



Mali

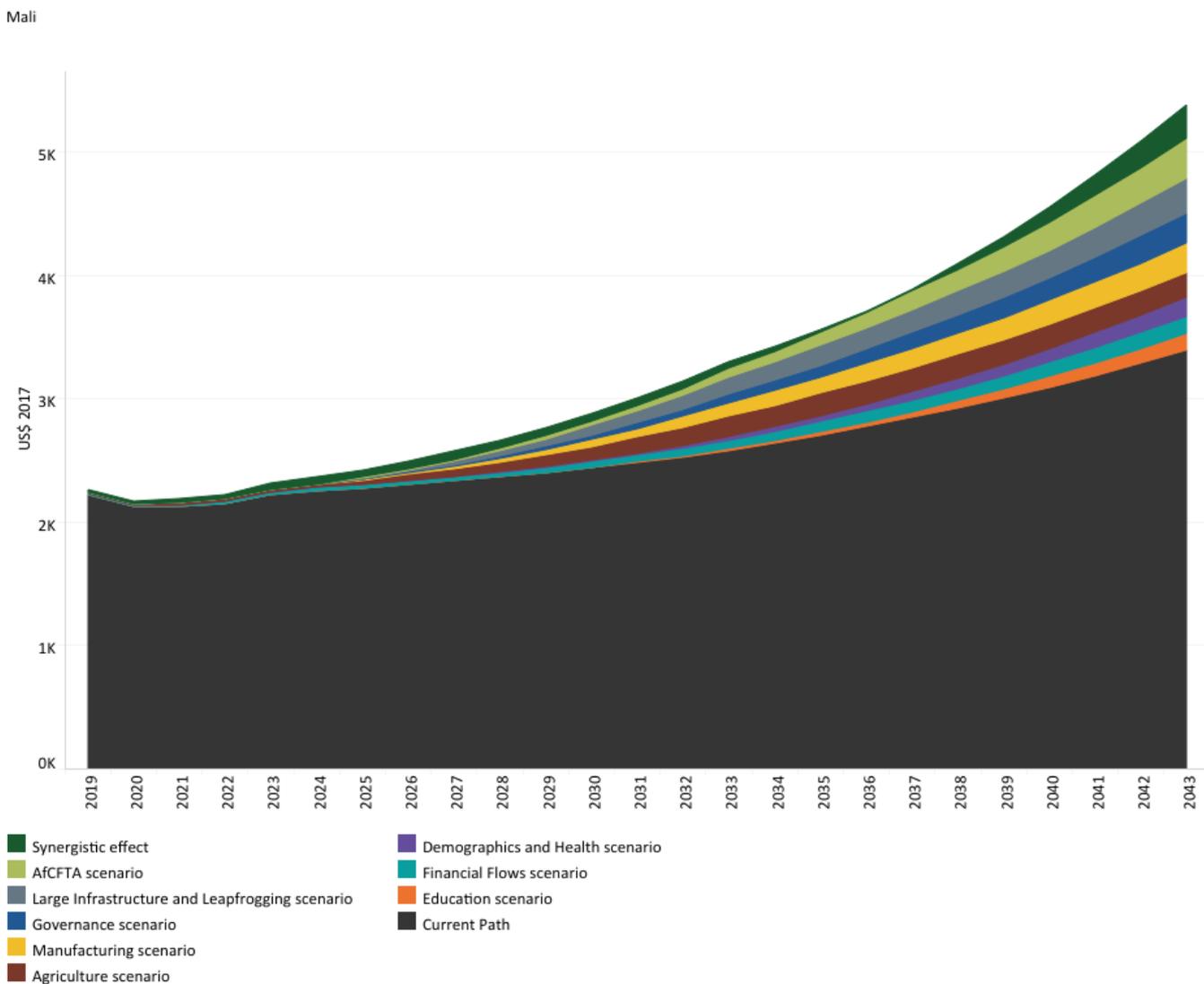
Scenario Comparisons

Enoch Randy Aikins

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Scenario Comparisons

Chart 28: GDP per capita in Current Path and scenarios, 2019-2043



Source: IFs 7.84 initialising from IMF data

Chart 28 presents a stacked area graph of the contribution of each scenario to GDP per capita. The cumulative impact of better education, health, infrastructure, leapfrogging, etc. means an additional benefit in the integrated IFs forecasting platform that we refer to as the synergistic effect.

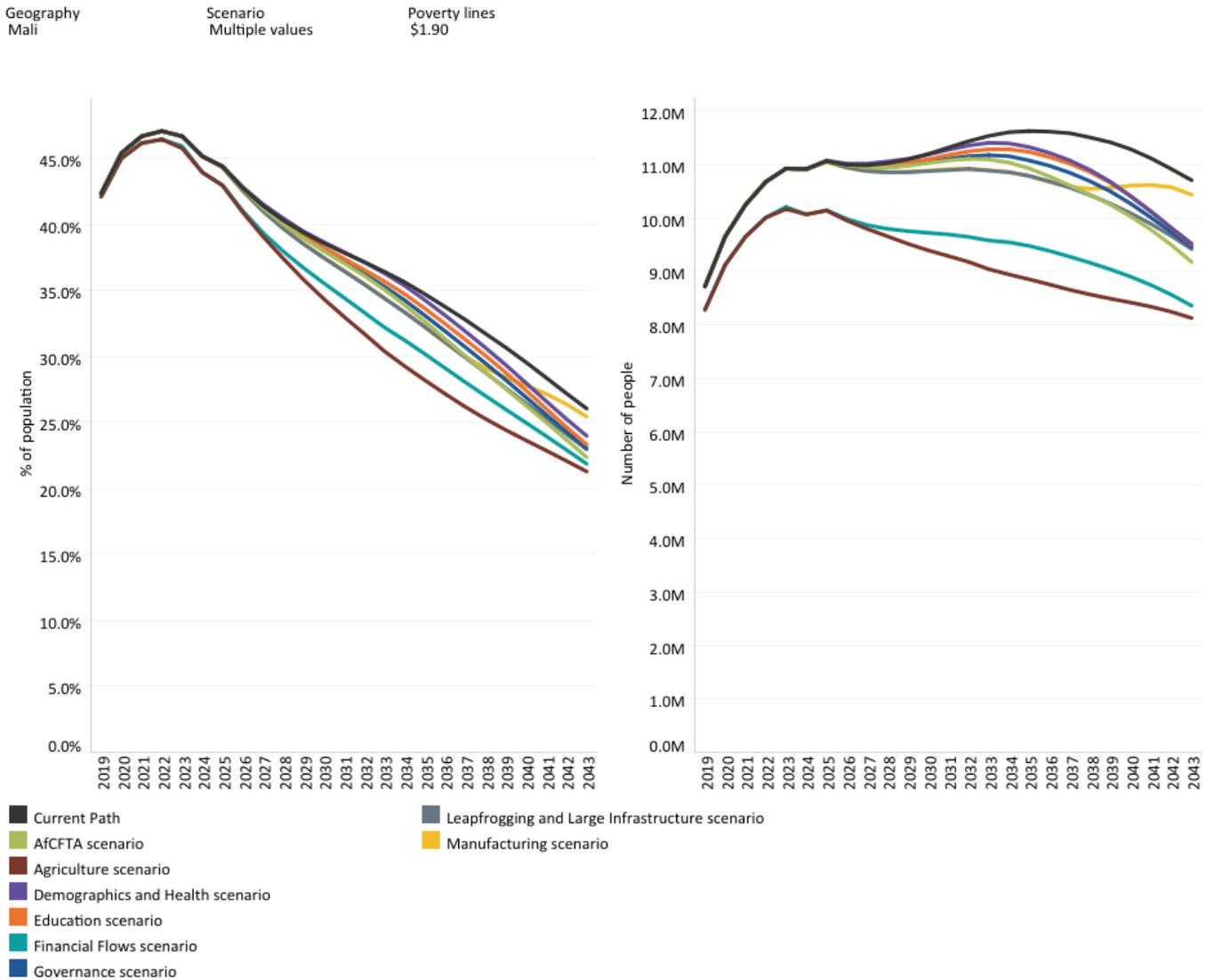
The scenarios with the greatest impact on GDP per capita in Mali by 2043 will be the AfCFTA scenario, followed by the Governance and Infrastructure scenarios. In the AfCFTA scenario, Mali’s GDP per capita (PPP) will increase to US\$3 714 by 2043, which represents an increase of US\$326 (or 9.6%) compared to the projections on the Current Path in the same year. This shows that Mali has considerable potential to increase its GDP per capita if it takes advantage of the full implementation of the AfCFTA. The high impact of AfCFTA in improving the standard of living in Mali is not surprising, given that trade between African countries has considerable benefits. A regional free trade area such as the AfCFTA increases

trade openness, accelerating technology diffusions in the country and thereby improving productivity and innovation activities. This ultimately leads to welfare gains as resources flow to their most productive uses and lower consumer prices. It could also increase Mali's exports, as it provides access to a much larger market and improves the country's manufacturing sector through competition. This could lead to more rapid economic growth and increased employment in key sectors.

In the Infrastructure scenario, Mali's GDP per capita is estimated to increase to US\$3 665 by 2043. This is an increase of US\$277 (or 8.2%) compared to the Current Path forecast. Expansion of modern infrastructure such as electricity and roads can improve the standard of living by stimulating the growth of other sectors such as education, health and industries. Also, advancements in digital infrastructure have the potential to increase GDP through their effect on reducing transaction costs for businesses. It can also help firms adopt efficient technologies, which can improve productivity and ultimately lead to economic growth. Moreover, if Malian authorities can formalise the huge informal sector through digitisation, productivity, GDP and government revenue can increase.

In the Governance scenario, GDP per capita for Mali is projected to rise to US\$3 634 by 2043, representing a 7.3% increase over the Current Path forecast for that year. It means that the Governance scenario can raise GDP per capita in Mali by an additional US\$246 by 2043. Good governance and political stability can undoubtedly inspire investor confidence in the economy and attract more FDI into Mali, which can lead to growth. Likewise, good governance in the form of adherence to the rule of law, reduced corruption and improved transparency and accountability can lead to more rapid economic growth. Therefore, it suggests that if authorities in Mali can reduce the levels of insecurity in the country and promote good governance, the country will be set on a path of sustained economic growth.

Chart 29: Poverty in Current Path and scenarios, 2019-2043



Source: IFs 7.84 initialising from UNPD population prospects estimate, WDI and PovcalNet data

Chart 29 presents the impact of each scenario on extreme poverty by 2043. The user can select the number of extremely poor people or the per cent of the population.

In 2015, the World Bank adopted the measure of US\$1.90 per person per day (in 2011 prices using GNI), also used to measure progress towards achieving SDG 1 of eradicating extreme poverty. In 2022, the World Bank updated the US\$1.90 to US\$2.15 in 2017 constant dollars. They are:

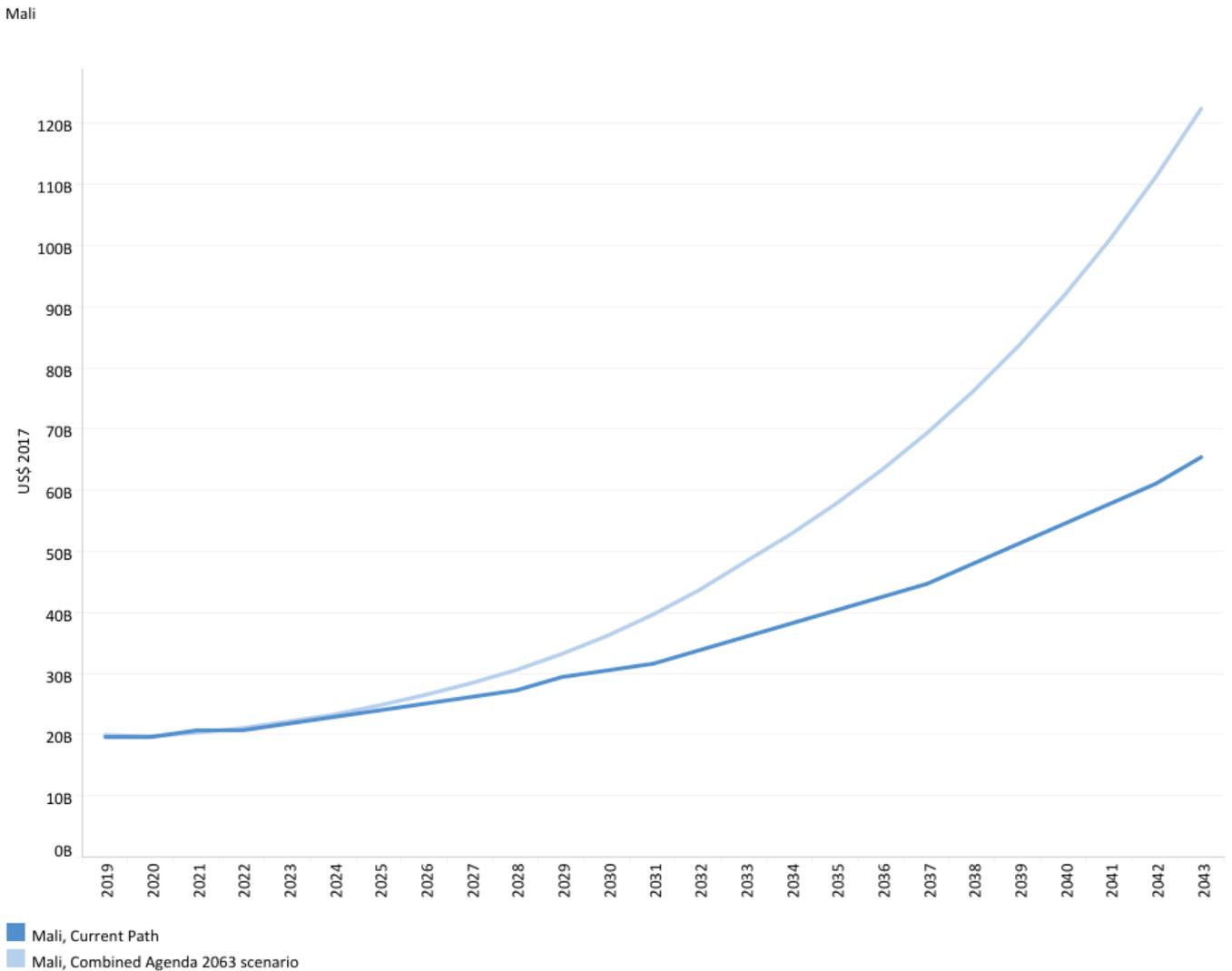
- US\$3.20 for lower-middle-income countries, in 2017 values.
- US\$5.50 for upper-middle-income countries, now US\$6.85 in 2017 values.
- US\$22.70 for high-income countries. The Bank has not yet announced the new poverty line in 2017 US\$ prices for high-income countries.

The Agriculture scenario has the greatest potential to reduce extreme poverty in Mali. In the Agriculture scenario, the number of poor people is projected to decline to 8.1 million (equivalent to 21.3% of the population), compared to the Current Path forecast of 10.7 million people (26.1%) by 2043. It means that an agricultural revolution in Mali has the potential to reduce extreme poverty in Mali by an additional 2.6 million people. This is expected given that nearly 80% of the Malian population depend on the agricultural sector for their livelihoods. It therefore demonstrates the effectiveness of agriculture as an antidote to poverty, especially in rural areas, and underscores the importance of prioritising an agricultural revolution in Mali as a means of combating extreme poverty.

In the Financial Flows scenario, 8.4 million Malians (representing 22% of the total population) are expected to be living in extreme poverty by 2043, making it the scenario with the second largest impact on poverty reduction. This means that there will be 2.3 million fewer poor people in this scenario (or 4.2 percentage points below the Current Path forecast) compared to the Current Path. The huge impact of this scenario on poverty reduction in Mali demonstrates the importance of financial flows, particularly aid and remittances, in fighting extreme poverty in the country.

The AfCFTA scenario has the third largest impact on poverty reduction in Mali. In the scenario, 9.2 million people (constituting 22.4% of the population) are expected to live in extreme poverty by 2043. This will be 3.7 percentage points lower than the Current Path forecast, and equivalent to a reduction of about 1.5 million people living in extreme poverty. This further demonstrates that Mali stands to benefit substantially from the full implementation of the agreement.

Chart 30: GDP (MER) in Current Path and Combined Agenda 2063 scenario, 2019-2043



Source: IFs 7.84 initialising from IMF data

Chart 30 compares the size of the economy in the Current Path with the Combined Agenda 2063 scenario at market exchange rates (MER).

The Combined Agenda 2063 scenario consists of the combination of all eight sectoral scenarios, namely Governance, Demographics and Health, Education, Infrastructure/Leapfrogging, Agriculture, Manufacturing and Leapfrogging, AfCFTA and Financial Flows.

Mali’s GDP is projected to rise to US\$122.4 billion in the Combined Agenda 2063 scenario, representing an increase of 513% from 2019 to 2043. This will exceed the Current Path forecast of US\$65.6 billion, meaning that the Combined Agenda 2063 scenario will increase the size of the economy by an additional US\$56.8 billion by 2043—an increase of 86.6% compared to the Current Path forecast.

Similarly, in the Combined Agenda 2063 scenario, GDP per capita for Mali is estimated to increase to US\$5 381 by 2043.

This will be US\$1 994 higher than the projection of US\$3 388 on the Current Path forecast, meaning that the materialisation of the Combined Agenda 2063 scenario could significantly improve the living standard of the Malian population. The projected GDP per capita in this scenario will be US\$2 976 (or 54%) more than the Current Path forecast average for low-income countries in Africa by 2043. The massive economic growth projected in the Combined Agenda 2063 scenario indicates that an integrated development push across development sectors is the best way to achieve sustained inclusive growth and development in Mali.

Chart 31: Value added by sector in Current Path and Combined Agenda 2063 scenario, 2019-2043



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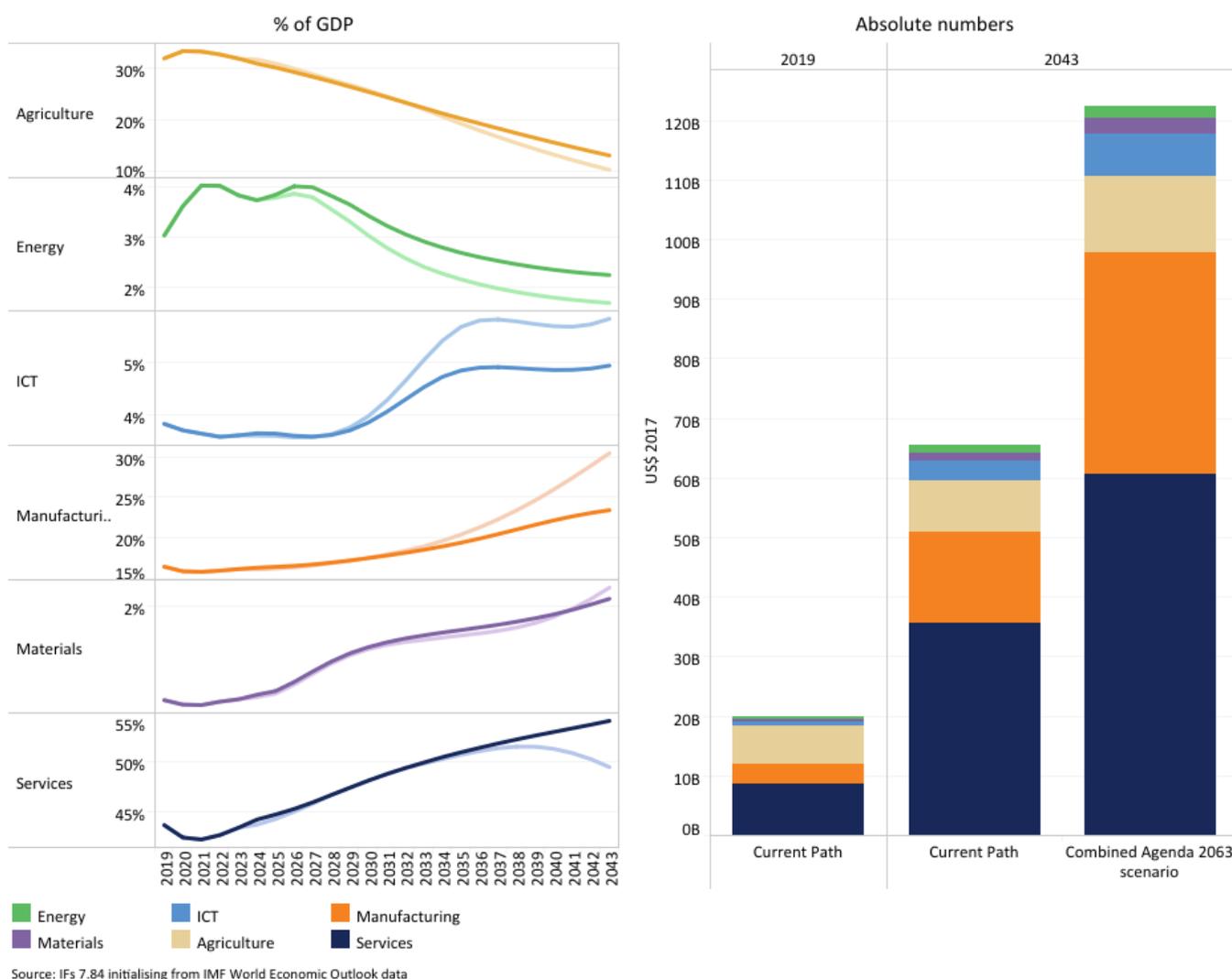
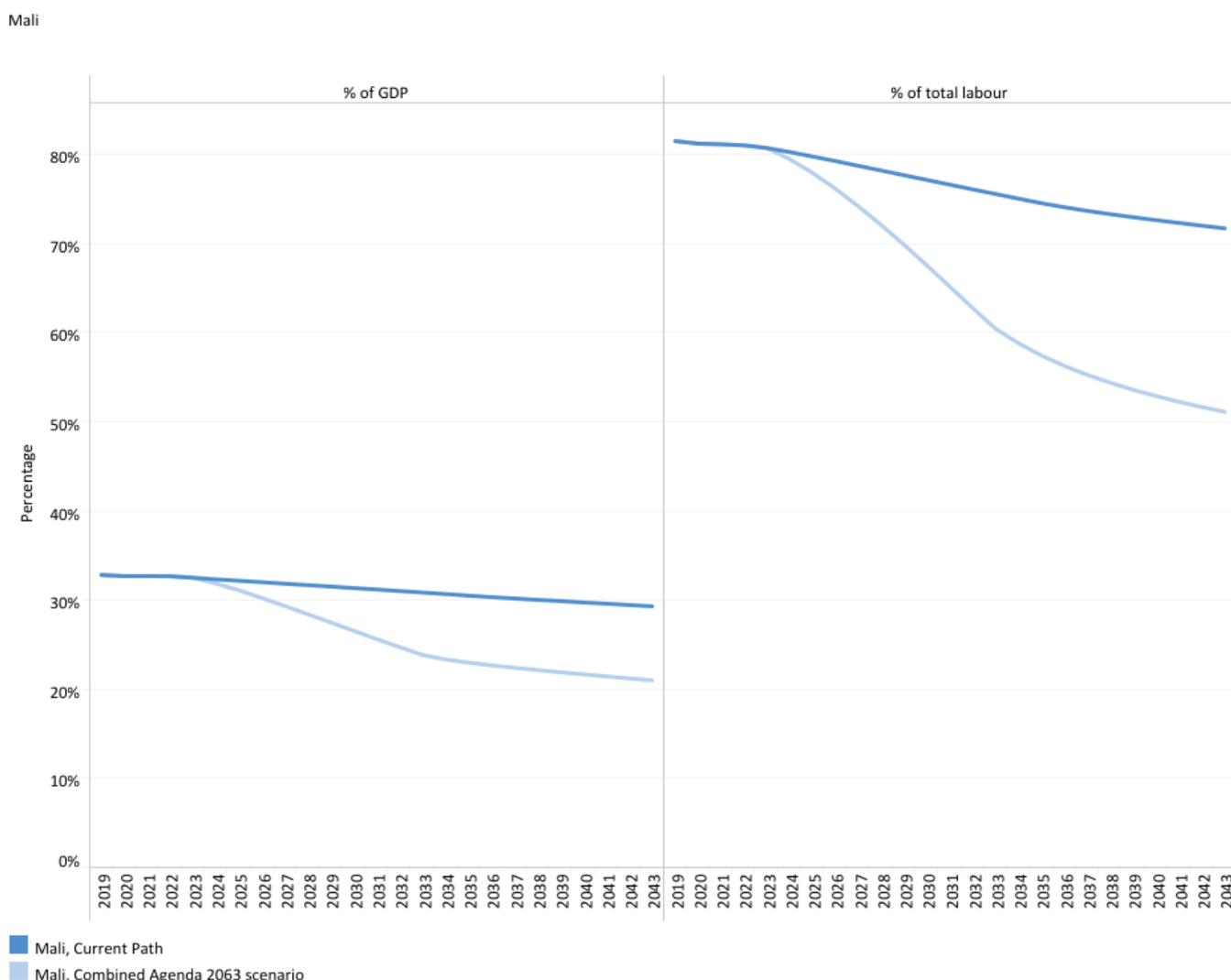


Chart 31 presents the change in the economy's structure, comparing the Current Path forecast with the Combined Agenda 2063 scenario from 2019 to 2043.

The structure of the Malian economy is expected to undergo significant transformation in the Combined Agenda 2063 scenario. By 2043, the service sector will still be the largest contributor to GDP at 49.5% (valued at US\$60.6 billion), although this will be lower than the Current Path forecast of 54.2% (valued at US\$35.6 billion). The manufacturing sector

will be the second largest contributor to GDP in the scenario by 2043 with a share of 30.5% (equivalent to US\$37.3 billion)—higher than the Current Path forecast of 23.4% (US\$15.3 billion). It means that the manufacturing sector stands to benefit and grow in the Combined Agenda 2063 scenario. The share of the agriculture sector will decline to 10.4% (valued at US\$12.7) in the Combined Agenda 2063 scenario compared to 13.1% (valued at US\$8.6) in the Current Path in 2043. In the Combined Agenda scenario, the share of ICT and materials will rise above the Current Path to constitute 5.8% and 2.2%, respectively, although the share of the energy sector will decline below the Current Path to 1.7%. This is a result of the contribution of each sector increasing in the scenario, and, hence, the total size of the economy increasing.

Chart 32: Informal sector in Current Path and Combined Agenda 2063 scenario, 2019-2043



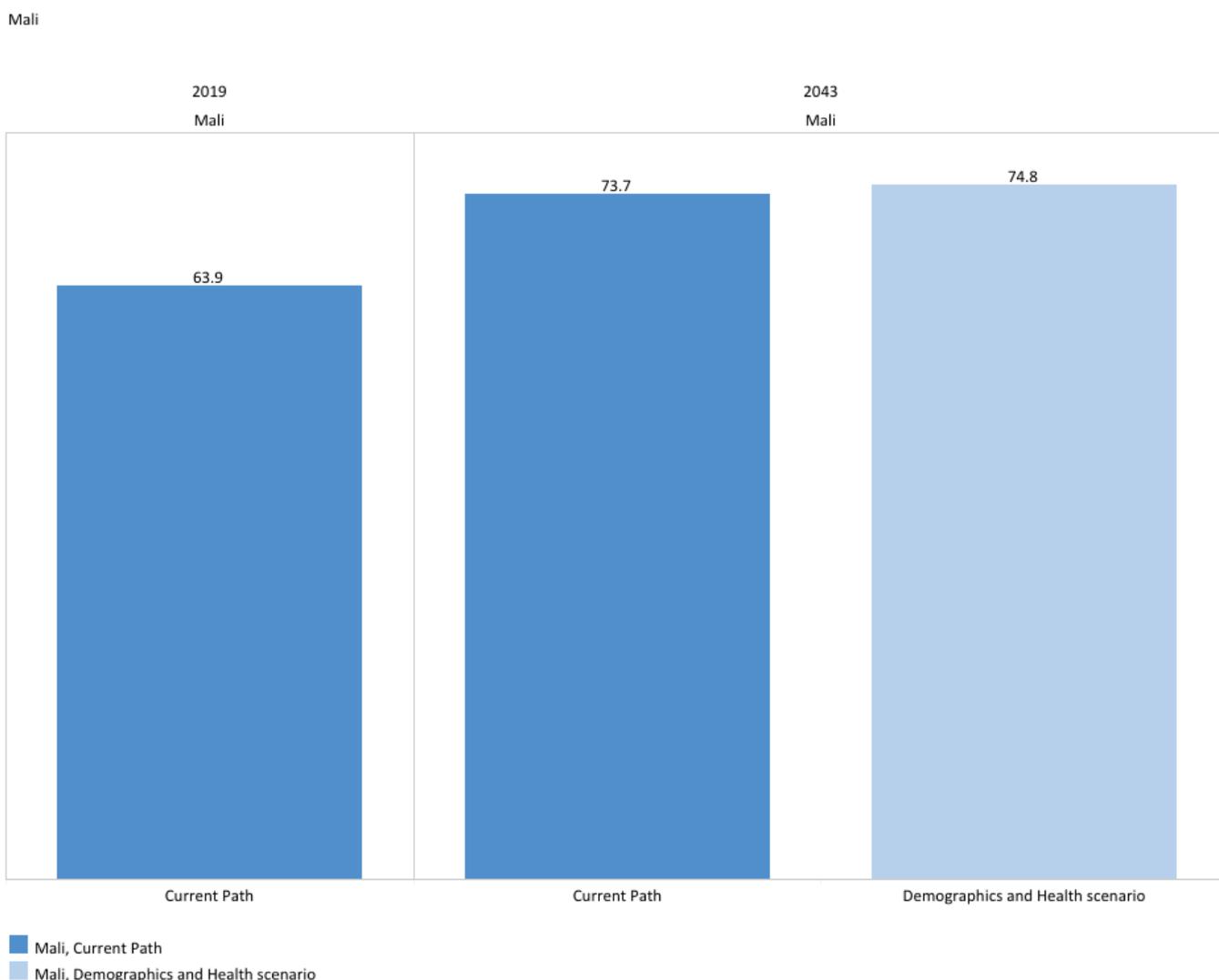
Source: IFs 7.84 initialising from Elgin and Oztunali (2008), and Schneider and Enste (2012) data

Chart 32 presents the size of the informal sector as a share of GDP and size of the informal labour force. Data on the contribution of the informal sector is often estimated and should be treated with care.

By 2043, the size of the informal sector in Mali will decline to 21% of GDP although its absolute value will rise to US\$25.7

billion. At this rate, the contribution of the informal economy will be lower than the projected at 29.3% (valued at US\$19.2 billion) on the Current Path and below the average for low-income countries in Africa at 27.5%. Likewise, the size of the informal labour force in Mali will decline. By 2043, there will be about 1.2 million fewer labour in the informal sector in the Current Path as compared to the Current Path. This will correspond to informal labour constituting 51% of total labour in the Combined Agenda 2063 scenario instead of 72% in the Current Path, reflecting the anticipated improvement in state capacity through more tax revenue.

Chart 33: Life expectancy in Current Path and Combined Agenda 2063 scenario, 2019-2043



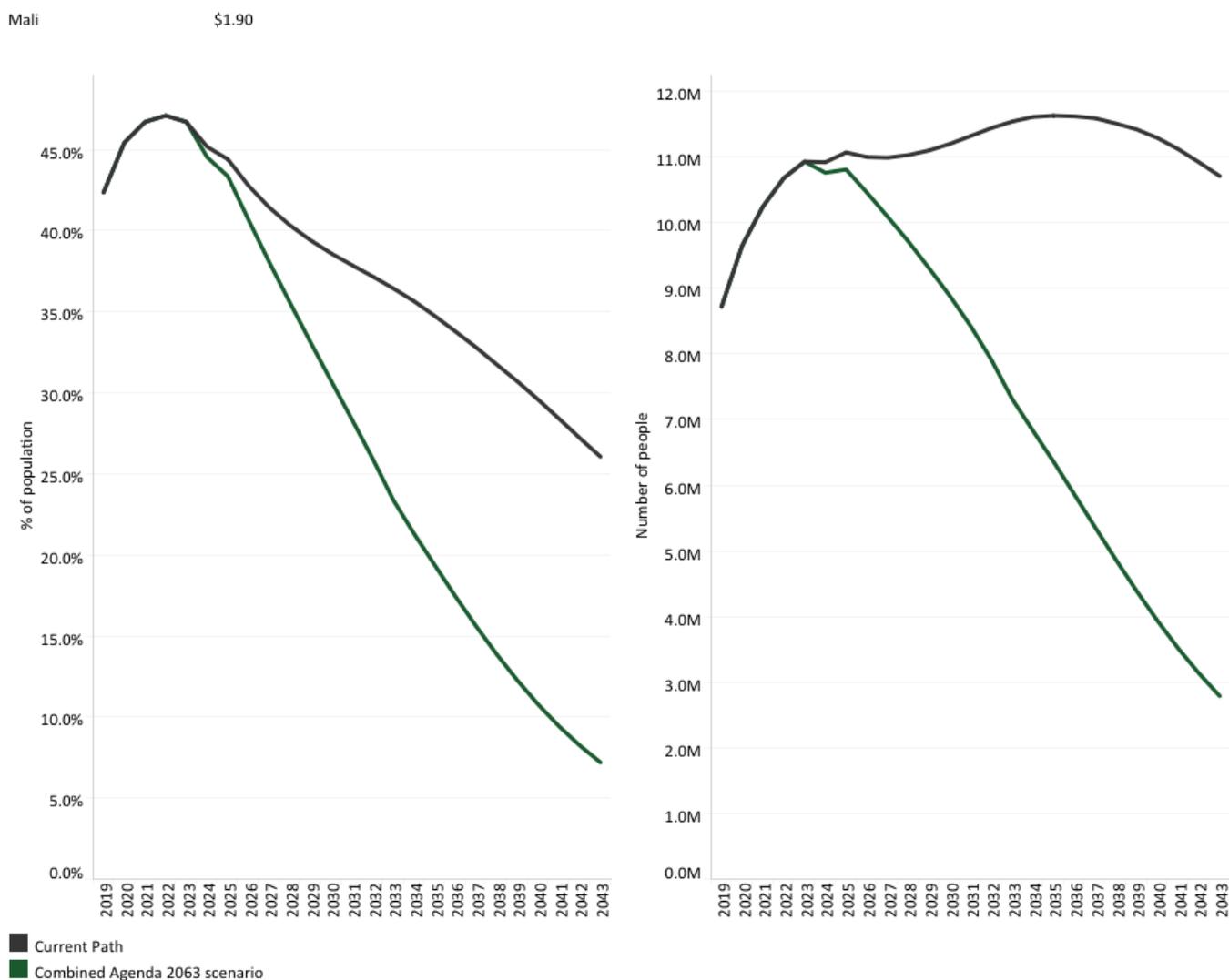
Source: IFs 7.84 initialising from IHME data

Chart 33 compares life expectancy in the Current Path forecast with the Combined Agenda 2063 scenario.

Life expectancy measures the average lifespan of individuals in a country. In 2019, the average life expectancy at birth in Mali was 63.9 years, which was about 1.8 years higher than the average for the country's income-group peers in Africa. Women in Mali generally live longer (64.9 years) than men (62.9 years). On the Current Path, life expectancy will increase to 73.7 years by 2043, which will be higher than the average of 70.3 years for low-income African countries.

In the Combined Agenda 2063 scenario, life expectancy will increase to 75.7 years by 2043, which will be two years more than the country's Current Path forecast in the same year. In both the Combined Agenda and the Current Path forecast, women will be expected to live more than two years longer than men by 2043.

Chart 34: Poverty in Current Path and the Combined Agenda 2063 scenario, 2019-2043

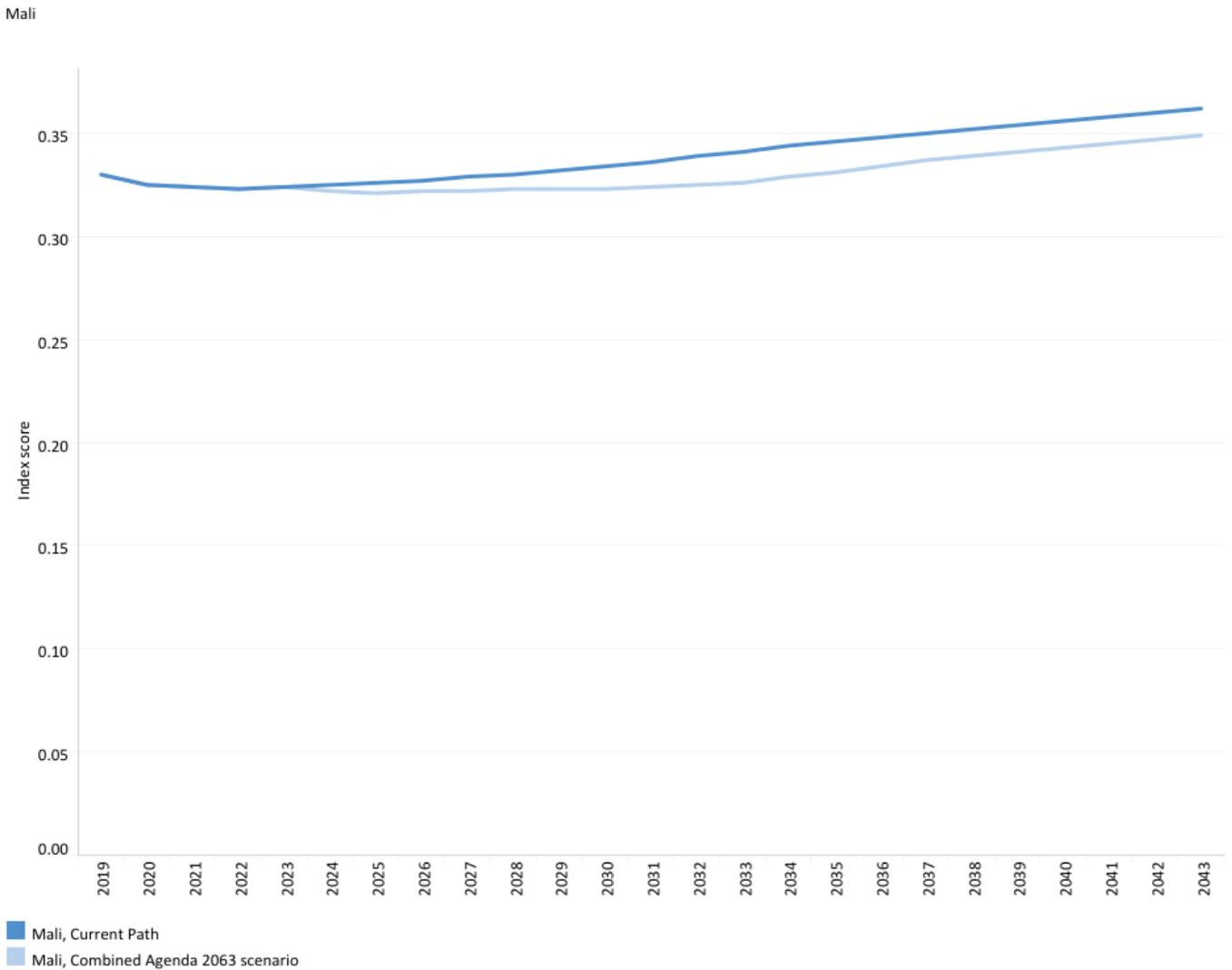


Source: IFs 7.84 initialising from UNPD population prospects estimate, WDI and PovcalNet data

Chart 34 presents the impact of each scenario on extreme poverty by 2043. The user can select the number of extremely poor people or the per cent of the population.

In the Combined Agenda 2063 scenario, both the number and the proportion of poor people in Mali will significantly decline. By 2043, about 2.8 million people in the country (7.2% of the population) will be living in extreme poverty. This means that, compared to the Current Path forecast, 7.9 million more people could be lifted out of poverty by 2043 in this scenario—a decline of 18.9 percentage points compared to the Current Path forecast of 26.1% in 2043. In addition, the projected proportion of poor people in Mali in the Combined Agenda 2063 scenario will be far lower (7.9 percentage points lower) than the average of 18.1% of low-income African countries by 2043.

Chart 35: Domestic Gini in Current Path and the Combined Agenda 2063 scenario, 2019-2043



Source: IFs 7.84 initialising from WDI data

Chart 35 compares the Gini coefficient in the Current Path forecast with the Combined Agenda 2063 scenario.

The high level of income inequality has many negative effects including a breakdown of social structure and cohesion, which can result in instability. The Gini coefficient is the standard measure of the level of inequality in a country.[1] Historically, inequality in Mali has been lower than the average of its income-group peers in Africa.

In 2019, Mali’s Gini coefficient was 0.33 compared to the average of 0.40 of the low-income country in Africa. This makes Mali the least unequal country among the 23 low-income countries in Africa and the sixth least unequal in Africa. The Agriculture scenario has the greatest potential to reduce income inequality in Mali followed by the Education and Financial Flows scenarios. On the Current Path, income inequality in Mali is projected to increase with a Gini coefficient of 0.36 by 2043.

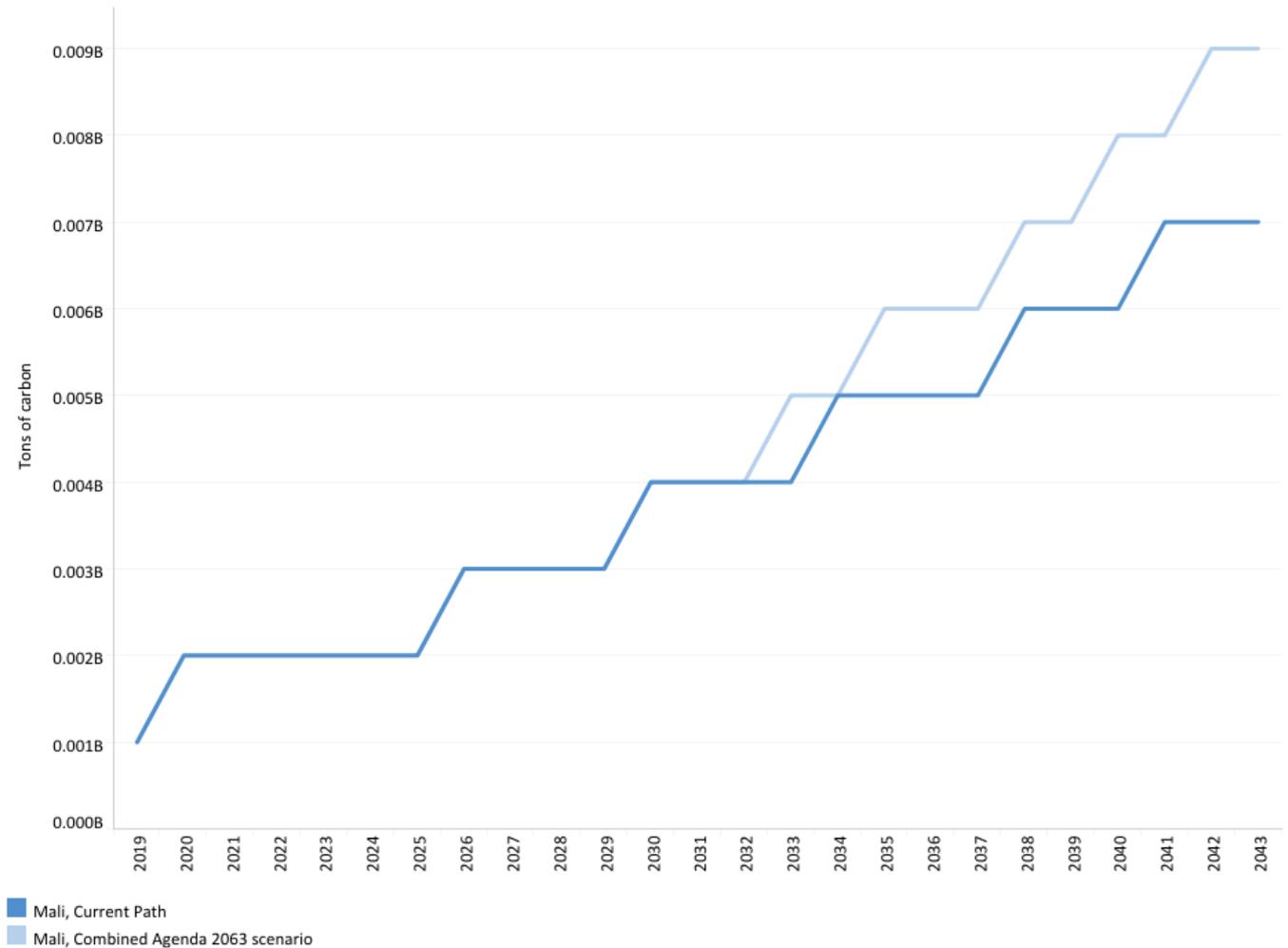
In the Combined Agenda 2063 scenario, inequality in Mali will be slightly lower than the Current Path forecast with a Gini

coefficient of 0.35 by 2043. This means that economic growth in the Combined Agenda 2063 scenario will be broadly shared.

Chart 36: Carbon emissions in Current Path and in Combined Agenda 2063 scenario, 2019-2043
 Million tons of carbon (note, not CO₂ equivalent)



Mali



Source: IFs 7.84 initialising from Carbon Dioxide Information Analysis Center data

Chart 36 compares carbon emissions in the Current Path forecast with the Combined Agenda 2063 scenario.

Since carbon dioxide (CO₂), carbon monoxide (CO) and methane (CH₄) have different molecular weights, IFs uses carbon. Many other sites and calculations use CO₂ equivalent.

Like most African countries, Mali’s emission of carbon is very low. In 2019, Mali released about 1.4 million tons of carbon from fossil fuel use, reflecting the low levels of carbon emissions in the country. This makes it the 28th largest emitter of carbon in Africa and 13th largest emitter among the 23 low-income African countries.

According to the Greenhouse Gas Emissions Factsheet by ClimateLinks, deforestation is one of Mali’s main causes of

carbon emissions, accounting for around 17% of all greenhouse gas emissions. Logging, fuelwood use and the spread of agriculture are a few examples of the causes of deforestation. In addition to increasing CO₂ emissions, the loss of forest cover diminishes the country's capacity to absorb carbon through natural carbon sinks, worsening Mali's overall carbon footprint.[2]

The energy sector in Mali is a substantial source of carbon emissions, mainly as a result of the country's reliance on conventional biomass for cooking and heating. Most people still use firewood and charcoal as their primary energy sources in rural regions, which increases indoor air pollution, harms people's health and increases carbon emissions.[3] Inadequate public transportation infrastructure, the use of a large number of outdated and inefficient automobiles and a lack of vehicle emission requirements are the leading causes of the transportation sector's contribution to carbon emissions. These elements raise fuel consumption, which in turn causes a rise in CO₂ emissions.[4]

Mali has acted to reduce carbon emissions and prepare for the effects of climate change in order to deal with these issues. The country pledged in its Intended Nationally Determined Contributions (INDC) to cut emissions by 27% from predicted levels by 2030 compared to emissions of the status quo. Agriculture, energy and Land Use Change and Forestry (LUCF) each have emission reduction commitments of 29%, 31% and 21%, respectively.[5] To decrease its reliance on fossil fuels, the country has been emphasising the promotion of renewable energy sources like solar and wind. The demand for biomass and the resulting carbon emissions have been decreased by initiatives that have been put in place to increase access to cleaner cooking technology. Furthermore, in an effort to stop deforestation, Mali has been pursuing sustainable land management techniques.[6]

On the Current Path, carbon emissions from fossil fuels are projected to increase more than fivefold to 7.2 million tons by 2043 from a low base in 2019. The Manufacturing and AfCFTA scenarios are the most carbon-intensive as they involve aggressive manufacturing of low-end manufacturing goods that will imply more fossil fuel use. On the other hand, the Large Infrastructure and Leapfrogging, Financial Flows and the Agriculture scenarios are the least carbon-intensive scenarios in Mali.

In the Combined Agenda 2063 scenario, Mali's total carbon emissions will rise to 9 million tons—25% higher than what is estimated in the Current Path forecast in the same year. The materialisation of the Combined Agenda 2063 and achieving sustainable economic development will come at the cost of more carbon emissions in Mali. However, the country can rely on its huge renewable energy potential to pursue a green development pathway.

Chart 37: Energy demand and production by type in Current Path and Combined Agenda 2063 scenario, 2019-2043



Mali

% of production

2043

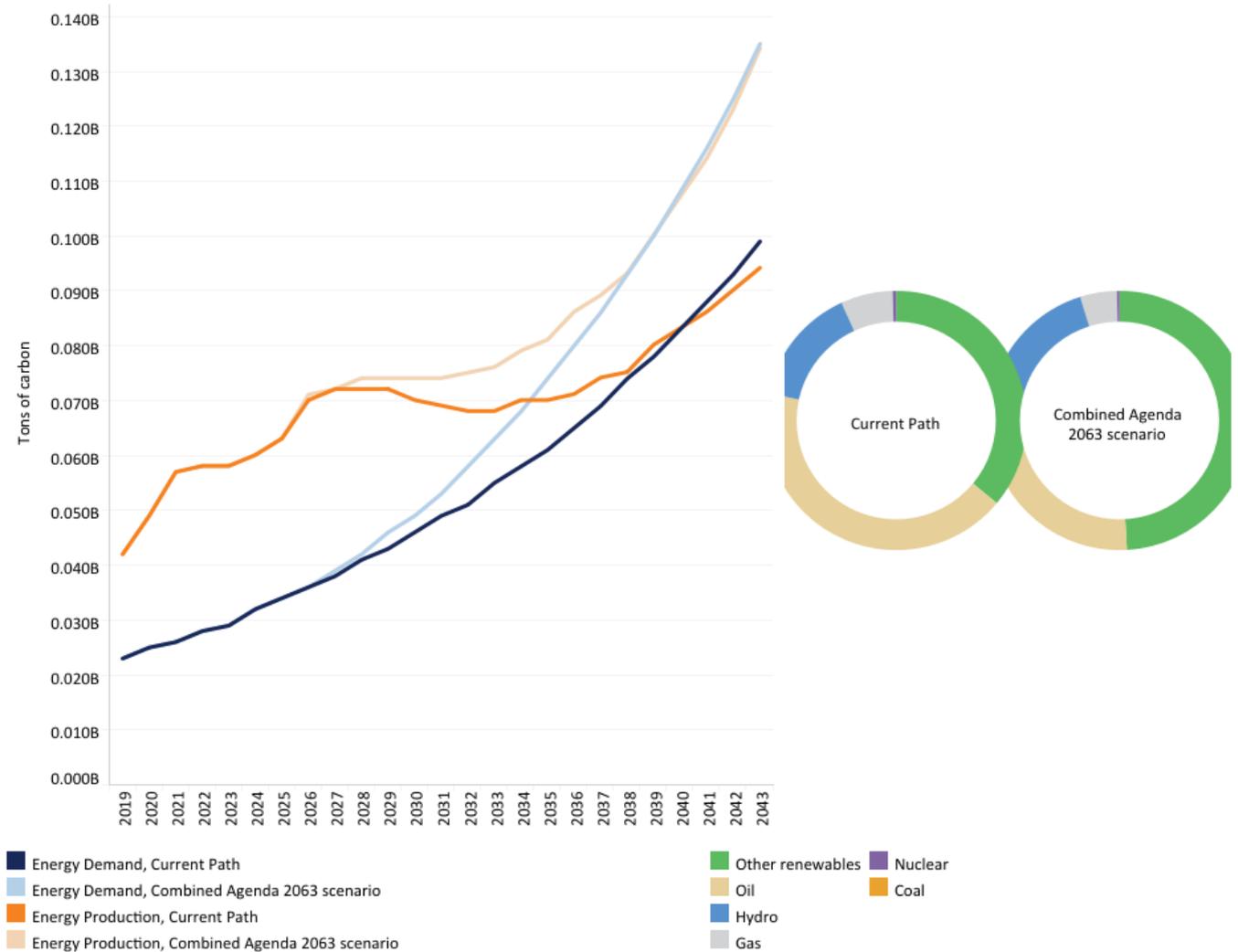


Chart 37 compares energy demand and production in the Current Path forecast with the Combined Agenda 2063 scenario. Production is done in six types, namely oil, gas, coal, hydro, nuclear and other renewables. The data is converted into billion barrels of oil equivalent (BOE) to allow for comparisons. Note that energy production could be for domestic use or for export.

In 2019, energy demand slightly exceeded production. In the Current Path forecast, demand is expected to significantly outpace production by 2043, creating an energy deficit. According to the IFs forecast, the total energy produced in Mali in 2019 was equivalent to 21.2 million BOE. In the same period, total energy demand of 23.5 million BOE was slightly higher than total production. On the Current Path, total energy demand is projected to outgrow production so that by 2043, excess energy demand will be equivalent to 51.9 million BOE.

The main source of energy in Mali is oil, followed by gas and hydro. In 2019, the total amount of oil produced in the country amounted to 10 million BOE, constituting 47.8% of total energy production. By 2043, the total amount of oil

produced is projected to double to 20 million BOE, with its share declining to 41.4% of total energy production on the Current Path. Gas production constituted 45.6% (almost 10 million BOE) of total energy production in 2019 but is projected to rapidly decline to about 5.9% (valued at 300 000 BOE) in 2043 on the Current Path. Hydro, which in 2019 constituted just 4.8% of total production (300 000 BOE), is projected to rise to 15.7% by 2043 in the Current Path. Other renewable energy production is currently low, estimated at 1.6% of total production is projected to grow rapidly to constitute 36.4% of total energy production (17 million BOE) by 2043 in the Current Path. In 2019, bioenergy accounted for 96% of the total renewable energy supply in the country.[7]

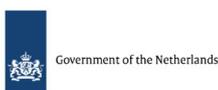
The Combined Agenda 2063 scenario shows an increase in energy demand, creating a larger energy deficit, with renewable energy becoming the dominant energy source, surpassing oil and gas. In the scenario, energy demand in Mali will jump to 135 million BOE, which will be 35.9 million BOE more than the Current Path forecast. Although the total energy production of 66.8 million BOE in the Combined Agenda 2063 scenario will be 19.5 million BOE more than the Current Path forecast, it will fall short of the total demand. Indeed, by 2043, the excess demand for energy of 68.3 million BOE will be 31.6% higher than the Current Path projections.

The share of other renewable energy in total energy production in the country will rise significantly to constitute half of total energy production to become the leading contributor. This will be 20 percentage points more than its contribution to total energy production in the Current Path. The share of hydro and total production in the scenario will also be slightly above its contribution to total energy production in the Current Path. Consequently, the contribution of oil and gas to energy production in the scenario will be 12 and 1.6 percentage points, respectively, below the Current Path by 2043.

Endnotes

1. A higher score depicts greater inequality while a lower score shows a more equal country.
2. USAID, [Greenhouse gas emissions factsheet: Mali](#), Climate Links, 11 April 2019.
3. PL Swagel, [Emissions of carbon dioxide in the transportation sector](#), Congressional Budget Office, December 2022.
4. UNDP Climate Change Adaptation, [Mali launches project aimed at enhancing climate security and sustainable management of natural resources](#), 12 June 2023.
5. UNDP Climate Change Adaptation, [Mali launches project aimed at enhancing climate security and sustainable management of natural resources](#), 12 June 2023.
6. CCA Coalition, [Mali - Institutional strengthening support](#), Climate Clean Air Coalition, 2016.
7. IRENA, [Energy profile - Mali](#), International Renewable Energy Agency, 24 August 2022.

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Mr Enoch Randy Aikins joined the AFI in May 2021. Before that, Enoch was a research and programmes officer at the Institute for Democratic Governance in Accra. He also worked as a research assistant (economic division) with the Institute for Statistical Social and Economic Research at the University of Ghana. Enoch's interests include African politics and governance, economic development, public sector reform, poverty and inequality. He has an MPhil in economics from the University of Ghana, Legon.

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