Investing in health

An economic and qualitative analysis of the impacts of the primary care phase of NHI in The Bahamas.

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clarity from complexity

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Foreword

First and foremost, access to affordable, quality healthcare services is about improving people's lives. In turn, a healthy population is essential for sustainable development. These are the reasons why the United Nations General Assembly adopted a unanimous resolution urging governments across the world to take steps towards providing all people with such services. The resolution calls on member states to adopt a multi-sectoral approach and to work on the social, environmental and economic determinants of health to reduce inequities and enable sustainable development. This is a non-political, non-sectoral initiative that is recognized as fundamental to local and international development.

Today, most Bahamians do not enjoy the security that comes with a meaningful right to healthcare. They must live with the fear of what might happen to them if a loved one becomes ill, including how they will pay for care. The primary care phase of National Health Insurance (NHI) in The Bahamas is the first step in tackling this problem. By offering free, accessible and modern primary care services to residents, the country is taking an important step towards universal health coverage – broadening access, spreading risk and improving the health system's performance.

Universal health coverage is an essential building block in creating any modern, sustainable and fair society. Indeed, as this report shows, the benefits of NHI also extend beyond health – supporting a stronger economy, a more productive workforce, and greater financial security for families.

In this regard, KPMG partnered with Cambridge Econometrics to establish the potential economic and other likely impacts of NHI on The Bahamas and our population. The headline finding – that over the course of a generation the primary care phase of NHI will be producing an additional $500 million a year in additional GDP – should come as no surprise. It is consistent with a growing body of literature around the world showing that health investments generate up to nine times their costs in terms of economic growth. This is in addition to related benefits such as lower mortality and morbidity rates, a more productive population, higher employment, a more skilled workforce and lower health inequalities.

Whether health or wealth, therefore, the analysis in this report demonstrates that NHI in The Bahamas is an investment that will continue paying off for generations to come.

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"Health systems oriented toward UHC, immensely valuable in their own right, produce an array of benefits: in times of crisis, they mitigate the effect of shocks on communities; in times of calm, they foster more cohesive societies and productive economies"

Economists' Declaration on Universal Health Coverage (2015)

Contents

Glossary

GDP	Gross Domestic Product
GP	General Practitioner
GVA	Gross Value Added
IMF	International Monetary Fund
NCD	Non-Communicable Disease
NHI	National Health Insurance
NHIA	National Health Insurance Authority
UHC	Universal Health Coverage
UN	United Nations
WHO	World Health Organization

Key findings

This report details the findings of a study into the future economic impact of the primary care phase of NHI in The Bahamas on households, businesses, government and the macro-economy.

It compares two scenarios – the economy with and without the primary care phase of NHI – and looks at the differences that result from these up until 2040.

The overall conclusion is that in addition to any benefits to the health and wellbeing of the Bahamian population, the policy is also an investment in the economy of the country, capable of generating many times its costs in additional economic growth.

Our model suggests that if implemented now, by 2035 the economy of The Bahamas is likely to be around 3.7% larger as a result of the primary care phase of NHI (+B$350 million per year in 2006 terms). This figure rises to almost 5% (around B$500 million) by 2040.

The majority of this economic growth comes from a larger, healthier and more productive population (due to lower mortality and less morbidity due to chronic disease). Other factors include the addition of more skilled workers to the economy (with additional primary care doctors and nurses) and a small shift in precautionary saving on the part of households.

There are also a number of positive factors that are difficult to quantify, and therefore are described but not included in the model. These include an expected reduction in unemployment as a result of better health, and government savings from a reduction in future usage of hospital secondary and tertiary care services as a result of a robust investment in primary care.
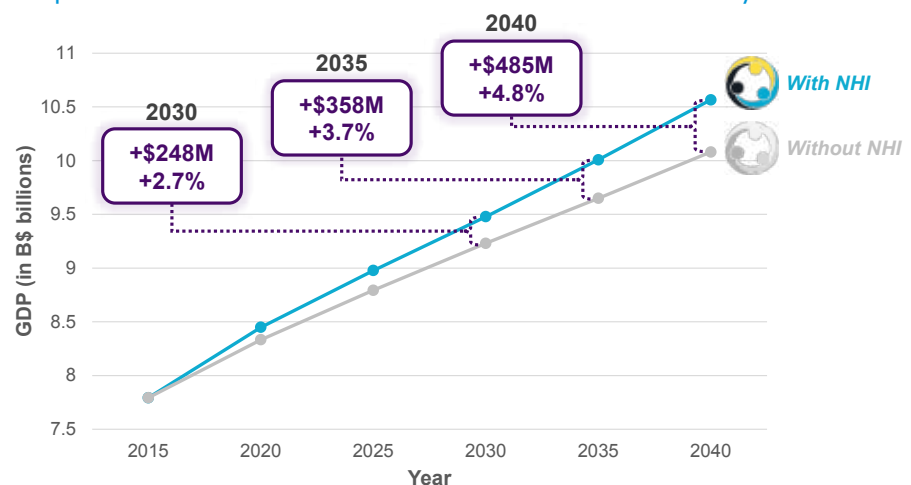
NHI is also expected to have a positive direct impact on households, businesses and Government:

- For households, the increase in the size of the economy and its productivity equates to an additional 5.1% in total household consumption by 2040 (2.9% by 2030) if the primary care phase of NHI is implemented. This equates to around B$224 in today's cash terms per household.

- Firms will benefit from a gradual increase in worker productivity, reaching +1% by 2024. Firms are also likely to see a slower rate of growth in private health insurance premiums for staff (due to larger healthier risk pools) and lower levels of 'job lock' (lower worker mobility due to employees not wishing to lose benefits when moving), however these have not been included in the model.

- The impact of the primary care phase of NHI on government finances is more difficult to estimate, as it is dependent on a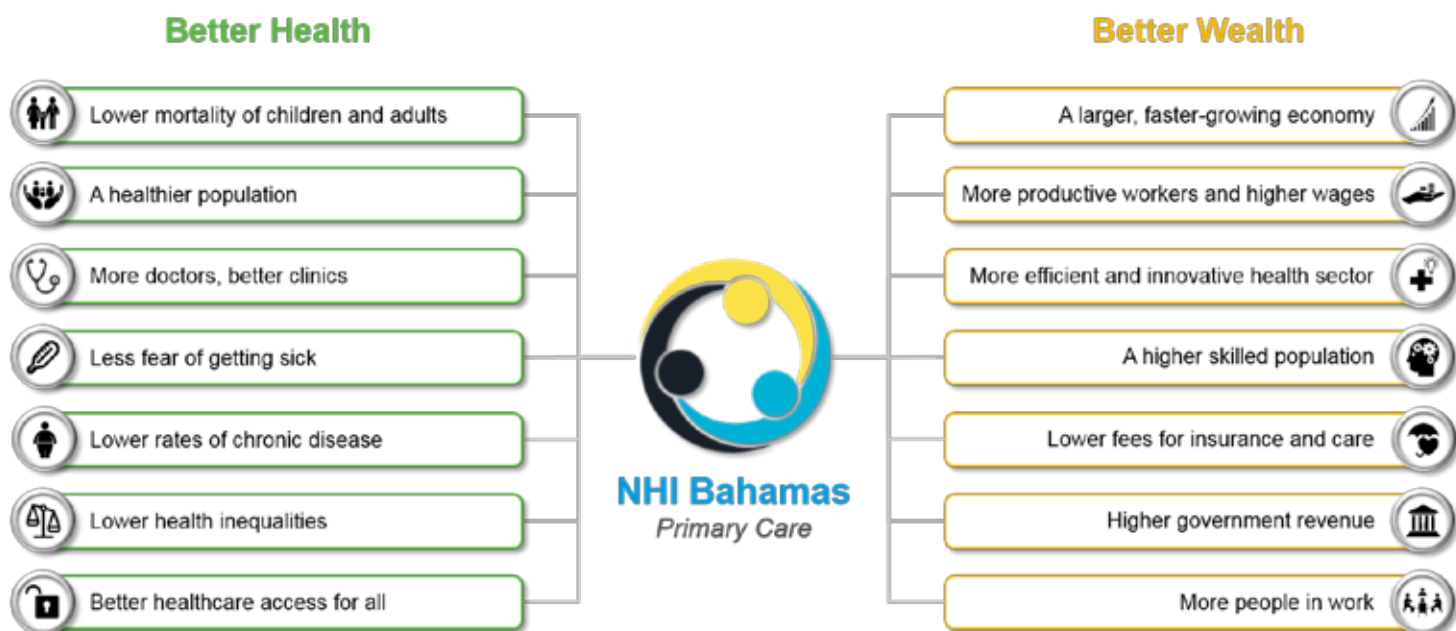 number of future decisions around how redirected funding will flow around the system, the extent to which public private partnerships are used to support future clinic provision, and what decisions are made about other public services provision for the larger population. It is clear that government revenues will rise as a result of a stronger economy under the NHI primary care phase scenario, but it is unlikely this additional income will make up for the full costs of implementation. The policy is a strong investment in the economy of The Bahamas, it should not be viewed as a major revenue engine for government.

Our analysis only extends to the benefits of the primary care phase of NHI in The Bahamas. Costs of different options to finance the policy were not examined , nor were variations in the scope, implementation or cost of the policy - which have all been taken from what is currently set out in the Government's implementation plans. Neither was it within scope to estimate benefits accruing from future phases of NHI, which will likely produce further economic gains in addition to those described in this report.

Graph 1: Future GDP of The Bahamas with and without the Primary Care Phase of NHI

Healthier is wealthier

Better Health

- Lower mortality of children and adults
- A healthier population
- More doctors, better clinics
- Less fear of getting sick
- Lower rates of chronic disease
- Lower health inequalities
- Better healthcare access for all

NHI Bahamas
Primary Care

Better Wealth

- A larger, faster-growing economy
- More productive workers and higher wages
- More efficient and innovative health sector
- A higher skilled population
- Lower fees for insurance and care
- Higher government revenue
- More people in work

On 1st January 2016, the United Nations Sustainable Development Goals came into force, triggering a commitment by every recognized nation on earth – including The Bahamas – to achieve universal health coverage by 2030. The run up to this historic decision to place healthcare coverage at the heart of the global development agenda saw a mounting body of evidence develop supporting UHC not just as a vital humanitarian policy, but a sound economic investment too.

For well over a century governments have understood this connection between health and wealth. Reducing sickness in the workforce was one of the key rationales for many of the first national health systems, such as Bismarck's Health Insurance Bill of 1883 in Germany, and Britain's 1911 National Insurance Act. Landmark studies such as the World Bank's 1993 World Development Report and the World Health Organization's 2001 Commission on Macroeconomics

and Health both supported the view that healthcare coverage fueled economic growth via improved productivity and employment, better educational attainment and increased protection from healthcare bills that push tens of millions into poverty each year globally.[1] [2]

In recent years, more rigorous analysis has shown just how important access to healthcare is to a thriving economy. In 2013, a seminal review by a Lancet Commission of leading economists found that around 11 % of economic growth in low and middle income countries between 2000 and 2011 was the result of reduced mortality.[3] Measured in broader terms of national income and prosperity,

this figure rises to 24 %, suggesting **a 9-to-1 return on health expenditure over 20 years**. After investigating these effects more closely, the commission found they primarily resulted from improvements to labour productivity, child health and educational attainment, and the ratio of workers to dependents. Their conclusion was that "there is an enormous payoff from investing in health".

Further work ultimately led to The Economists' Declaration on Universal Health Coverage, an accord signed by 267 economists from 44 countries which affirmed the financial benefits of UHC to governments, businesses and households, and called on global leaders to increase domestic funding for pro-poor healthcare policies.[4]

1   World Bank, Investing in Health: The 1993 World Development Report, World Bank (1993)
2   Commission on Macroeconomics and Health, Macroeconomics and health: Investing in health for Economic Development, World Health Organization (2001)
3   Jamison DT, Summers LH et al. Global health 2035: A world converging within a generation, The Lancet 382:9908 1898-1955 (2013)
4   Summers LH et al. Economists' declaration on universal health coverage, The Lancet 386:10008 2112-2113 (2015)

Evidence framework for the economic impact model in this report

Looking underneath these headline findings, the evidence for UHC's economic impact suggests at least 15 different forces that are likely to contribute to health investments translating into faster economic growth. These forces were used to construct a 'comprehensive' theoretical framework to forecast the total impact of any UHC policy. This was the foundation from which a more 'pragmatic' framework was then built to forecast the impact of the primary care phase of National Health Insurance in The Bahamas, based on what data was actually available (see next chapter).

Non-financial benefits of NHI

In addition to these economic effects, there is also evidence to support a number of other non-financial benefits of national health insurance schemes. These have not been included in the model, but are worthy of mention:

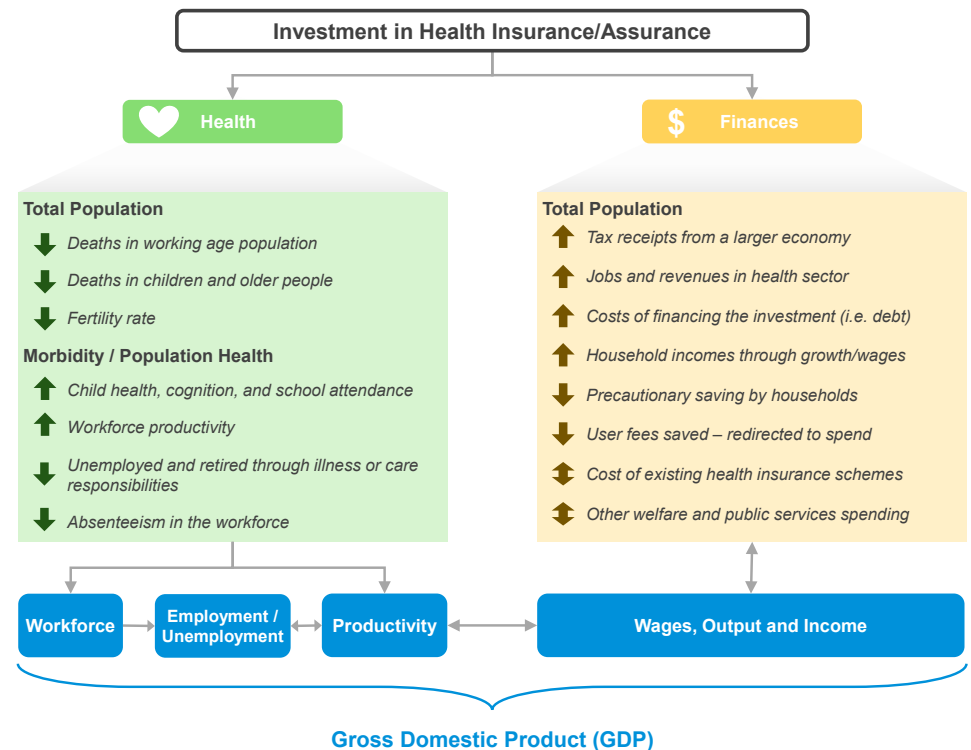Investing in pro-UHC policies such as National Health Insurance:

- Over time fosters a national culture of wellness;[5]

- Strengthens national security by increasing resilience to pandemics and other major global health threats;[6]

- Reduces health inequalities, which enhances social cohesion and national wellbeing;[7]

- Gives peace of mind to citizens on no, low and middle incomes, as

Figure 1: Comprehensive framework for the economic impacts of UHC investments

there is less need to worry about the impact of future healthcare costs on household finances, and less need to sell assets or exhaust savings if a family member does become sick;[8]

- Creates good quality, fulfilling jobs, through increasing the number of health workers;[9]

- Helps to fulfil the commitment of all governments to the right to health and access to healthcare, as

enshrined in Article 25 of the Universal Declaration of Human Rights;[10]

- Builds national solidarity and social cohesion.[11]

5   World Health Organization & World Bank, Tracking Universal Health Coverage: First Global Monitoring Report, World Health Organization (2015)
6   World Health Organization & World Bank, Tracking Universal Health Coverage: First Global Monitoring Report, World Health Organization (2015)
7   World Health Organization, Making fair choices on the path to universal health coverage: Final report of the WHO Consultative Group on equity and UHC, WHO (2014)

8   Cotlear D et al, Going universal from the bottom up: How 24 developing countries are implementing universal health coverage reforms from the bottom up, World Bank (2015)
9   Working for health and growth: Investing in the health of the workforce, World Health Organization (2016)

10   United Nations, Universal Declaration of Human Rights, United Nations (1948)
11   Nicholson et al, Universal health coverage: A guide for policy makers, World Innovation Summit for Health (2015)

Primary Care Phase

While The Government of The Bahamas has set out on a long-term, multi-stage journey towards achieving universal health coverage within a generation, this study looks specifically at the economic effects of the primary care phase of NHI, launching in early 2017.

Under this initial phase, The Government will provide all legal Bahamian residents with coverage at the primary health care level. Specific benefits will include:

• primary health care services at approved health care providers;

• primary health care diagnostic imaging and laboratory services;

• personal preventative services, for example: vaccines for children and general screenings for breast cancer;

• many primary care prescription medications;

• health education and promotion, for example: monitoring and promoting nutrition and hygiene amongst children and young adults.

There will be no contributions or co-payments required to receive primary health care during the initial rollout of services under NHI Bahamas. For the primary care stage of NHI Bahamas, the Government will manage finances so as to compensate providers through a National Health Insurance Fund ("NHI Fund"), financed by the Government's consolidated fund.

The NHI Fund will be governed and regulated by the newly formed administrative body called the NHI Authority. The NHI Authority will be responsible for the management of the National Health Insurance programme and all associated processes of NHI Bahamas. Specifically, the NHI Authority will serve as a regulatory body to administer National Health Insurance and to set criteria for approving insurers (subject also to normal Insurance Commission of The Bahamas licensing and regulation) and health care providers under NHI Bahamas.

NHI benefits will be administered by competing private insurers and the introduction of a public insurer, to be called BahamaCare. BahamaCare will be publicly owned but the operations will be outsourced to a private manager with the requisite expertise. The combination of public and private insurers will make the payer environment in the country significantly more competitive and pro-poor.

Health care will be provided by eligible primary care providers (e.g. physicians) and other primary care facilities (e.g., laboratories, pharmacies) which will receive payment for NHI services from a beneficiary's respective insurer based on reimbursement rates set by the NHI Authority. Primary care services will be delivered through both public and participating private sector providers and facilities.

NHI Bahamas will result in a substantial investment in the primary health care capacity of the country. This is expected to cost approximately B$100 million annually. No new taxation is envisioned to fund this initial phase, and as a result funding will consist of a combination of new government expenditure (approximately B$60 million) and a re-allocation of the existing national health budget from various sources, including the Ministry of Health and the National Prescription Drug Plan (approximately B$40 million). The current sources receiving this B$40 million are not expected to lose out as part of this reallocation – rather the money is likely to be paid through a different mechanism and potentially exceed the current levels for some.
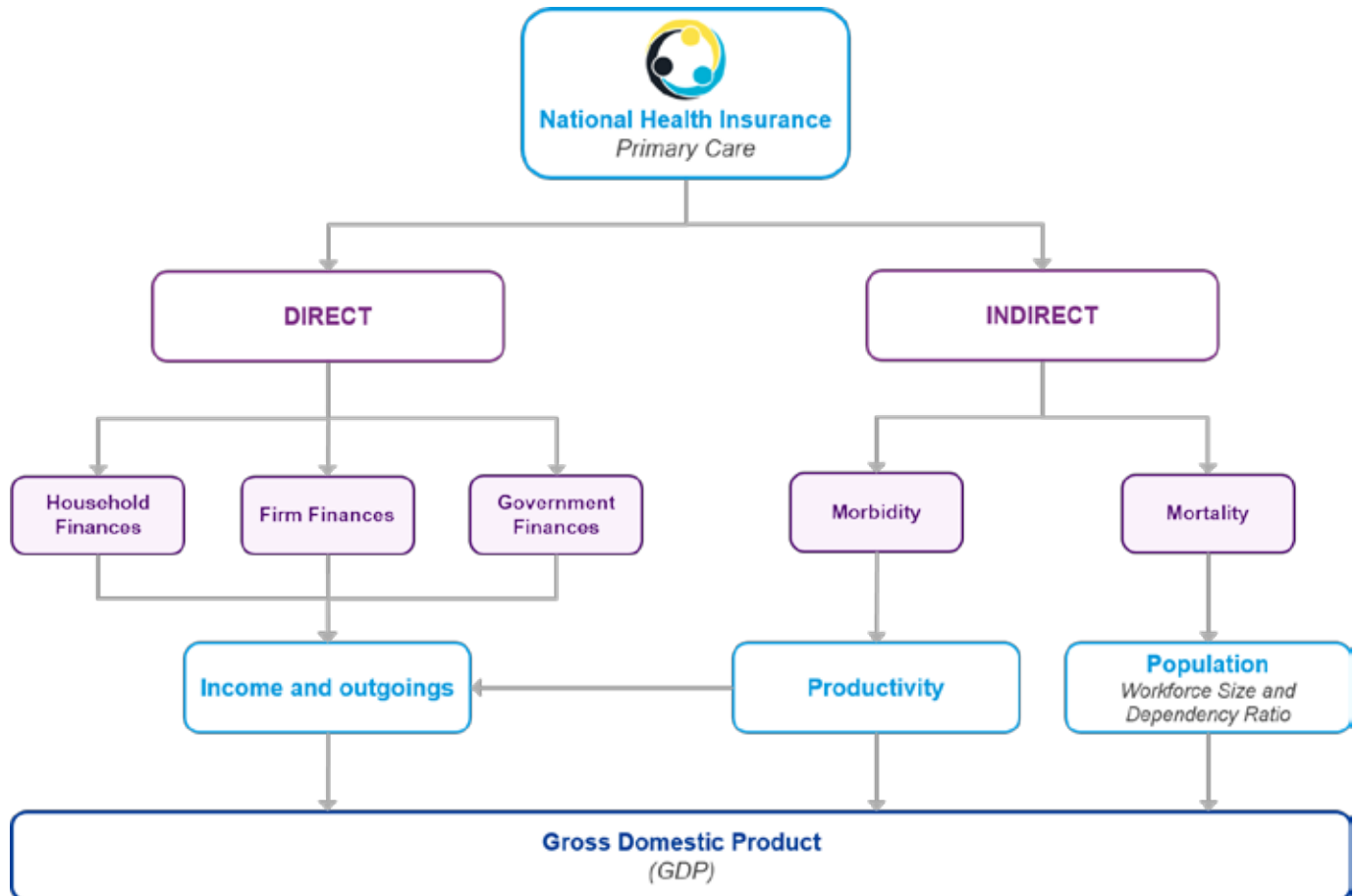
The 'Pragmatic Framework' used to construct this economic model

Because of the limited data available to forecast all the different effects in the 'comprehensive framework' described in the previous chapter, a simpler 'pragmatic' framework was developed to calculate the main effects of the primary care phase of NHI. This reduces the number of economic levers from 15 to around seven where we were able to find reliable current and projected data for The Bahamas.

It is likely that this pragmatic model underestimates the potential benefits of NHI, however it was viewed as preferable to have a conservative model based on real data than a more speculative one built on questionable figures and 'guesstimates'.

Figure 2: Pragmatic framework for the economic impacts of the primary care phase of NHI

Model assumptions

At the most basic level, our economic model uses the forces contained in the 'pragmatic framework' to compare two possible futures for The Bahamas – "with" and "without" the primary care phase of NHI. As with any economic model, this involves making a number of assumptions about the future, and about the likely impact of NHI. This chapter sets out these assumptions along with the evidence we have drawn on for the most important projections. The key assumptions, in turn, cover:

1. **Population**: The extent to which NHI might alter the future demographic profile of The Bahamas

2. **Labour market**: How the health benefits of NHI will impact the future workforce size and rate of unemployment

3. **Productivity**: How the productivity of workers might be impacted by improved health in the long run

4. **NHI provision**: Higher output and jobs in the health sector

5. **Household saving and consumption**: How increased insurance might translate into reduced precautionary saving, and increased domestic consumption

Population
The analysis assumes that NHI has an impact on the future demographic profile of The Bahamas through reductions in mortality driven by more affordable and improved access to modern health care.

The improvement in mortality produced by the primary care phase of NHI was projected using calculations derived from two large-scale systematic reviews of the effects of spending on health coverage and basic primary care in 127 countries

and 153 countries respectively.[12][13] The larger review found that for middle income countries a US$100 increase in government health spending equated to a 2.5 per 1,000 decrease in the adult mortality rate (chance of dying between the ages of 15 and 60) and a 13 per 1,000 decrease in the under five mortality rate. The smaller review found that a 10% increase in government healthcare expenditure per capita produced a decrease in under five mortality of around a third. Taking the more conservative extremes of both estimates, we scaled them to the size of investment required for the primary care phase of NHI to project that over 25 years there would be a potential gain of 12.5 fewer adults per 1,000 dying as a result of NHI, and five per 1,000 children (under-15s) dying. These projections were then validated by comparing the effects of equivalent basic health insurance schemes introduced in Mexico, Costa Rica and Thailand.[14][15][16]

While it was not possible to directly access and modify the official population projection model used by the Government of The Bahamas, our estimations of the size of NHI's impact were consistent with the differences between the 'low' and 'medium' population scenarios produced by the

12 Bokhari FA et al, Government health expenditures and health outcomes, Health Economics 16(3) p257-73 (2007)
13 Moreno-Serra R & Smith P, The effects of health coverage on population outcomes, Results for Development Institute (2011)
14 Gruber J et al, Demand and reimbursement effects of healthcare reform: Healthcare utilization and infant mortality in Thailand, National Bulletin on Ageing and Health, 17739 (2012)
15 Rosero-Bixby L, Infant mortality in Costa Rica: Explaining the recent decline, Studies in Family Planning, 17(2) 57-65 (1986)
16 Pfutze T, The effects of Mexico's Seguro Popular health insurance on infant mortality: An estimation with selection of the outcome variable, World Development 59 p475-486 (2014)

Department of Statistics.[17] These were therefore used as the 'baseline without NHI' and 'baseline plus NHI' cases in our analysis.

One important adjustment made was that, because the Bahamian projections use 2010 as the base year, we use a modified version of the low projection, which matches the medium projection up to and including 2016. Thereafter, the growth profile split by children, working-age and old-age adults matches that of the low projection. The deviation from the original projection is small, at less than 0.5% by 2040.

The result is that "with" NHI, it is expected that the population will be almost 15,000 higher by 2030 than it would be "without" NHI, driven primarily by increases in the lower, more productive age groups.

Labour market
Improvements in health to the adult population are highly likely to impact on the amount of employment in a country over time. This can happen through two routes:

• the labour force participation rate: the percentage of the adult population looking for work (the 'workforce'); and

• the unemployment rate: the percentage of the workforce not in employment.

NHI has the potential to positively impact both of these factors. More adults may become able to work through improved health (and so enter the workforce), and those who are unemployed because of ill health (but still looking for work) may improve their employability.

17 Bahamas Department of Statistics, Population projections 2010 – 2040, Government of The Bahamas (2015)

Table 1: Population projection (adjusted) under the 'No NHI' scenario (Dept. of Statistics 'low' projection) ('000s)

	2015	2020	2025	2030	2035	2040
Children (0-14)	90.6	86.8	84.0	86.9	87.6	86.4
Working age (15-64)	254.9	270.8	281.6	282.9	283.9	283.4
Old age (65+)	24.1	28.7	36.5	46.9	56.2	65.4
TOTAL	**369.7**	**386.3**	**402.0**	**416.6**	**427.7**	**435.2**

Table 2: Population projection under the 'the primary care phase of NHI' scenario (Dept. of Statistics 'medium' projection) ('000s)

	2015	2020	2025	2030	2035	2040
Children (0-14)	90.6	89.2	89.1	93.3	94.6	93.9
Working age (15-64)	254.9	271.5	283.4	286.8	291.2	294.3
Old age (65+)	24.1	28.6	36.4	47.0	56.4	65.9
TOTAL	**369.7**	**389.4**	**408.9**	**427.1**	**442.1**	**454.1**

Unfortunately, we were not able to obtain any reliable estimates to measure the extent to which ill health impacts labour force participation or unemployment in The Bahamas, and there are no studies that attempt to quantify the level of potential gain from basic health insurance.

Consequently, rates of labour force participation and unemployment are the same across the 'with' and 'without' NHI primary care phase scenarios in our model , though in reality many external factors may alter this rate during period.. Changes in employment therefore only reflect the change in the adult population, and are projected forward on the following assumptions:

- labour force participation rate: held constant from the last period of data (May 2016[18]) at 76.9%; and

- unemployment rate: match International Monetary Fund (IMF) data and projections to 2021 (the last year of the IMF forecast)[19] and held constant at 13.2% thereafter.

Productivity
Another important factor is the effect of improved overall population health (reduced morbidity) on the productivity of workers. This is expected to come through a variety of effects:

- Reduced absenteeism rates – workers need to take fewer days off due to illness or needing to care for family members that are ill

- Reduced presenteeism – workers are more productive when they are at work due to better health

- Benefits of a more experienced workforce – workers are less likely to need to retire early due to ill health, shifting the makeup of the workforce in favour or more experienced, and productive workers.

Because of a paucity of data on the latter two points, our analysis focused on absenteeism, and therefore may well be an underestimate of the potential benefits. To arrive at a projected gain, we drew on evidence around the increased sickness absence rates due to diabetes in the workforce, specifically a systematic review of the work effects of the disease from research across multiple countries.[20] In this review, the authors conclude that diabetes-related absenteeism resulted in between 2.0 and 9.4 days of lost productivity per worker per year (see Table 3).

Table 3: Absenteeism-related productivity losses (days per worker per year)

	2015	2020
Without diabetes	3.4	8.7
With diabetes	5.4	18.1
Difference	**2.0**	**9.4**

Taking the midpoint of these two estimates (+5.7 days per year due to diabetes) we projected that over time better primary care across the population should be able to reduce this difference by around one third (combining both the disease being prevented and better managed), or two days per year per case. The productivity adjustment for diabetes management is then calculated using an average of 237.3 working days per year for a Bahamian employee,[21] with the two-day reduced absence of the diabetes group equalling a 0.9% productivity increase in that group.

18 Bahamas Department of Statistics (2016), 'Labour force and household survey report May 2016'

19 International Monetary Fund (2016), 'World Economic Outlook, October 2016 – Subdued demand: Symptoms and remedies' http://www.imf.org/external/pubs/ft/weo/2016/02/

20 Breton, M-C., Guénette, L., Amiche, M.A., Kayibanda, J-F., Grégoire, J-P., Moisan, J. (2013), 'Burden of diabetes on the ability to work: A systematic review', Diabetes Care, 36:3, 740-749:

21 On the basis of: 260 weekdays (52 x 5) minus 11 public holidays (http://www.bahamas.com/holidays) minus 11.7 annual leave days, on average (http://www.doingbusiness.org/data/exploreeconomies/bahamas/labor-market-regulation)

Adjusted for the prevalence of diabetes in The Bahamas (13.3% of the population),[22] this suggests the potential for productivity gains for the Bahamian economy as a whole from diabetes management of at least +0.1%.

In order to scale up this effect for other chronic conditions where we were not able to find such good quality evidence, we carried across an equivalent projection of potential gain from diabetes management and prevention and applied it to the prevalence of other similarly chronic and debilitating non-communicable diseases (NCDs) in The Bahamas (see Table 4).

The implied scaling factor is 7.9.[23] This yields a productivity adjustment of +0.9%.[24] Note that the size of the scaling adjustment here would seem to imply a prevalence of NCDs of more than 100%.[25] Here, the interpretation is that the adjustment accounts for comorbidity i.e. chronic conditions compound for people with multiple NCDs and there are thus greater potential productivity gains for managing the multiple symptoms of these individuals.

This 0.9% productivity increase was phased in linearly from 2017 to 2023 to account for the time needed to see these population health improvements come into effect.

As a final adjustment, an additional 0.1% increase is introduced from 2020 onwards to account for shorter waiting times for primary care that it is expected employed but currently uninsured citizens will experience as a result of the primary care phase of NHI. Currently, those relying on public clinics commonly must take off a half or full day off work in order to get an appointment for themselves or a dependent. Under the

Table 4: Proportional mortality figures for chronic conditions in The Bahamas

	% from total deaths	% of deaths from NCDs
Cardiovascular diseases	33	60
Other NCDs	14	25
Diabetes	7	13
Chronic respiratory diseases	**1**	**2**
TOTAL	**55**	**100**

Source(s): World Health Organization: http://www.who.int/nmh/countries/bhs_en.pdf

new policy, private sector clinics - which are significantly more efficient and have bookable appointment systems - will be accessible to these individuals. The 0.1% productivity increase our model estimates this as represents around two and a half hours additional work per year for this section of the population. .

NHI Provision

A small but important component of the model factors in the direct economic effects of the investment that the primary care phase of NHI represents in the economy, most significantly through the addition of General Practitioners (GPs) to provide care to the newly insured population, and the staff needed to run the new National Health Insurance Authority (NHIA).

The number of additional GPs required under NHI is calculated from the rates of NHI participation from KPMG's primary healthcare model, under the medium case.[26] Across the whole of The Bahamas, this assumes NHI participation of 70% in 2017 (Year 1), reaching 100% by 2024 (Year 8). Using the assumption of a (maximum) patient-to-doctor ratio of 2,500:1, Table 5 summarises the number of additional GPs required to provide primary care to the Bahamian population under NHI.

For the accompanying costs, the above figures were combined with physician fee schedules under full and partial capitation (with fee for service dropping to zero after

2020). These GP payments were then converted to gross value added (GVA) by removing an allocation for running costs (leaving just wages/salaries/profits). Values were deflated to a 2006 price base to input into the model using the national GDP deflator projected forward based on past trends.

The other new source of employment in the analysis is the NHIA. While there are start-up requirements in the short term, our focus is on the medium-to-long term. Here we assume that the NHIA creates approximately 60 full time equivalent positions. For the salary costs of those staff, we selected a midpoint wage cost projection between all salaries being equivalent to the private sector and all being equivalent to the public sector. We assumed that 10% of these staff would be deployed from elsewhere in the sector, and converted the remaining 90% into 2006 prices (the reference year for most Bahamian economic data) which produced the GVA figure that went into the model. In terms of these 'new jobs' it is important to remember that this is a long term economic model. Therefore, the assumption is that although currently employed people will take many of these jobs, the vacant positions they leave will in turn be filled and so on.

The final set of healthcare cost assumptions concern the BRCA gene tests for cancer, laboratory and pharmaceutical costs, and high-cost tests. These were projected forward based on current prices, with the economic value-added converted to

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22 International Diabetes Federation: http://www.idf.org/membership/nac/the-bahamas

23 From 55% of all deaths caused by a chronic condition divided by the 7% attributable to diabetes.

24 Calculated as 7.9 multiplied by +0.1%.

25 Multiplying 7.9 by the 13.3% incidence of diabetes implies a prevalence of 105%.

26 The alternative NHI participation profiles differ in the rate at which the scheme achieves 100% coverage.

Table 5: Additional GP requirements for the primary care phase of NHI

	2015	2020	2025	2030	2035	2040
Population ('000s)	369.7	389.4	408.9	427.1	442.1	454.1
NHI participants ('000s)	-	332.0	408.9	427.1	442.1	454.1
Additional GPs (#)	-	133	164	171	177	182
NHI participation	**-**	**85%**	**100%**	**100%**	**100%**	**100%**

Note(s): GP requirements derived from the medium population projection (see Table 2)

GVA using a factor of 74.4% (a figure we derive by carrying across the breakdown of output in the 2014 Bahamas national accounts).[27]

In translating these overall costs to costs on government, we assume that 40% of the expenditure on NHI is funded by redirected funds and efficiency savings elsewhere in the existing Bahamian public healthcare system, with 60% needing to come through additional government expenditure financed through increased revenues, debt or partnerships with the private sector. In terms of these 'new jobs' it is important to remember that this is a long term economic model. Therefore, the assumption is that although currently employed people will take many of these jobs, the vacant positions they leave will in turn be filled and so on.

Household saving and consumption
Several countries, most notably China, have introduced basic national health insurance as an explicit means of stimulating domestic demand in the economy.[28] [29] [30] The logic runs that as insurance coverage is given to the population, they have less need for precautionary savings towards possible future catastrophic healthcare bills, and use the money instead to consume additional products and services. While there are no good quality studies to measure this effect, and savings data in most countries (including The Bahamas) are far too noisy to detect a trend, a small, conservative effect on demand has been included in the model.

In the model, we assume a small increase in expenditure of B$100 per household per year from lower precautionary saving. Using the latest household expenditure survey and household savings data, uprated to 2016, this is equivalent to a 0.3% increase in household consumption.[31] We phase this effect in to match the growth in NHI participation over time (to 85% in 2020 and 100% from 2024 onwards). While this effect is small, it was thought important to include it for illustrative effect as it does have a small impact on household finances over time. In 2016 terms, this 0.3% change represents around B$30 per person in additional demand. In the model, this does not go on to affect GDP but we acknowledge that there is likely to be the potential for a (small) multiplier effect (i.e. slightly higher GDP from the additional expenditure).

One factor not included in the model is the effect of spending that would have gone towards out-of-pocket healthcare costs for families that do experience a

health need (as opposed to saving for future risk). It was thought that because this initial phase of NHI focussed mainly on primary care this effect would probably be quite small in terms of redirected spending economic growth. It may, however, be an important factor to include in economic impact models of future NHI phases, where more expensive hospital services are covered.

27 Bahamas Department of Statistics (2016), 'National accounts report 2015'

28 Chamon M & Prasad E, Why are savings rates of urban households in China rising?, International Monetary Fund Working Paper (2008)

29 Kuan CM & Chen CL, Effects of National Health Insurance on precautionary saving: New evidence from Taiwan, Empirical Economics 44:2 p921-943 (2013)

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31 Bahamas Department of Statistics (2016), 'Household expenditure survey 2013 report'

Results

The most significant economic effects to GDP in our model result from changes in the size of the employed workforce (through reductions in mortality) multiplied by increases in productivity (as a result of reduced morbidity).

As Table 6 shows, the economic benefits accrue gradually over time, adding 2.7% of GDP (or around B$250 million in 2006 terms per year) in 2030, and almost 5% of GDP within a generation (4.8%, or around B$500m in 2006 terms in 2040).[32] This is purely from the primary care phase of NHI currently proposed, with additional NHI expansions that are planned during this period likely to produce additional growth on top.

Because around two thirds of this economic growth comes from population growth, the economic gains measured in per capita terms are less strong since the proceeds of growth are spread across more people. They are also susceptible to changes in the ratio of workers to dependents. This means that economic gains per person are stronger in the early years of the policy (0.6% higher GDP per capita in 2020), then tail off to near-zero towards 2030 (due to more children and older people), before increasing again to 0.5% per capita by 2040 (as a small 'demographic dividend' hits).

This is not to say that in this middle dip the benefits of NHI are negligible, of course. Under the NHI scenario, well-being is much improved from better health. Viewed another way, a smaller proportion of people working is required to maintain average living standards, and even if the average household size were to increase over the period, GDP

Table 6: Macro-level GDP results

	2015	2020	2025	2030	2035	2040
without NHI	7,793	8,333	8,794	9,231	9,650	10,081
with NHI	7,793	8,449	8,978	9,479	10,008	10,566
Difference (%)	0.0%	1.4%	2.1%	2.7%	3.7%	4.8%

Table 7: GDP per capita results

	2015	2020	2025	2030	2035	2040
without NHI	21,080	21,572	21,874	22,155	22,559	23,162
with NHI	21,080	21,698	21,955	22,197	22,635	23,270
Difference (%)	0.0%	0.6%	0.4%	0.2%	0.3%	0.5%

(income) per household would be higher.

Finally, it is important to remember that the effects in Table 6 are averages for the Bahamian population as a whole. To the extent that those in higher income groups are more likely to already have private health insurance, these people are unlikely to see direct improvements in their income as a result of better health. Those benefits should be more concentrated among lower income groups who would not otherwise be able to afford healthcare. Our model was not able to quantify these differential benefits in terms of income strata, but it is clear that the gains will be progressive.

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32   The value of the monetary benefits is sensitive to the baseline, the percentage changes between the with and without NHI cases are not.

Breakdown of the model's macro-level results by effect size

In terms of the breakdown of the economic growth produced by the primary care phase of NHI, the largest single factor is population growth – specifically the growth of the adult population – followed by improvements to average productivity. The final portion of the growth relates to the addition of 182 GPs to the workforce by 2040 required to enable the access to primary care required under NHI. Because GPs are highly skilled workers they have a much higher labour productivity (and therefore GVA) than the average healthcare worker. Under the assumption that no other supporting infrastructure of staff are required for the policy (aside from NHIA staff), this raises the average productivity of the healthcare sector by more than the 1% gained elsewhere in the economy.

In summary, therefore, the 4.8% increase in GDP in 2040 comprises:

• higher population from lower mortality, leading to higher employment: +3.2%;

• higher productivity in the healthcare industry from the introduction of more highly-skilled workers (GPs): +0.5%; and

• higher general productivity from improved population health and reduced clinic waiting times: +1%.

Table 8: Summary of population, labour force and productivity assumptions

Population ('000s)						
	2015	2020	2025	2030	2035	2040
With NHI Primary Care Phase	369.7	389.4	408.9	427.1	442.1	454.1
No NHI	369.7	386.3	402.0	416.6	427.7	435.2
Difference (%)	-	0.8%	1.7%	2.5%	3.4%	4.3%

Table 9: Summary of population, labour force and productivity assumptions

Adult Population ('000s)						
	2015	2020	2025	2030	2035	2040
With NHI Primary Care Phase	279.1	300.2	319.8	333.8	347.6	360.2
No NHI	279.1	299.5	318.0	329.8	340.1	348.8
Difference (%)	-	0.2%	0.6%	1.2%	2.2%	3.2%

Note(s): Differences are expressed as the percentage difference from the 'without NHI' case (adjusted low) to the 'with NHI' case (medium)

Sector-specific impacts

Impact on individuals and households

Before considering the economic benefits to individuals and households that it is estimated the primary care phase of NHI will produce, it is important to consider some of the important effects that are not included in the model due to a lack of data. These include:

- The possible long-term economic impact of improved child health resulting in better rates of school attendance and cognition.[33] [34]

- The effects an improved safety net will have on household wealth, from families being less likely to need to sell assets or use savings to pay for care.[35]

- Direct household savings through lower user fees needed at the point of seeking covered healthcare services.[36] [37]

- A reduction in health inequalities and progressive improvements in population health.[38]

The impact on individuals in the model is therefore largely a function of:

1. A rise in household income as a result of the rise in GDP (higher employment from the larger population but also higher productivity affecting incomes).

2. A small reduction in precautionary saving as a result of additional health insurance, increasing domestic consumption by around $100 per household, per year.[39]

Because of the lack of detailed data on household incomes in The Bahamas, the model simply assumes that higher GDP translates one-for-one into higher income: a 4.8% increase in GDP in 2040 equates to a 4.8% increase in household incomes. This reflects the increase in employment and the increases in productivity (which raise average income). However, we also assume that households spend at least a little more from a reduction in precautionary saving.

Combining these factors, the final effect on household consumption for The Bahamas as a whole totals a 5.1% increase in consumption in 2040.

In per capita terms, this yields a mild increase in consumption over the increase in GDP per capita alone: +0.4% in 2030 and +0.7% by 2040.

Impact on firms

Access to primary care on a timely basis will allow workers to treat small health problems before they become big problems, and to better manage chronic conditions. Instead of taking a day off work to access healthcare, the employee may only require a couple hours. Having the illness treated at a clinic will be more efficient and effective than allowing it to progress and face complications along with an extended leave from work. Healthier workers ultimately are more productive and have lower rates of absenteeism.

The limited evidence on how economic effects of NHI-type policies are shared between economic producers inhibited how much detail could be included in our model on the impact on firms. Important factors that do not feature in our analysis include:

- A slower rate of growth in the costs of employers' health insurance premiums over time, through the introduction of a new public insurer making the sector more competitive, and larger average risk pool sizes for existing insurers.[40]

- Reduced (re)training costs as a result of a lower rate of staff leaving the workforce due to death, ill health, or caring responsibilities.

- Saving from employers being able to shift the share of healthcare benefits which go towards primary care onto other 'enhanced' healthcare services for their workforce, such as physiotherapy or wellness programmes.

- The long-term benefits of more flexible workforce through reduced 'job lock', which disadvantages small firms through not being able to compete with larger employers for health insurance benefits, and acts as a strong disincentive for entrepreneurs to start small businesses or become self-employed. 'Job lock' can be a drag on innovation and frustrate employers' ability to hire the best talent.[41]

What effects remain are almost exclusively a function of the productivity

33   Vogl T, Education and health in developing economies, Princeton University and NBER (2012)

34   Bloom D, "Education, Health and Development" in Educating All Children: A Global Agenda ed. Coen JE et al, p535-558, American Academy of Arts and Sciences, (2006)

35   World Health Organization & World Bank, Tracking Universal Health Coverage: First Global Monitoring Report, World Health Organization (2015)

36   OECD, Health at a glance 2015, OECD, p124-125 (2015)

37   Yates R, Universal health care and the removal of user fees, The Lancet 373:2078-81 (2009)

38   Rodney AM & Hill PS, Achieving equity within universal health: A narrative review of progress and resources for measuring success, International Journal for Equity in Health, 13:72 (2014)

39   International Monetary Fund, Does government health and education spending boost consumption?, International Monetary Fund Asia Pacific (2010)

40   Maeda A et al, Universal health coverage for inclusive and sustainable development, World Bank (2014)

41   See Alan C. Monheit & Philip F. Cooper, Health Insurance and Job Mobility: theory and Evidence, 48 Indus. & Lab. Rel. Rev. 68 (1994)

increases from having a healthier workforce and better access to primary care. **The model estimates productivity to rise gradually over the first seven years of the primary care phase of NHI, to reach an additional 1% by 2024.** This combines reductions in sickness and caregiver leave through prevented and better managed chronic diseases, the benefits of a more experienced workforce (through reduced early retirement), improved overall worker health, and less need to take time of work to see a doctor (see Assumptions).

It was not possible to estimate the extent to which this productivity would translate into additional future profitability or price increases – too many other factors are at play. However, given that labour makes up a minority share of industry costs,[42] the potential change in wage costs for firms that we forecast is around 0.2% by 2040 when comparing the with and without NHI cases.

Impact on government
Finally, through the modelling we also attempted to generate an estimate of the effect NHI will have on future governments' finances, looking at how higher economic growth might translate into higher government revenue.

Based on current rates of taxation our model suggests that NHI could generate sufficient GDP growth to raise around B$110 million in additional receipts per year by 2035.

However, it is unlikely that these increases would be sufficient to fully recover the annual costs of the policy, since government will also need to provide public services to the larger

population that would exist as a result of the policy (education, sanitation etc.).

The scale of the difference between government income and expenditure is one of the most sensitive measures to other variables in the economy, and is dependent on future decisions by government over how it chooses to pay for NHI. The mix of tax rises, efficiency savings, spending cuts and private partnership models that are used have a significant impact on how the primary care phase of NHI impacts the public purse. Over- or under-spends in the cost of the policy will also have an impact on government finances, though they would not significantly affect the headline GDP findings outlined in this report.

There were also a number of critical factors that we were not able to model that impact on government finances, including potential later retirement or reductions in the unemployment rate which would affect welfare spending over time. Nor have we estimated any effects from the investment in primary care leading to a lower growth in demand for (more expensive) secondary/tertiary healthcare services, though there is strong evidence to suggest this will be the case.[43]

Further detailed analysis that is outside the scope of this study is recommended to better understand the different options available for the long-term financing of NHI. Nonetheless, looking at the figures it is unlikely that the scale of additional tax receipts generated by the primary care phase of NHI will be large enough to fully cover the costs of the policy. Put another way, the policy is an investment in The Bahamas' economy, but should not be seen as a future engine of revenue for government itself.

42 Less than 25%, with the exception of 'Community, social and personal services', for which the share is just over 40%. See Bahamas Department of Statistics (2016), 'National accounts report 2015'

43 Starfield B et al, Contribution of primary care to health systems and health, Millbank Quarterly, 83:3 p457-502 (2005)

Looking ahead

The primary care phase of NHI is just the foundation of what will one day become a fully comprehensive system of coverage for all legal Bahamian residents. As such, the economic and other benefits described in this report are just the first stage of what UHC will add to national prosperity and wellbeing.

While it was out of the scope of this study to examine in detail how the benefits of future phases of NHI might compare with the primary care phase, it is nonetheless possible to share a few early observations.

As hospital, mental health, community and other forms of healthcare are added to the NHI benefits package in future years, the following effects are likely that differ from the primary care phase:

- There is likely to be a much more significant impact on the finances of individual households that need care, as secondary and tertiary services are much more likely to have a catastrophic financial impact on families;

- Because hospital services represent the bulk of current healthcare costs, future phases of NHI which cover this will have a much larger effect on the costs of health insurance to employers and employees in The Bahamas. Global evidence suggests that with the addition of a public option and standardized basket of services prices are likely to go down, but by how much will need careful analysis;

- It is likely that future NHI phases will require substantial investment in the physical, digital and human infrastructure of the health system of the Bahamas. Future models will need to take into account the implications of this for non-health job creation as well as whether investment will come from government or private sources;

- Because the benefits of secondary and tertiary medicine accrue disproportionately to older people, who are not in work, future models of economic impact will need to think carefully about how health improvements to the non-working population will affect the economy; and

- The extent to which residents currently go overseas for treatment will become more relevant, as this currently represents a negative effect on the Bahamas' balance of payments. If more hospital care can be kept on shore as a result of future phases this will have a positive impact on the country's economy.

Acknowledgements

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