strategies for HIV/AIDS so that challenges reported in the 2013 country progress report prevail throughout. This case relates to a situation where the baseline HIV prevalence rate at 7% prevails throughout while access to ART remains at levels reported at the end of 2013 (which is below 40% for all those eligible for ART at the 2013 WHO guidelines). Similarly, the funding challenges reported in 2013 continue such that minimal proactive steps are taken towards scaling up prevention strategies. This level of HIV responses as described here generates two shocks.

First, is the impact on supply of labour whereby the overall size of the labour force declines while the age structure changes. We anticipate a decline in labour force growth as more people fall sick from AIDS, some of whom die while others are unable to work effectively. Second, demand for healthcare increases as infected persons are treated through the existing health care system. The government faces increased healthcare spending because of higher health expenditure per infected person. The HIV/AIDS impact on demand of healthcare services is taken simply as the share of patients with HIV-related illnesses in the healthcare system. Assume that all people living with HIV in Uganda will need some form of healthcare in one way or another.

Scenario 2: AIDS with targeted treatment and prevention. In this scenario we assume that government undertakes targeted strategies towards treatment of PLHIV and prevention measures to reduce the prevalence rate. This assumes government has adequate funds to meet its targets and goals are achieved. These effects translate into relatively higher growth rates in labour force supply to the economy which are captured in the model as gradual increases in labour force growth from the baseline growth rate. It is further assumed that the scaling up of HIV responses is gradual and the health effects are lagged. Second, the HIV intervention strategies envisaged in this model assume comprehensive treatments for PLHIV as well as prevention measures, thus generating additional costs over and above the treatment costs assumed in Scenario 1.

The second set of simulations captures the HIV impact channels through the source of funding healthcare costs generated by HIV intervention strategies. For both Scenario 1 and scenario 2 above, the government is assumed to be spending according to its budget. Government receipts are assumed to grow at a fixed rate determined by the GDP growth rate and the budget is balanced by foreign borrowing, as assumed in the baseline simulation. However, in the following two cases, we specify the source of additional funding for healthcare when the share of health spending is increased.

Scenario 3: Foreign aid funding for HIV. What is considered an increase in foreign transfers channelled to the financing of government health. The target is to increase government receipts while expanding government health spending. We assume that all foreign- aid for health is channelled through the government budget so that the HIV component of the aid-money is spent according to priorities laid down in the National Strategic Plan for HIV/AIDS and the Health Sector Strategic Plan. The model is shocked with a 20% annual increase in foreign transfers to government from the rest of world specifically for the government health commodity. At the same time, the selected government spending rule imposes flexibility so that health spending is the budget balancing item. This model operation signifies an increase in foreign grants as share of GDP channelled to government health spending.

Scenario 4: Tax revenue for HIV. In this scenario, what is considered is an increase in domestic direct tax revenue as a source of additional health spending. The model manipulation is similar to Scenario 3 except that the government receipts are increased by direct tax revenue. Therefore, the model is shocked with a 10% annual increase in direct tax revenue as share of GDP and the adjustment in government health spending clears the government budget. The 10% annual growth rate in direct tax to GDP share is selected on the basis that effective rates will adjust so that the base year share of direct tax to GDP is more than double by 2040. This level of additional revenue generation is in line with the government aim to achieve the National Strategic Plan for HIV/AIDS target of 15% government contribution towards the National Priority Action Plan for HIV/AIDS resource requirements. Additionally, the selected growth rate in direct tax revenue aims to achieve additional revenue towards the 25% potential share of total tax revenue in GDP. It has been suggested that Uganda has the potential to raise tax revenue share in GDP from the current 13.4% to 25% (World Bank).

Results

Wages/rents

For purposes of this modelling exercise, labour classification is based on completed years-of-schooling for the individual. Labour is classified as unskilled for working people who completed less than secondary education, semi-skilled for those who completed secondary education and skilled for those who

completed tertiary education. Factor markets clear through relative price changes. The average growth rate in real wages increases under the aids-no-treatment scenario while it declines under the aids- with-treatment scenario, relative to the base. Under the aids-no-treatment case, the relative increase in growth rate for wages is about 1.4% for unskilled, 1.5% for semi-skilled and 1.6% for skilled labour. The rise in wages is consistent with the assumption that AIDS prevalence without targeted treatment and prevention strategies would lead to a decline in the labour force growth rate. As the growth in labour force declines, demand for labour surpasses the supply and drives up wages in the labour market. On the other hand, the relative decline in wages growth rate is 1.2% for unskilled and semi-skilled labour, and 1% for skilled labour under the aids-treatment case. This is due to the abundance of labour from the model assumption that AIDS prevalence with targeted treatment and prevention strategies would result in increased labour participation rates and labour force growth rates. Consequently, an abundance of labour in the economy drives down wages relative to the base.

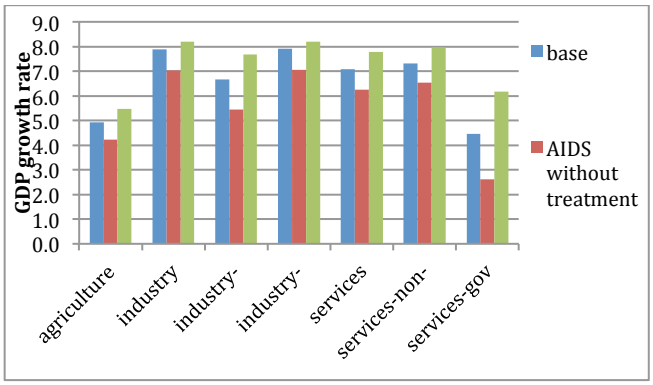
The adjustment in skilled labour wages is worth noting in relation to the dynamics of expanding a skill oriented service (health) sector. The rise in wages is highest for skilled labour under the aids-no-treatment case. This is, in part, attributed to the skill-intensive nature of the expanding health sector due to increased demand for healthcare. In order to produce more units of healthcare to meet the increased demand, a larger quantity of inputs is required. Skilled labour constitutes a relatively large proportion of the input requirements for healthcare production in Uganda. Similarly, under the aids-treatment case the decline in wages rates for skilled labour is relatively smaller compared to other labour categories. This is due to the fact that even if the overall economy-wide labour supply is growing, the expansion in healthcare labour is lagged because doctors and nurses training takes relatively long time to qualify. Moreover, in Uganda there is never an abundance of skilled healthcare workers so that their wages are sticky downwards.

Impact on GDP growth rates

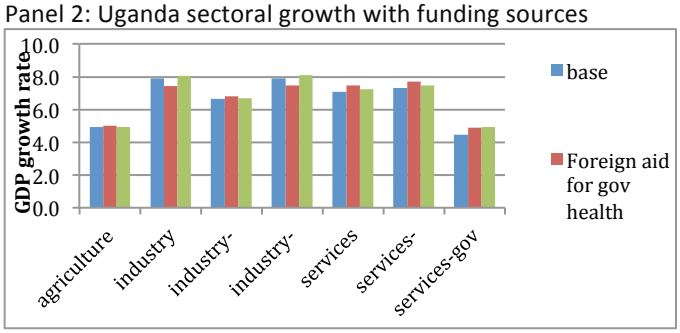
The resultant factor price and factor demand adjustments are reflected in growth rates of GDP at factor cost. The growth rate in GDP at factor cost declines under the aids-no-treatment scenario while it increases under the aids-treatment scenario, all relative to the base growth rates. The impact from funding sources shows that the aid-funded scenario generates slightly higher GDP growth rates relative to the base rate - 0.21% compared to 0.14% for the tax-funded scenario. There are underlying sectoral growth rates. A comparison of health-funding sources shows differential impacts in growth rates of sector value-added. The aid-funded scenario stimulates higher growth rates in 'the services sector' compared to the tax-funded scenario. The growth rate in services value-added increases by 0.4% relative to the base growth rate, for the aid-funded scenario, compared to 0.17% relative increase under the tax-funded scenario. The relatively higher growth in services value-added under the aid-funded scenario is attributed to the relatively higher growth in employment of private capital: 0.65% compared to 0.28% under the tax-funded scenario. This finding suggests a crowding-out effect when private investment is displaced by increased government spending (for health) which is funded through increased tax revenues.

Real GDP at factor cost: annual growth from 2009-2050 (%), Uganda

Panel 1: Uganda sectoral growth with and without HIV intervention



Panel 2: Uganda sectoral growth with funding sources



Note: gov health = government health, services-non-gov = non-government services, services-gov = government services

The relative growth rate in value-added by the industrial manufacturing sector declines by 0.46% under the aid-funded scenario while it increases by 0.16% under the tax-funded scenario. The contraction of the manufacturing sector is also reflected in the sector factor employment whereby the annual growth in private capital declines by 0.32% under the aid-funded scenario while it increases by 0.22% under the tax-funded scenario, relative to the base.

Government consumption and investment

The HIV impact on government consumption and investment is varied across scenarios. A notable feature from the results is that the aids-no-treatment scenario compels government to reallocate more resources for recurrent health expenditure as it reduces investment expenditure in health and other government functions. A reduction in capital investment for government functions could be precarious in the long-term, as it may hamper continued provision of quality government services overall.

Government debt: domestic and foreign

The impact on government debt varies accordingly. When government is faced with escalating healthcare costs arising from palliative care for PLHIV, under the aids-no-treatment scenario, government adjusts its spending pattern by reallocating the available resources and borrowing from foreign sources only when there is a shortfall in the budget. This adjustment generates foreign debt as a share of nominal GDP at 8.4% in 2040. The foreign debt share of GDP is a reduction of 6.48 percentage points from the base share. For the same simulation scenario, domestic borrowing (i.e. domestic capital transfers which constitutes income from households through sales of government bonds) as a fixed share of GDP is 2.31% per year. With this level of government borrowing from domestic sources the domestic debt as share of GDP rises to 21.2% in 2040 under the aids-no-treatment scenario. For the same simulation scenario the GDP share of government spending on investment in public services declines relative to the base while commodity consumption remains the same, except for healthcare and other-infrastructure. This suggests that given the available resources, government reallocates spending to health commodity consumption while reducing spending for investment in other public services.

When government undertakes targeted treatment and prevention strategies, foreign debt as a share of nominal GDP rises to 46.31% in 2040. This result resonates with the finding by Atun et al (2015) indicating that new funding obligations for HIV treatment in Uganda were estimated to raise the debt to GDP ratio from 39% to 59% in 2050. However, the result from this paper also shows that additional funding for HIV, whether from aid or from domestic taxation, mitigates the escalation of the debt to GDP ratio. When the additional health expenditure is funded through foreign-aid in grant form, the government debt to GDP share falls relative to the base. Foreign debt share falls to 13.46% while domestic debt share falls to 18.02% in 2040. Similarly, if additional funding is generated through increase in direct tax revenue, the government debt to GDP share falls relative to the base - 14.01% for foreign debt share and 18.02% for domestic debt share in 20140. The mitigation in the escalating debt to GDP ratio is made possible by a combination of both lower borrowing rates (and lower interest payments) and the relatively higher growth rates in GDP. Targeted treatment and prevention of HIV generates higher growth rates in labour supply to the economy leading to faster growth in GDP.

The paper on which this **RethinkHIV** Policy Brief is based can be found at www.rethinkhiv.com.

RethinkHIV is a consortium of senior researchers who will evaluate new evidence related to the costs, benefits, effects, fiscal implications and developmental impacts of HIV interventions in sub-Saharan Africa, in order to maximise contributions to the fight against HIV. The aim is to find ways of creating, optimising and sustaining fiscal space for domestic HIV investment, as well as exploring long-term, sustainable national and international financing mechanisms. **RethinkHIV** is funded by RUSH Foundation.

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