Economic Costs of Absenteeism, Presenteeism and Early Retirement Due to Ill Health: A Focus on South Africa

Report to the US Chamber of Commerce

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Letter from Catherine Mellor, Executive Director, Global Health Initiative

Today's government and business leaders are confronting a new challenge that is impacting economic growth and commercial success: employee health. In developed and developing countries alike, adult populations are facing alarming increases in rates of chronic diseases, which claim 63% of all deaths. Mostly adult occurring, chronic diseases like cardiovascular disease, cancers, diabetes and respiratory disease, hit workers in their prime years of productivity and can create long-term chronic conditions, withdrawal from the workforce, diminished family resources, and early death.

The short-term budget implications of this crisis are alarming. But as this report shows, the costs related to lost productivity are much more significant, and have the potential to derail needed development gains and generations of prosperity. In South Africa, these losses equate to a total of 6.7% of GDP in 2015, increasing to 7.0% by 2030. The results are driven by the interaction of a slowly ageing workforce and a steadily increasing burden of chronic disease.

The single most important takeaway from this report is that there is an urgent need for greater action by all stakeholders in South Africa. In order to succeed in combating the challenges of modern disease; governments, civil society, and business must integrate their expertise and resources in support of health and wellness.

The U.S. Chamber of Commerce is dedicated to doing just that. With the support of our members, large and small, we are committed to promoting greater cooperation between government and private health stakeholders, championing the role of the employer in establishing healthy habits, and advocating for access to innovative and efficient health care products and services.

We are committed to our engagement in South Africa and we hope this study will serve as a call to action for all interested parties.

Warm regards,

Catherine Mellor
Executive Director, Global Health Initiative
U.S. Chamber of Commerce

Executive Summary

This report provides estimates of the economic cost due to productivity losses arising from absenteeism, presenteeism and early retirement due to ill health. For South Africa, these losses equate to a total of 6.7% of GDP in 2015 as shown in Table ES 1, increasing to 7.0% of GDP by 2030.

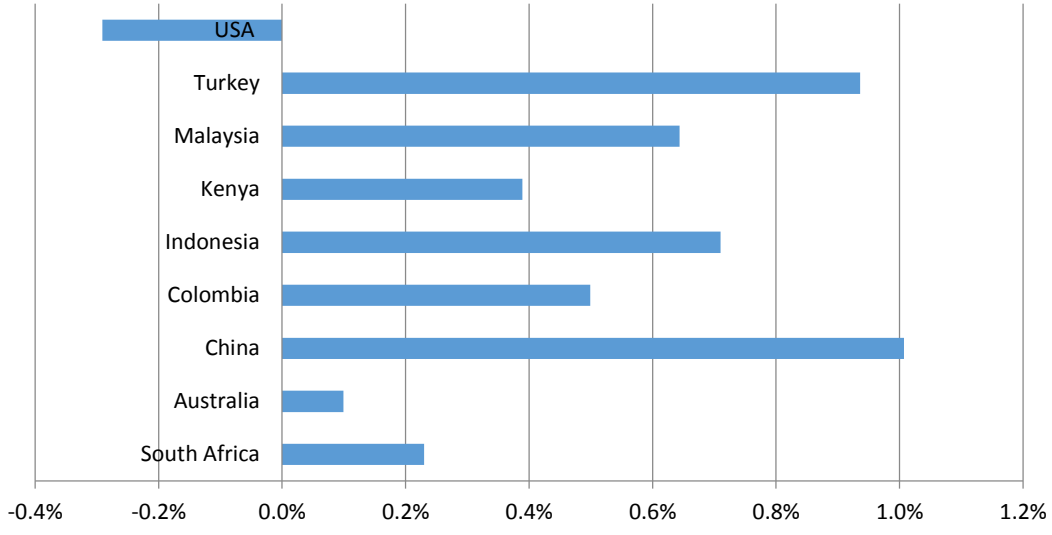
Table ES1 Total economic impact of absenteeism, presenteeism and early retirement

	2015			2030		
	Presenteeism & absenteeism	Early retirement	Total	Presenteeism & absenteeism	Early retirement	Total
South Africa	2.0%	4.7%	6.7%	2.1%	4.9%	7.0%
Australia	3.0%	4.4%	7.4%	2.9%	4.5%	7.5%
China	2.1%	3.4%	5.5%	2.8%	3.7%	6.5%
Colombia	2.4%	4.8%	7.2%	2.7%	5.0%	7.7%
Indonesia	1.9%	4.6%	6.5%	2.4%	4.8%	7.2%
Kenya	1.6%	4.4%	6.1%	1.9%	4.6%	6.5%
Malaysia	1.7%	4.5%	6.2%	2.0%	4.9%	6.9%
Turkey	1.7%	5.2%	6.9%	2.3%	5.5%	7.9%
USA	3.5%	5.0%	8.5%	3.1%	5.1%	8.2%

Source: VISES estimates.

This puts South Africa below average for this group of nine countries, that includes some South East Asian, African and South American peers, as well as some upper income (and demographically mature) developed countries from other parts of the world. Figure ES1 shows that the estimated increase between 2015 and 2030 is considerably lower than many comparator countries.

Figure ES1 Change in % GDP total absenteeism + presenteeism + early retirement, 2015-30



Source: VISES estimates.

For countries with above average estimates, these figures are driven by the interaction of an ageing workforce and the high burden of chronic disease, now prevalent in developing countries. South Africa is different. It has a young population, but high disease burden. Although chronic disease is high in relative terms, communicable diseases, especially HIV/AIDS has been especially damaging.

The proportion of South Africa's work force aged 50-64 is only 15%, less than average for this group of countries, and it is also ageing more slowly than average. The proportion of its workforce aged 50-64 years is projected by the ILO to increase to 15.3% by 2030, an increase of 0.3 percentage points compared with increases of 1.0 percentage points and 0.9 percentage points for China and Turkey, respectively. Although as its population ages and they move into age groups with higher levels of chronic disease (see Figure 5), the impact of this process is less than comparator countries.

Context of the Study

In spite of very different circumstances, most countries face three challenges in common:

- their populations are ageing, in different ways and to different degrees;
- there is an existing high prevalence of non-communicable diseases (NCDs), such as heart and respiratory disease, stroke, cancer and mental illness, particularly for older age groups; and
- many risk factors for the future incidence of NCDs are high, and in some cases continuing to rise.

Taken together, these factors already impose heavy costs on business, governments and individuals, and threaten much greater costs in the future. The economic costs arise largely because, due to ill health, people aren't able to work as much as they would like. They may either be sick and absent from work (absenteeism), present at work but not working at full capacity due to illness (presenteeism), or retired prematurely, say from aged 50-64 years due to ill health (early retirement due to ill health). The economic costs on productivity imposed by each of these groups has been modelled and included in this report. There are also others who may not work at any time due to an incapacity and/or health condition which has been present for most of their lives. This group is not explicitly covered in this report.

Following an initial report for the APEC Business Advisory Council (ABAC) and the Life Sciences Innovation Forum (LSIF) in 2014, VISES has prepared four reports, Sheehan et al. (2014), Sweeny et al. (2014) and Rasmussen et al. (2015a, 2015b), now covering eighteen countries on three aspects of these economic costs mentioned above:

- absenteeism;
- presenteeism; and
- early retirement due to ill health.

This summary report draws on these earlier reports with a focus on South Africa together with eight other comparator countries chosen as most relevant from the eighteen included in a global study prepared for the US Chamber of Commerce (Rasmussen et al. 2016).

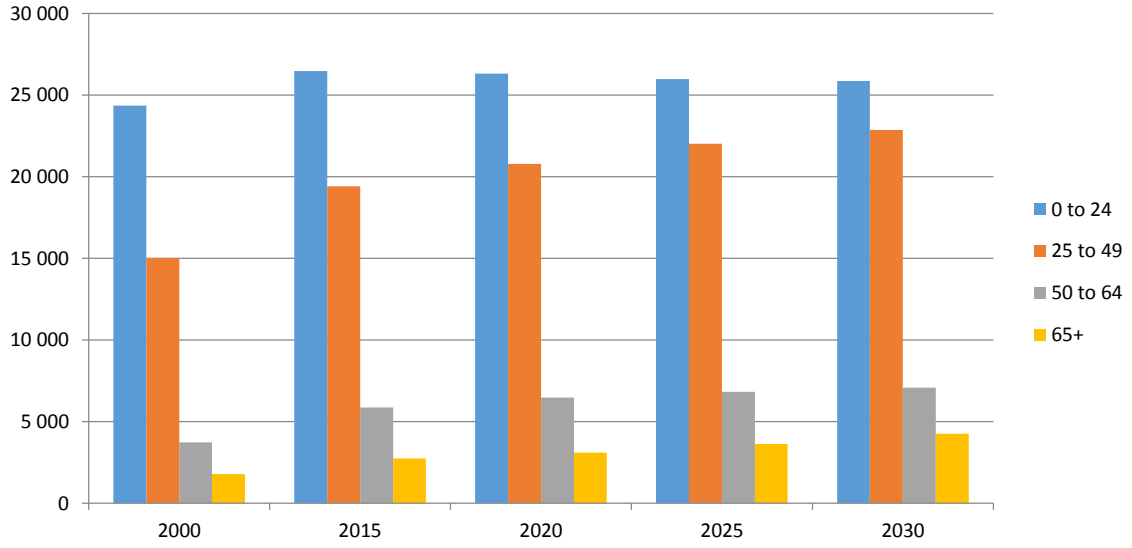
Population and Labour Force Ageing

Population ageing

While no single indicator can capture the diversity of ageing patterns, the proportion of the population that is aged 45 years and over provides one summary indicator. The latest UN population projections (United Nations 2015) shows that for South Africa, this proportion is expected to increase by 4 percentage points from 20.9% to 25% between 2015 and 2030. While this is modest when compared with China and USA, which is expected to have 46.8% and 43.6% respectively of their populations aged over 45 by 2030, South Africa is still a relatively youthful country. In 2015, about 49% of its population was under 24 years of age, and 43% will be less than 24 years of age by 2030. By comparison, only 31% of the population of the US will be less than 24 years of age by 2030.

Figure 1 shows that of the total population of South Africa, those at the prime working age of 25 to 49 years are gradually increasing from 33% of the population in 2000 to 38% in 2030. However, those approaching retirement (50 to 64) will represent only 12% of the population by 2030. HIV/AIDS accounts for 55% of deaths in those aged 25-29 years, 62% aged 30-34 and 35-39, and 57% aged 40-44 years. The total number of deaths in 2015 from HIV/AIDS for the age cohort 25 to 44 was 86,516, thus reducing the population approaching retirement (IHME 2017) (see Box 1 for details).

Figure 1 Population of South Africa, 2000 to 2030, by age cohorts



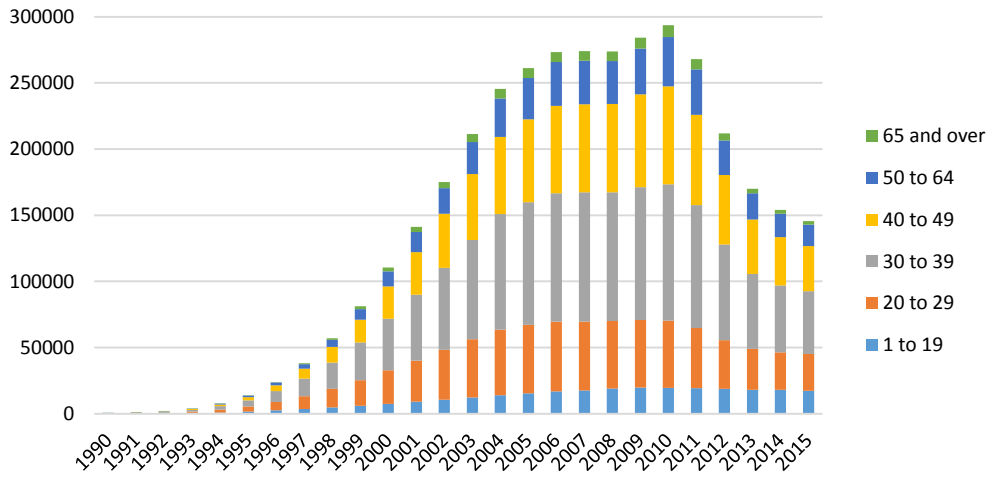
Source: UN (2015).

Box 1 AIDS epidemic in South Africa

AIDS has had a profound impact on the population structure and economic capacity of South Africa. In the period 1990 to 2015, over 3.7 million people died of AIDS (IHME 2017). Most of these were of working age (3.3 million aged 20-64). Almost 80% (2.7 million) of the total deaths were prime working age (20-39). In the 30-39 age group, AIDS was the cause of almost 80% of deaths.

As shown in the figure below, deaths peaked in 2010 at 294,000, and have declined rapidly to 170,000 in 2013 with the impact of anti-viral drugs. The rate of decline has slowed, however, and almost 145,000 people died of AIDS in 2015.

AIDS deaths by age, South Africa, 1990-2015



Source: IHME (2017).

The cumulative effect of high death rates amongst high at risk cohorts reduced the population aged 30-39 by 13.5% by 2015, and projecting the age structure forward using conservative estimates of AIDS deaths by age to 2030 would result in the reduction being more than 14.5%.

Estimated reduction in population by age by 2030 due to AIDS*

Age cohort	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
% reduction	6.9%	12.8%	14.6%	14.7%	12.9%	11.8%	10.6%	7.3%	4.8%

*Number of deaths from AIDS assumed to half each 5 year period from 2015 to 2030.

Because the population reduction is so heavily concentrated in the working age population, this has major implications for the size of the labour force. By 2030, the estimated impact of AIDS is to reduce the estimated labour force by 12% in 2030. At average rates of per income per worker, this would reduce total GDP in 2030 by over US$100 billion or 12% of GDP.

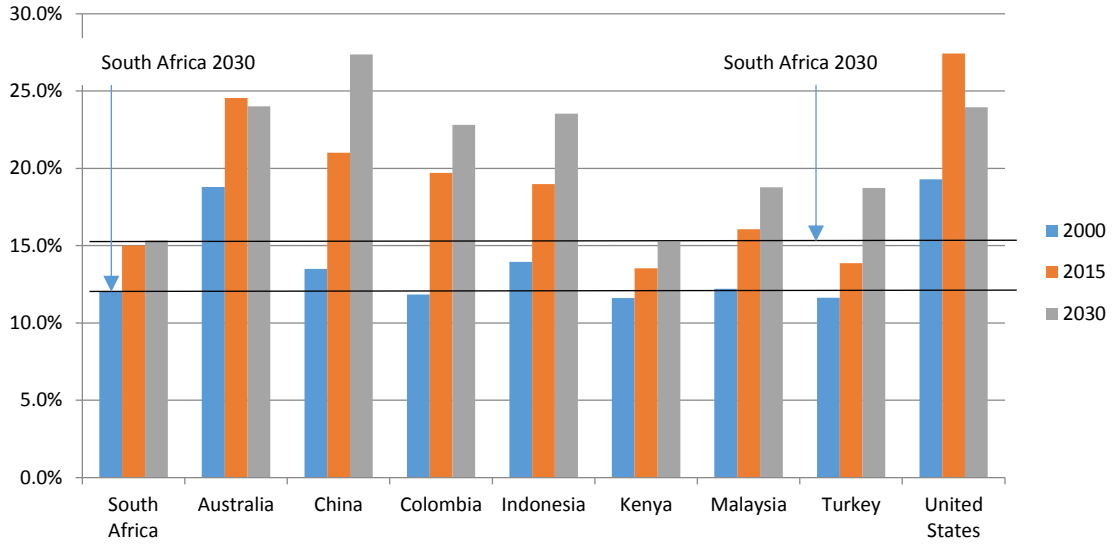
However, the economic impact of AIDS/HIV is likely to be more complex over time than simply its impact on labour supply. Economic growth is eroded by a decline in human capital, for example, years at school (Lamontagne et al. 2010) and broader aspects of economic development (Santaeulalia-Llopis 2008). Thurlow et al. (2009) projects that by 2025 GDP will be 37% lower as a result of HIV/AIDS (p. 12). This incorporates reduced productivity as well as the reduction in labour supply

Implications for labour supply

As discussed, in contrast to most countries in our sample, South Africa does not have a rapidly aging population. This reduces the impact of NCDs. For most countries with ageing populations, the effect of ageing has significant implications for the incidence of NCDs since they have higher rates of prevalence in older age groups. These higher rates of NCDs contribute to the higher levels of absenteeism, presenteeism and early retirement.

Figure 2 focuses on the pre-retirement workforce aged 50-64. It shows the changes in this age group as a proportion of the total labour force over the period 2000 to 2030 (projected). For South Africa, it shows that the proportion of those aged 50-64 years in 2000 was comparable to many other countries in this group, including countries as diverse as Colombia, Malaysia and Turkey, although significantly below the advanced economies of US and Australia. Between 2015 and 2030, the proportion of the work force in South Africa aged 50-64 years has hardly changed. With the exception of Kenya, it is well below the average of the comparator countries. The proportion of those aged 50-64 for both Malaysia and Turkey will have increased to almost 19% by 2030.

Figure 2 Proportion of the labour force aged 50-64 years, nine countries, 2000, 2015 and 2030 (projected)



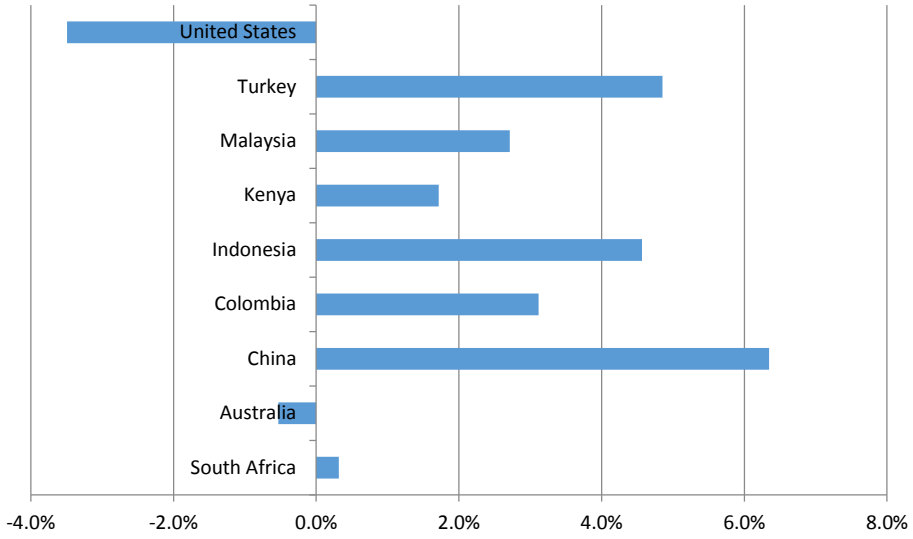
Source: ILO (2016).

The reasons for the low rate of ageing in the work force is complex (see Figure 3). South Africa has a combination of a young population and declining life expectancy in South Africa in contrast to rising rates in countries such as Turkey and Malaysia.

Life expectancy in South Africa has declined since 1990, for males in particular, from 60.1 years to 58.6 years in 2015. By comparison life expectancy for Kenyan males increased over the same period to 62.8 years, Indonesians to 69 years and the United States of America to 76.7 years. The effect of AIDS has been largely to reduce the proportion aged 20-39 and as these cohorts age they depress the proportion

aged over 50-64. As discussed in the Box, HIV/AIDS is the leading cause of death, premature death (YLL) and disability (YLD) in South Africa in 2015 (IHME 2017).

Figure 3 Increase in the projected proportion of the labour force aged 50-64, nine countries, 2015-2030



Source: ILO (2016).

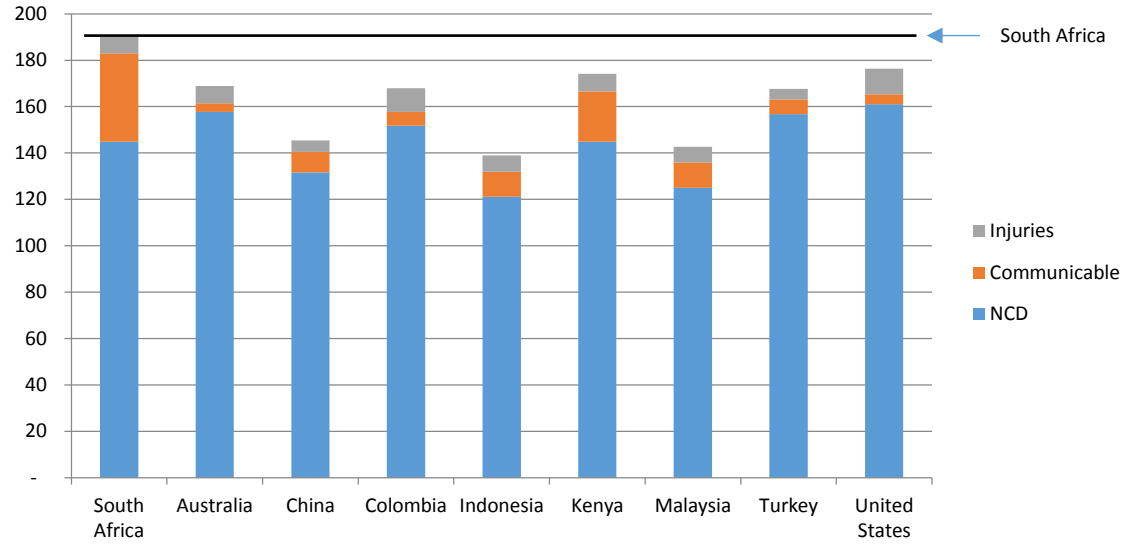
Burden of disease

The WHO Global Burden of Disease study (Murray et al. 2015) estimates both prevalence and severity of disease. It uses the number of years lived with disability (YLD) as an indicator of the impact of morbidity arising from disease. The results are grouped in three broad sequelae: communicable maternal, perinatal and nutritional conditions; non-communicable diseases (NCDs); and injuries.

Figure 4 shows the burden of disease for 2013 for South Africa and the other selected countries for those in their pre-retirement years, aged 50-65. The figure shows that the burden of disease, as measured by YLDs, is highest for South Africa followed by the United States, Kenya and Australia. Its total disease burden is 190 per 1000 population and is relatively high due to much higher than average YLDs for NCDs and communicable diseases, largely HIV/AIDS.

Overall, HIV/AIDS is the leading cause of YLDs in South Africa, but it is slowly declining. This is followed by lower back pain, sense organ diseases, depressive disorders and diabetes, which have all increased over the last 10 years. Kenya has next highest burden of communicable diseases. Its leading cause of YLDs for communicable diseases is iron-deficiency anaemia, followed by HIV/AIDS and Schistosomiasis and Other Neglected Tropical Diseases which have all also declined over the last 10 years (IHME 2017).

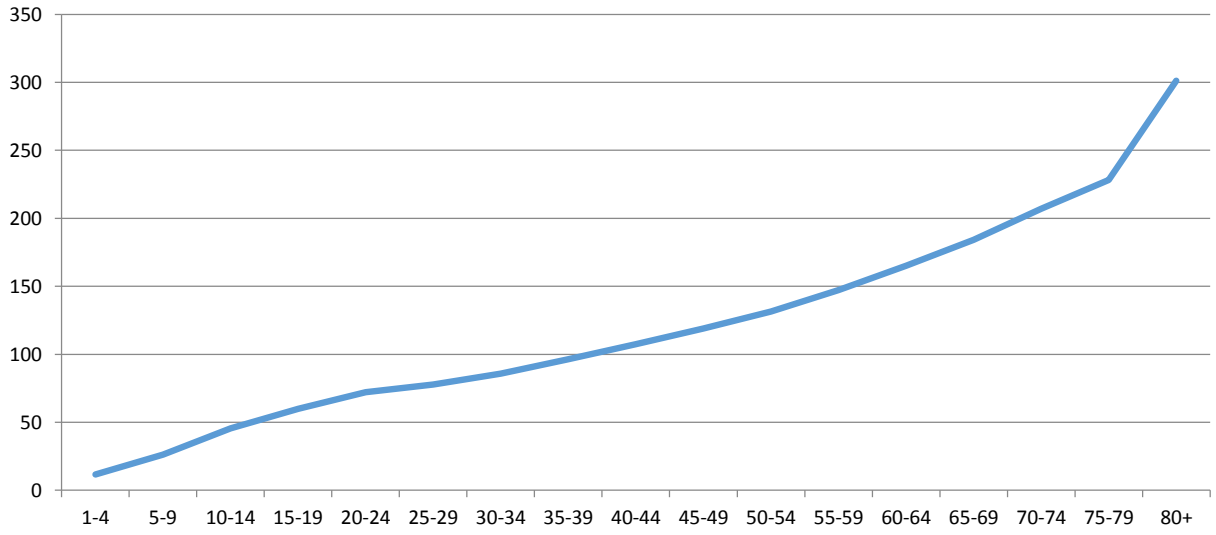
Figure 4 Burden of disease by cause (YLDs per 1000) of those aged 50-64, South Africa and selected countries, 2013



Source: IHME (2016).

While NCDs are less significant for South Africa, Figure 5, nonetheless, illustrates the twin problems of ageing and rising disease burden for South Africa. The disease burden rises sharply with age. For South Africa, the age adjusted burden at age 65 is about 54% higher than at age 45.

Figure 5 NCD disease burden by age and major cause (YLDs per 1000), South Africa, 2013



Source: IHME (2016).

Estimating the Worker Attendance Costs of NCDs

Modelling methodology

The modelling methodology is based on estimating the reduction in productive capacity due to the impact of ill health on the workforce as a result of asenteeism, presenteeism and early retirement.

The modelling of the impact of NCDs is undertaken for 13 NCDs listed in Table 1 that were identified as most relevant to reductions in labour force participation and productivity using the disease descriptions from the 2010 Global Burden of Disease study (Murray et al. 2012). The disabilty weight indicates the severity of each disease.

Table 1 Disability weights and absenteeism and presenteeism assumptions, twelve countries

Disease	Disability weight	Per cent productivity loss due to absenteeism per employee per year	Per cent productivity loss due to presenteeism per employee per year
Ischemic heart disease	0.13013	2.8	6.8
Ischemic stroke	0.30300	2.8	6.8
Hemorrhagic and other non-ischemic stroke	0.30300	2.8	6.8
Diabetes mellitus	0.09463	0.8	11.4
Chronic obstructive pulmonary disease	0.19667	6.1	17.2
Asthma	0.05600	5.0	11.0
Migraine	0.43300	4.5	20.5
Tension-type headache	0.04000	4.5	20.5
Major depressive disorder	0.23000	10.7	15.3
Dysthymia	0.11000	10.7	15.3
Osteoarthritis	0.09100	2.5	11.2
Rheumatoid arthritis	0.33733	2.5	11.2
Neoplasm	0.32150	7.0	8.5

Sources: Murray et al. (2012), Salomon et al. (2012) and Goetzel et al. (2004).

To calculate the economic loss due to morbidity suffered by people in the labour force, one of the key aspects of the model is to quantify the impact of disease on labour force participation and on productivity at work. For this, we use estimates by Goetzel et al. (2004) on productivity loss due to absenteeism and presenteeism by disease fitted to the disease categories used in the modelling (Table 1). An extensive review of the literature in the various countries on these issues has been conducted for this project, but no better source of such estimates has yet been identified.

Multiplying the GDP per person in the labour force estimates by the loss in productivity from a disease, gives the estimated reduction in GDP per person attributable to a particluar disease. Multiplying this by the prevalence in the labour force of that disease, gives an estimate of the annual loss in GDP from that disease.

Interpreting the estimates

The overall estimates of the GDP losses arising from deaths (from 2015 onwards) and from absenteeism and presenteeism from the prevalence of NCDs in the actual and potential workforce are summarised in Table 2.

In interpreting these estimates, it is important to note that they primarily reflect the pattern of ageing of the population of labour force age in the various countries, and the level of age standardised NCD mortality and non-fatal prevalence rates. In countries such as the United States, where ageing is well advanced, the cost by 2015 is already relatively high (5% of GDP) and the future growth in cost more limited. This in part reflects the fact that many of the costs of the interaction of ageing and NCDs are felt beyond the years of labour force age.

The economic cost to South Africa of these factors is also quite high, rising from 4.7% to 4.9% of GDP over the period 2015-2030. Its workforce is ageing at one of the lowest rates (Figure 2).

Table 2 Estimates of lost GDP from absenteeism and presenteeism, South Africa and selected countries, 2015 to 2030

Country	Year	Absenteeism	Presenteeism	Total	Country	Year	Absenteeism	Presenteeism	Total
South Africa	2015	1.41	3.31	4.72	**Kenya**	2015	1.37	3.05	4.42
	2020	1.42	3.34	4.76		2020	1.38	3.08	4.46
	2025	1.43	3.38	4.81		2025	1.39	3.12	4.51
	2030	1.44	3.43	4.87		2030	1.4	3.16	4.56
Australia	2015	1.28	3.13	4.41	**Malaysia**	2015	1.39	3.14	4.53
	2020	1.3	3.17	4.47		2020	1.41	3.21	4.62
	2025	1.31	3.2	4.51		2025	1.44	3.3	4.74
	2030	1.31	3.23	4.54		2030	1.47	3.41	4.88
China	2015	0.94	2.43	3.37	**Turkey**	2015	1.6	3.63	5.23
	2020	0.97	2.53	3.5		2020	1.62	3.71	5.33
	2025	1	2.64	3.64		2025	1.64	3.8	5.44
	2030	1.01	2.7	3.71		2030	1.65	3.87	5.52
Colombia	2015	1.5	3.31	4.81	USA	2015	1.46	3.52	4.98
	2020	1.52	3.37	4.89		2020	1.46	3.55	5.01
	2025	1.53	3.42	4.95		2025	1.47	3.58	5.05
	2030	1.54	3.47	5.01		2030	1.48	3.6	5.08
Indonesia	2015	1.37	3.18	4.55					
	2020	1.38	3.25	4.63					
	2025	1.4	3.31	4.71					
	2030	1.41	3.37	4.78					

Source: VISES estimates.

Impact of Ill Health on the Ability to Work

Ill health prevents some people from working, and others are restricted in the amount of work they can undertake. In developed countries, such as the US and Australia, there are well developed systems for both recognising the impact of ill health on the ability to work and providing income support commensurate with the level of disability. Most developing countries also have systems and processes for

identifying and supporting those in need arising from ill health, but they are more restrictive than those available in the developing countries.

Rasmussen et al. (2015a, 2015b) provide a discussion of the different definitions of disability adopted by different countries and their impact on the estimated size of the disabled populations. Overall, the implications of these different definitions have been to underreport the size of disabled populations in many developing countries. The methodology adjusts for these differences using the results of the Global Burden of Disease study referred to earlier in this report.

The Economic Loss Due to Early Retirement

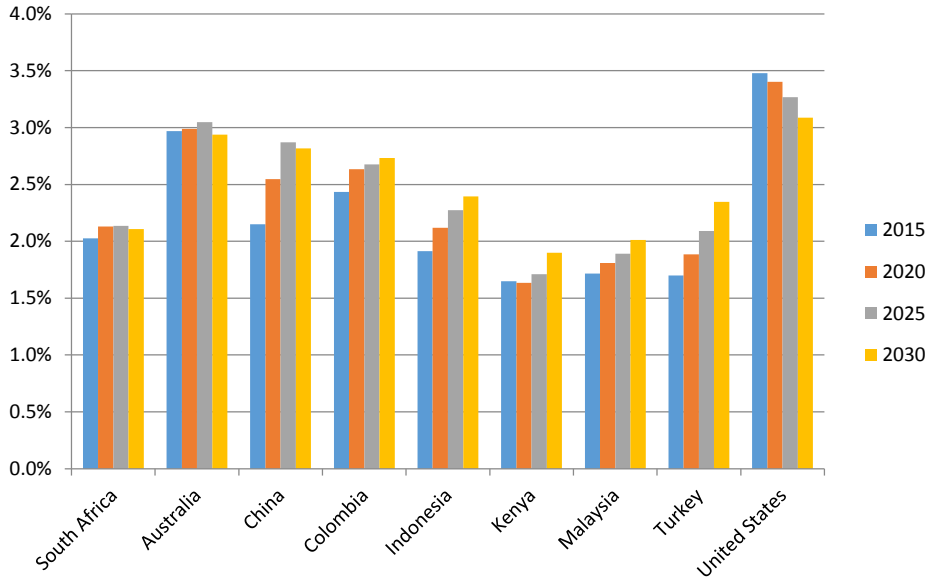
The best data we have about the behaviour of early retirees is from two surveys conducted in Australia, the Survey of Disability, Ageing and Carers (SDAC) and the Retirement and Retirement Intentions Survey. The SDAC provides details about those with disability by age, their sources of income and extent of disability. From this, we gain a lot of information about the prevalence of disability by degree of impairment by age. The Retirement and Retirement Intentions Survey provides data by age about the reasons for retirement, including due to ill health. To the extent that we have been able to cross reference this against US data, the key parameters seem to be similar. In addition, we have obtained unpublished data about Australian disability pension recipients.

Our modelling assumes that the decision to retire due to ill health is based on the impact of the relative morbidity of the 50-64 age group, measured in DALYs, in each of the selected countries.

There is very little data from the relevant countries with the necessary detail to model economic loss, so we used parameters drawn from the Australian data, which we adjusted where we could to the circumstances of the particular selected country. For instance, in arriving at the proportion of the population aged 50-64 who were disabled according to the international WHO/World Bank definition, we used the Australian proportion (the US proportion was very similar) adjusted for country-specific disease burden sourced from the Global Burden of Disease study. A proportion based on Australian experience of these was estimated to have retired.

In essence, the economic loss is equal to those in early retirement multiplied by the average GDP per worker for each of the selected countries. This is projected to 2030 using the UN population projections for each country for those aged 50-64. The results are shown for 2015 through to 2030 in Figure 6. Given the complexity of the trends in risk factors, the age adjusted disease burden rate is assumed to be constant over the projection period.

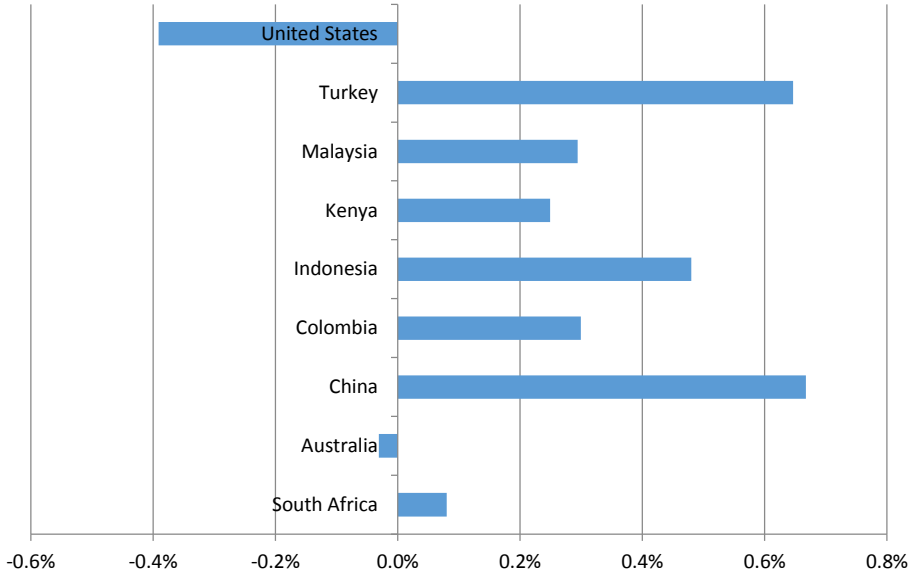
Figure 6 Economic cost of early retirement, South Africa and selected countries, 2015 to 2030



Source: VISES estimates.

The projections are largely driven by the ageing process, in particular the proportion for each country in the 50-64 age group and by the size of the burden of NCDs. This places South Africa in the lower-end range of the comparator countries, and with a loss increasing more slowly compared with Indonesia and Kenya. Clearly, the mature economies of Australia and the United States have significantly higher losses due to early retirement due to ill health; it is the relatively high rate of increase for China of 0.7% shown in Figure 7 that is a cause for concern rather than South Africa at 0.1%.

Figure 7 Change in economic cost of early retirement, selected countries, 2015 and 2030



Source: VISES estimates.

Conclusions from the Analysis

The high level of burden of disease arising from NCDs indicates that for most of the developing countries, such as South Africa, included in this study, the economic loss from absenteeism, presenteeism and early retirement due to ill health will by 2030 reach similar levels to that in the developed countries, such as the US, where these conditions are longstanding and their acknowledged importance has led to the development of intervention programs.

While a number of risk factors are in decline in some countries, they are on the rise in others. Overall South Africa may be having some success in managing its disease burden, with the reported rates of burden of asthma and iron-deficiency anaemia lower in the 2015 burden of disease study compared with the 2005 study and death rates from HIV/AIDS falling (IHME 2017).

It is clear that with time most of the developing and middle income countries will have an increasing proportion of their workforce entering the older age groups where the burden of NCDs is much higher. Of the countries included in this study, South Africa can expect to have a slowly ageing work force. Without greater attention to improved health behaviours, its work force will become less healthy and more subject to absenteeism, presenteeism and early retirement.

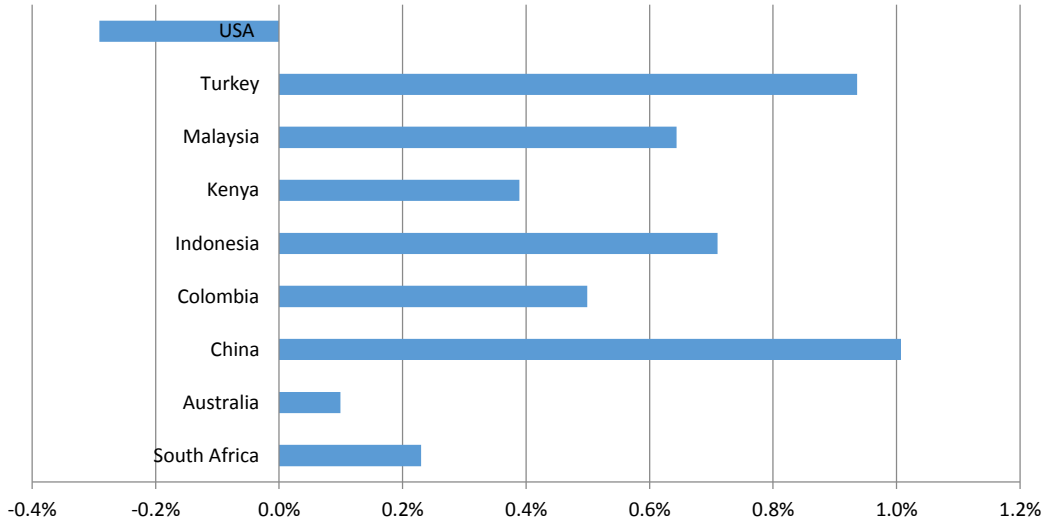
Overall, modelling undertaken for this study (summarised in Table 3) has indicated that the economic costs of absenteeism and presenteeism range from 2-3% of GDP by 2030 and 4-5% of GDP for early retirement due to ill health, taking productivity impact to 6-8 % of GDP. South Africa at 7% in 2030 will be among those countries to have increased most slowly with an increase of about 0.3 percentage points (see Figure 8). This is largely due to the relatively lower proportion of its work force in older age despite the problems of HIV/AIDS and increasing levels of chronic disease with age.

Table 3 Total economic impact of absenteeism, presenteeism and early retirement

	2015			2030		
	Presenteeism & absenteeism	Early retirement	Total	Presenteeism & absenteeism	Early retirement	Total
South Africa	2.0%	4.7%	6.7%	2.1%	4.9%	7.0%
Australia	3.0%	4.4%	7.4%	2.9%	4.5%	7.5%
China	2.1%	3.4%	5.5%	2.8%	3.7%	6.5%
Colombia	2.4%	4.8%	7.2%	2.7%	5.0%	7.7%
Indonesia	1.9%	4.6%	6.5%	2.4%	4.8%	7.2%
Kenya	1.6%	4.4%	6.1%	1.9%	4.6%	6.5%
Malaysia	1.7%	4.5%	6.2%	2.0%	4.9%	6.9%
Turkey	1.7%	5.2%	6.9%	2.3%	5.5%	7.9%
USA	3.5%	5.0%	8.5%	3.1%	5.1%	8.2%

Source: VISES estimates.

Figure 8 Change in % GDP total absenteeism + presenteeism + early retirement, 2015-30



Source: VISES estimates.

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