

# The rebirth

## Tunisia's potential development pathways to 2040

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This report analyses Tunisia's most likely Current Path development trajectory post COVID-19, and the impact of three alternative scenarios. The Growth-led scenario simulates a future where Tunisia pursues economic growth at all costs. The Leapfrogging scenario takes advantage of technology to rapidly adopt modern systems for development. Finally, in the Sustainability & Equality scenario, Tunisia improves economic and human development without compromising the ability of future generations to meet their needs.

## Key findings

- ▶ Progressive social and reproductive health laws in Tunisia have created a false sense of gender equity and self-determination. Inequality in income and labour opportunities persists between regions and across gender. Women and young graduates are the most affected.
- ▶ Good macroeconomic indicators before the start of the revolution in December 2010 masked issues like high unemployment, corruption and a socio-political system that benefits insiders.
- ▶ The economic situation in Tunisia has worsened since the revolution and large government expenditures and subsidy policies have complicated the problem.
- ▶ The current political fragmentation and economic crisis will test the country's resolve to retain its belief in democracy.
- ▶ Tunisia has a well-educated and large working-age population. Given employment opportunities, this labour force could generate a demographic dividend.
- ▶ Tunisia's economic growth is stagnant because of poor governance, low levels of investment, a small formal sector and a large, low-productivity informal sector.
- ▶ Tunisia's population is rapidly ageing, and the country will fall below the replacement level of 2.1 live births by 2022. By 2040 health costs will have surged owing to the burden of treating more non-communicable diseases.
- ▶ Import dependence on foodstuffs exposes the country to international food price shocks. With declining foreign reserves the country's food security situation will remain vulnerable to 2040.

## Recommendations

The government of Tunisia should:

- ▶ Reform its economy to allow greater inclusivity and competition – the most difficult of these reforms will be trying to formalise its large informal sector, dismantling the impact of established interests and lowering the barriers of entry to participate in the formal economy.
- ▶ Create an environment conducive to small businesses and entrepreneurship to boost business and investments in the private sector and promote job creation and entrepreneurship.
- ▶ Continue with its efforts towards more targeted social safety net programmes such as a universal child allowance programme that would more effectively alleviate poverty and inequality and reduce subsidies that benefit the wealthy.
- ▶ Reform labour laws to allow the many qualified women and youth to participate in the labour market.
- ▶ Improve the quality of education and allow greater flexibility in the language of instruction.
- ▶ Take advantage of the potential to boost agriculture and improve food security.
- ▶ Adapt to the impacts of climate change through better management of its water resources and awareness creation among its population on the responsible use of water.

## Introduction

Tunisia is unique in the North African region. The country achieved independence primarily through political campaigns and not armed struggle, boasts a relatively diversified economy and has progressive reproductive health policies different from most of its neighbours. However, the progress made since independence on various indices such as years of education and women's rights and the generally positive macroeconomic indicators concealed a widespread sense of frustration.

The dearth of economic opportunities and unequal access to these opportunities manifested in high and rising youth unemployment and pervasive corruption. The interior regions of the country were the most affected and significant disparity has persisted between the coastal region and much of the hinterland.

The closed social, economic and political system that has stifled competition and continues to be dominated by a clique of insiders – with the presidency at its core – is perhaps the most important factor in understanding the events that culminated in the Freedom and Dignity Revolution that erupted at the end of December 2010.

Tunisia achieved independence through political campaigns, boasts a relatively diversified economy and has progressive reproductive health policies

Today, Tunisia is the only country in the region that has transitioned to a democracy as a result of these events, but it finds itself assailed by a range of domestic and regional challenges. Instead of a robust economy and improved livelihoods, the pervasive sense today is one of economic frustration and disaffection with the inability of democracy to improve governance and livelihoods.

The demographic structure of the country, coupled with high levels of education, played an important role in the lead-up to the revolution, and will continue to shape Tunisia's future in important ways as the country's population ages more rapidly than that of its peers.

Tunisia has consistently had a larger urban population than the averages in the region and is about 20 percentage points more urban than the average for other lower-middle-income countries (OLMICs) globally and in Africa. Contrary to the experience in the rest of North Africa and in OLMICs, these high levels of urbanisation have not contributed to more equitable income growth as much as would be expected. However, it has assisted in the provision of more education and delivery of better basic infrastructure services.

The irony is that Tunisia has a range of impressive human development indicators and significant human capital. Rebalancing the economy – moving it away from past practices based on privilege and cronyism towards equal access and opportunity – is critical for its development and transformation.



TUNISIA HAS A LARGER URBAN POPULATION THAN THE AVERAGES IN THE REGION

The impact of the coronavirus pandemic will elevate many of the negative aspects of the country's economy. Therefore, creating an open-opportunity economy is even more critical going forward. Additionally, achieving oversight over all aspects of government spending and economic policy, cutting back on wasteful expenditure, reforming the subsidy policies, improving the business climate and the quality of education, ensuring domestic security and consolidating democratic institutions are among the difficult but necessary challenges with which Tunisia needs to grapple into the future.

## Purpose and scope

This report presents an integrated analysis of Tunisia's likely future development trajectory (or Current Path) to 2040, using the International Futures (IFs) forecasting platform. The analysis is then complemented by presenting the impact of three policy orientations that prioritise growth, sustainability and equality, and leapfrogging, respectively. The three pathways frame the choices for resource allocation and accompanying trade-offs that need to be made for the future. Underpinning all three scenarios is the need to reform governance.

### Box 1: International Futures modelling platform (IFs) and Current Path

The IFs modelling platform is a global long-term forecasting tool that encompasses and integrates a range of development systems, including demography, economy, education, health, agriculture, environment, energy, infrastructure, technology and governance.

The IFs tool draws from multiple modelling methods and uses this mixed approach to form a series of relationships in global systems and to generate its forecasts.

The data series within IFs come from a range of international sources like the World Bank, World Health Organization (WHO) and various United Nations (UN) bodies like the Food and Agricultural Organization (FAO) and United Nations Population Fund (UNPF), etc. For this study we created a project data file (see Annex) to update and complement international data using selected additional sources.

Although international organisations commit significant resources towards updating data, they sometimes lag behind the current year. Because IFs produces forecasts that move beyond a linear extrapolation, its forecasts have historically been comparable to the data that is ultimately released by international organisations.

IFs is developed and hosted by the Frederick S. Pardee Center for International Futures at the Josef Korbel School of International Studies, University of Denver. The model is an open source tool and can be downloaded for free at [www.pardee.du.edu](http://www.pardee.du.edu). This project uses IFs version 7.45 for its analysis.

The IFs Current Path is a dynamic scenario that imitates the continuation of current policies and environmental conditions. The Current Path is therefore in congruence with historical patterns and reproduces a series of non-linear dynamic forecasts endogenised in relationships across crucial global systems. The Current Path assumes no unprecedented shocks like radical policy changes or natural catastrophes in the system; however, such events can be modelled in the Current Path and it serves as a good starting point to begin understanding how future trends might play out and upon which to build alternative scenarios.

The IFs system allows for the adjustment of the Current Path with new data that better reflects prevailing conditions and/or circumstances in any of these countries. For example, we have updated the Current Path forecast to account for the impact of COVID-19 on Tunisia's growth and development trajectory. The adjustments made in the IFs Current Path for this project are reflected in an annex.

## Box 2: Comparison groups

To create comparisons across countries and regions, we use the World Bank's classification of economies into low-income, lower-middle-income, upper-middle-income and high-income groups for the 2019–2020 fiscal year.<sup>1</sup>

The Bank classified Tunisia as one of 21 lower-middle-income economies in Africa. The other lower-middle-income countries in North Africa were Egypt, Mauritania and Morocco. However, Tunisia straddles various identities that complicate income-based comparisons. It is part of both the African region and the Middle East and North Africa (MENA) region, and shares many characteristics with both. For this reason we tend to use the global lower-middle-income group of countries for comparative purposes in addition to regions such as sub-Saharan Africa, where appropriate.

When Tunisia is compared with country groups, it is excluded from that group to maintain the accuracy of the comparison, hence the use of 'other' (e.g., 'other lower-middle-income' or OLMICs). When using the upper-middle-income group of countries (UMICs), we exclude China, as its large population and economy tends to skew comparisons with other income groups

All monetary values in this report have been converted from 2011 US\$, used by IFs, into 2019 euro values, unless indicated otherwise.

## From independence to the Freedom and Dignity Revolution and its aftermath

After gaining independence from France in 1956, Tunisia was ruled by prime minister and later president Habib Bourguiba, who embarked on an expansive social and state-led development model. For example, the *Code of personal status* adopted after independence in 1956 granted women full legal status, outlawed polygamy and repudiated the right of a husband to unilaterally divorce his wife, enabling the development of a more gender-equitable society.<sup>2</sup>

In 1965 the country became the first Muslim majority country to liberalise abortion laws. In 1958 Tunisia introduced free education and in 1990 the government passed new education legislation that, among other things, introduced free compulsory basic education from ages 6–16 and modernised the education system. As a result, the country has achieved high enrolment and literacy rates that resemble upper-middle rather than lower-middle-income country characteristics.<sup>3</sup>

After standing unopposed for re-election on four occasions, Bourguiba was constitutionally designated

'president for life' in 1974, only to be overthrown in a bloodless coup in 1987 by then prime minister Zine El Abidine Ben Ali.<sup>4</sup>

Ben Ali promised democracy and other socio-economic reforms but failed to deliver on inclusive growth, in spite of the fact that average gross domestic product (GDP) per capita between 1960 and 2010 improved at a rate of 3% per year, representing a more than fourfold increase. These improvements were facilitated by an expansive state-led development paradigm that expanded cronyism.

After three rigged elections that he won with nearly 100% support,<sup>5</sup> Ben Ali was ousted by events now known as the Freedom and Dignity (or Jasmine) Revolution starting on 18 December 2010.

People took to the streets after a 26-year-old Tunisian street vendor, Mohamed Bouazizi, self-immolated in a desperate protest against a system that had denied him the most basic opportunity to earn a living. After a month-long period of intense riots and protests across the country, Ben Ali was forced to flee to Saudi Arabia and sentenced in absentia to 35 years in prison for embezzlement and later to life imprisonment for the killing of protesters.<sup>6</sup> He eventually died while in self-imposed exile.

Meanwhile, the popular uprising had spread to North Africa and the Middle East in what eventually became known as the Arab Spring. In its wake, Egypt's Hosni Mubarak and Libya's Muammar Gaddafi were both ousted from power, irrevocably altering the region's future.

The robust macroeconomic indicators generally quoted by the African Development Bank (AfDB)<sup>7</sup> and the International Monetary Fund (IMF)<sup>8</sup> during the years leading up to the revolution obscured many frustrations around economic opportunity. Pervasive corruption and inequalities, high youth unemployment, slow economic liberalisation and low levels of private investment are some of the issues commonly highlighted.

Ben Ali and his inner circle dominated the economy from banking to tourism, manufacturing and oil. State instruments like tax auditing, licencing control and inspections were used to stifle competition and control investment, limiting opportunities to those provided by the state and in lowly paid jobs.<sup>9</sup> Many Tunisians were forced to earn a living in the informal sector, since only those with the right connections or enough resources to buy access could enter the formal sector.

## The goals and promise of the Freedom and Dignity Revolution remain unfulfilled for Tunisians

In the aftermath of the revolution, Tunisia has sought to implement an ambitious social and economic reform agenda, but because of low growth its macroeconomic indicators have weakened and its ability to implement redistributive policies has lessened. Whereas the GDP expanded by an average of nearly 4.5% between 2000 and 2010, the rate was only 2% between 2010 and 2018.

Government spending and the size of the public sector have increased while reform aimed at reducing inefficient subsidies and the large public sector has gained little traction. Insecurity is spilling over its porous borders with Libya and Algeria, while the quality of its education system is deteriorating.

Continued frustration among Tunisians was brought to the fore in the October 2019 elections when Kais Saied, a conservative law professor and generally considered a political outsider, was elected as president.

The fragmented political establishment and subsequent contestation to form a new government is testament to the political and developmental uncertainties ahead.

The goals and promise of the Freedom and Dignity Revolution remain unfulfilled for Tunisians. It is increasingly clear that without deep and structural economic reforms, regular elections will not translate into better opportunities. The coronavirus downturn has exacerbated an already precarious situation.

## Population

Tunisia's population was estimated at 11.9 million in 2020 and is expected to increase to 13.4 million by 2040. The country's population is largely urban, well- educated and significantly older than that of most other countries in the MENA region and even the average for OLMICs, as shown in Figure 1. Generally, this is the result of progressive social reforms, including family planning and the higher legal age of marriage.<sup>10</sup>

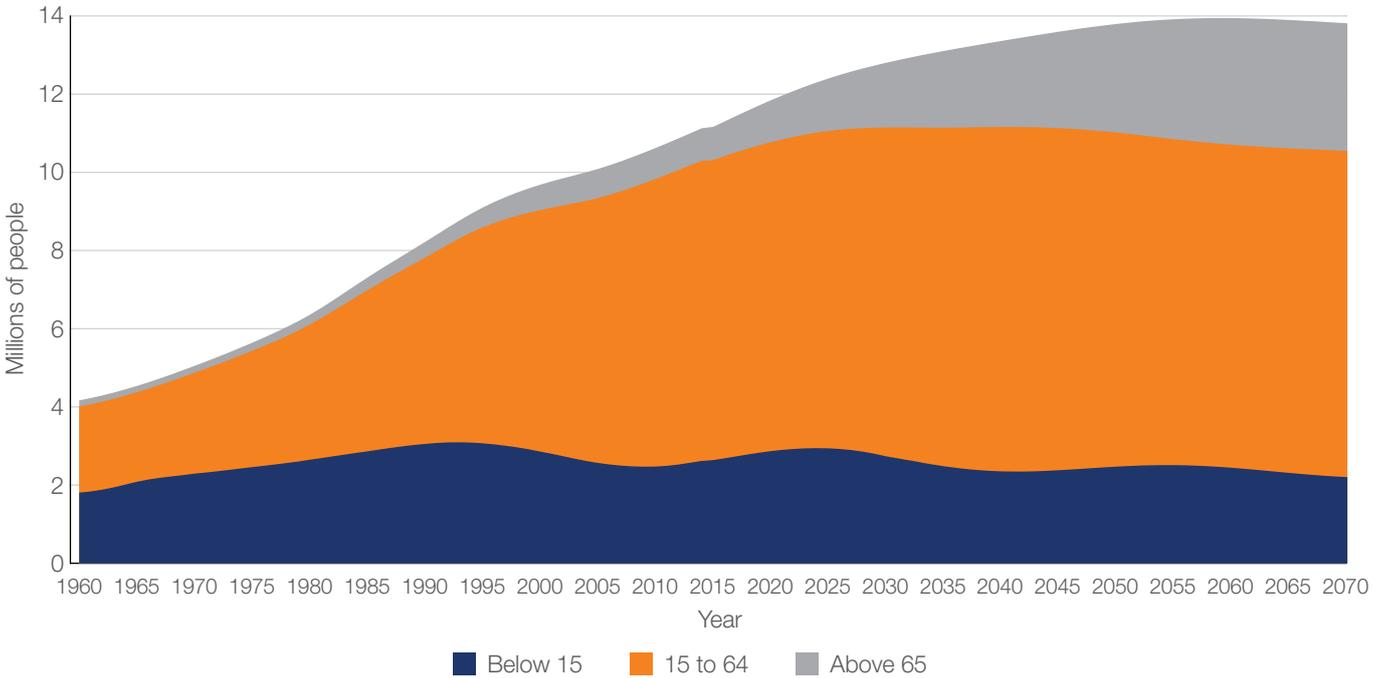
The *Code of personal status* and Tunisia's liberalisation of abortion laws also had a positive impact on the reproductive health of women.<sup>11</sup> The result has contributed to the steady decline in the total fertility rate (TFR), particularly since 1995.

Combined with education and urbanisation, Tunisia's efforts to empower women reduced TFR from about seven children per woman at independence to approximately two children per woman by 2005. Today TFR in Tunisia is the third lowest in Africa (behind Libya and Mauritius) and is rapidly approaching the demographic profile for UMICs, characterised by low birth and death rates and a higher median age.

In fact, Tunisia's TFR is projected to fall below the replacement level of 2.1 children in the early 2020s, which will cause a decline in the size of the working-age population (15–64 years) while the elderly population (65 years and over) will grow.

Also evident from Figure 1 is the rapid increase in the size of Tunisia's working-age population (15–64 years) in the years preceding the Freedom and Dignity Revolution. In the absence of jobs and employment opportunities, this rapid growth proved destabilising, particularly since it was accompanied by increased levels of urbanisation and educational attainment.

**Figure 1: Population**

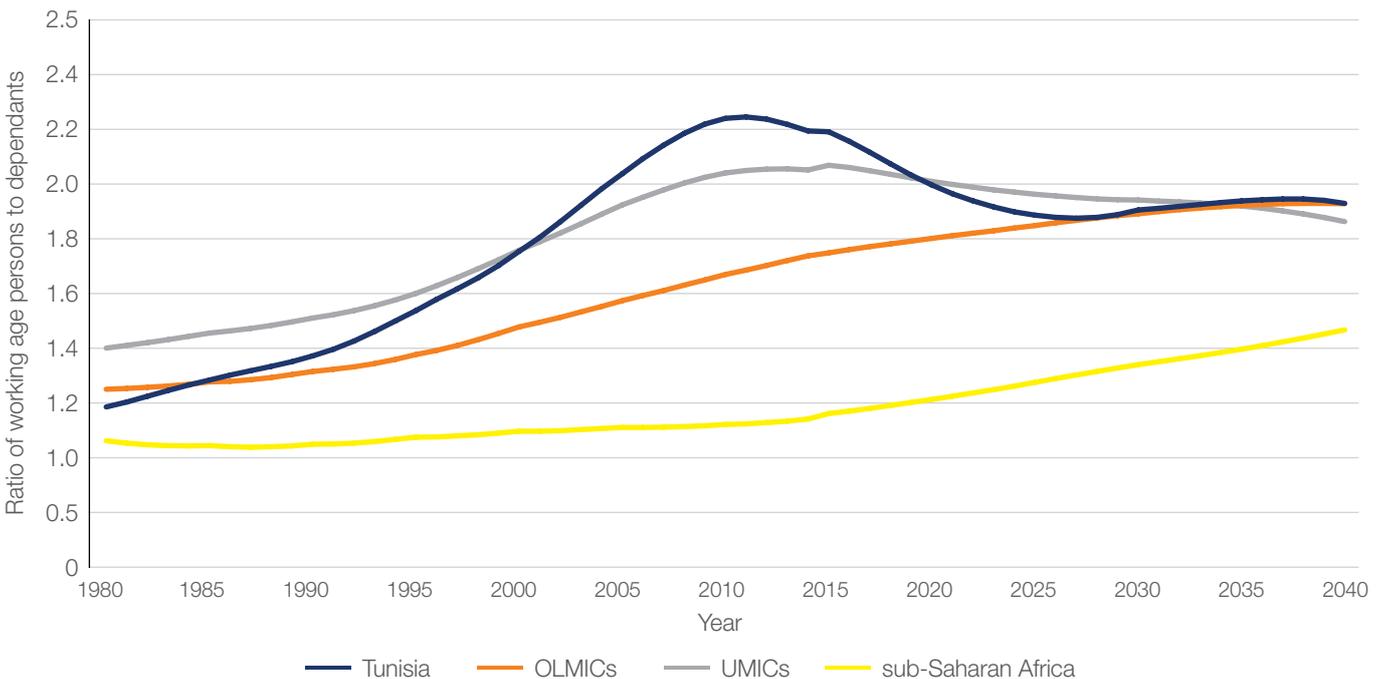


Source: IFs v7.45, historical data from United Nations Population Division

However, the share of the adult population between 15 and 29 years– known as the ‘youth bulge’ – is now shrinking quite rapidly, which will likely moderate the risk of escalated social unrest.

Tunisia reached its peak demographic dividend, or the ratio of working-age people to dependants, in 2011, when it had about 2.3 people of working age for every dependant (Figure 2). This ratio has since declined to the current rate

**Figure 2: Demographic dividend, Tunisia and other groups**



Source: IFs v7.45, historical data from United Nations Population Division

of two people of working-age for every dependant, and is projected to remain relatively constant to 2040.

This favourable ratio with regard to the contribution that labour makes to economic growth is not, however, translating into income growth, as would be expected.

Tunisia is moving rapidly through its demographic transition without having achieved the associated benefits that typically accompany high levels of urbanisation, improved health outcomes and high levels of education. Income and overall economic growth have deteriorated and job opportunities in the formal sector are scarce.

The impediment, it would seem, is the country's opaque economic system, which is dominated by strong vested interests and allows few new opportunities and competition. Despite the impressive human capital outcomes, it has under-delivered in terms of employment and economic inclusion.

The next decade will continue to offer Tunisia a demographic window to harness the economic potential of its large working-age population before the ratio slowly declines. Thereafter, the country might have to compensate for its smaller ratio of working-age population to dependants through higher savings, investment and technology – none of which has performed particularly well previously.

Tunisia's rapidly aging population will require greater spending on preventing, diagnosing and treating non-communicable diseases (NCDs) such as cancer, which are often costlier and require more sophisticated resources than communicable diseases. Managing the non-communicable and communicable disease burden at once is especially difficult and will require increased spending on health.

## Economy

### Growth

Published in 2015, Tunisia's five-year development strategy emphasises the promotion of private sector development for economic growth and job creation, a vibrant civil society and strong international partnerships.<sup>12</sup>

However, thus far little progress has been made. Instead, rising expenditure has increased public debt from 40% of GDP in 2010 to an estimated 73% of GDP in 2019, consuming more than 22% of the budget, although the budget deficit dropped from 7.4% of GDP in 2016 to 3.9%

in 2019. Tunisia's debt burden will increase significantly due to COVID-19, with public and external debt now expected to reach 89% and 110% of GDP in 2020.<sup>13</sup>

With the current account under pressure, dwindling foreign reserves, a weakening currency, an unemployment rate of over 15% and inflation at approximately 6.5%, the Tunisian economy is struggling.

Tunisia's significant subsidies on energy, fuel, food and transport and a large public service wage bill are exacerbating inequality and straining government's coffers.

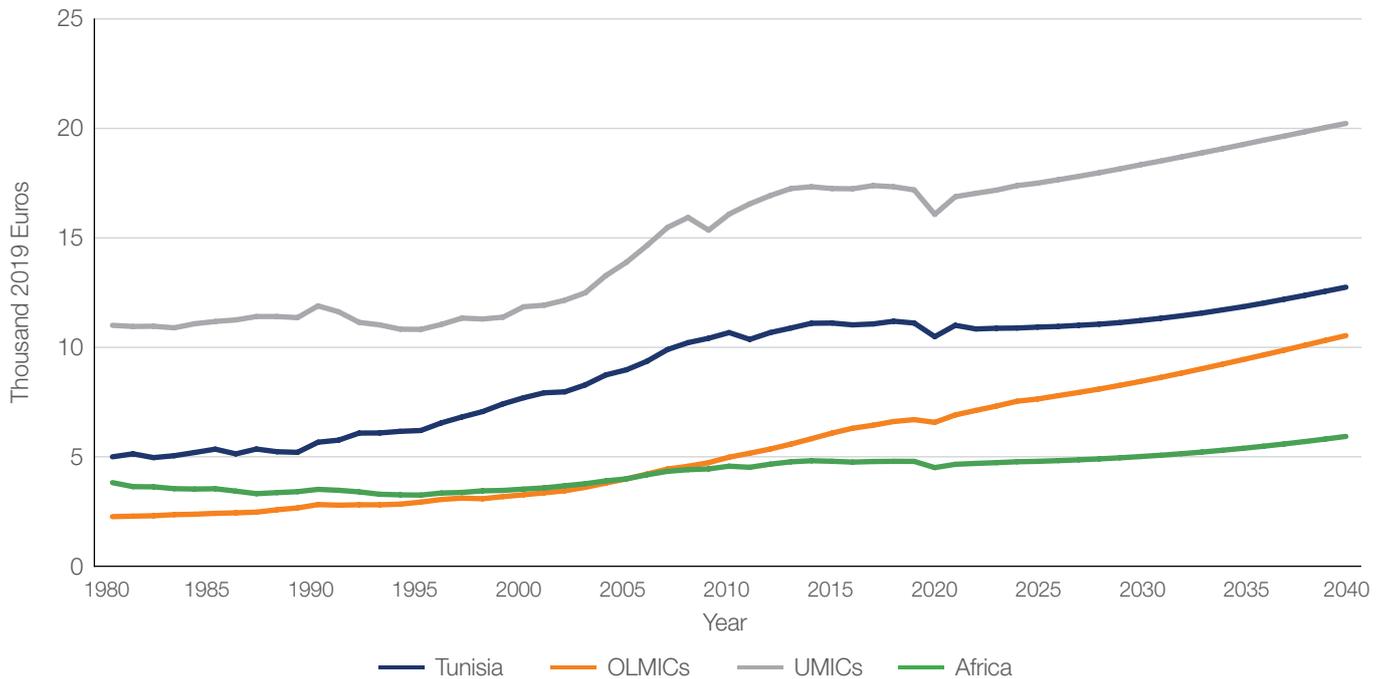
According to the International Monetary Fund (IMF), 'the richest 20 percent of Tunisians consume 28 percent of all subsidies, while the lowest 20 percent only receive 14 percent'.<sup>14</sup> Civil service wages represent the biggest public expenditure item at about half the total budget, or 15% of Tunisia's GDP.<sup>15</sup>

Tunisia is moving rapidly through its demographic transition without having achieved the associated benefits

Since 2000 Tunisia's growth rate has fallen below the average for OLMICs, a trend projected to continue even beyond 2040. However, the IMF reported economic growth of just over 1% in 2019, down from 2.7% in 2018. The economic impact of COVID-19 is expected to contract growth to -4.3% in 2020 and the country will experience the deepest recession since independence. Contingent upon the discovery, mass production and roll-out of an effective vaccine, the IMF expects global growth to bounce back in 2021, including in Tunisia, which it forecasts will grow at 4.1%, moderating thereafter.<sup>16</sup>

On the Current Path, Tunisia will experience an average annual economic growth rate of 1.9% between 2020 and 2040 compared to an expected average annual population growth rate of 0.6%. Incomes will improve, but more slowly than in its OLMIC peers (see Figure 3), and the gap between Tunisia's per capita income and the average for OLMICs is expected to narrow. Tunisia is also expected to fall further behind the average for UMICs. This dynamic is concerning, given its significant human capital endowment, which should enable significantly more rapid growth in incomes.

**Figure 3: Per capita income**



Source: IFs v7.45, historical data from World Development Indicators

### Economic structure

Since 2010 tourism, manufacturing and efforts at expansionary policies have driven Tunisia’s growth.<sup>17</sup> The services sector<sup>18</sup> is estimated to make the largest contribution to GDP (between 50% and 60%) and is set to remain dominant to 2040.<sup>19</sup> Tourism, a major contributor to services, has suffered in the last few years owing to terrorist attacks and other security issues, but has shown signs of recovery since 2018, recording a 42.5% jump in revenues in the first half of 2019.<sup>20</sup> COVID-19 will, of course, reverse that recovery.

Manufacturing is the second largest contributor to GDP at an estimated 29% in 2019, according to IFs, which is above the OLMICs average. The country also has a large information and communications technology (ICT) sector that contributes over 4% to GDP, significantly above OLMICs’ averages.

Agriculture plays a small but important role at roughly 12% of GDP, while the energy sector contributes a meagre 2% of GDP. On the Current Path, the GDP contributions of agriculture and energy will decline modestly although still increasing in absolute dollar terms.

However, industrial production has been falling, especially in the mechanical and textile sectors, which have suffered from a drop in external demand owing to competition from China and Tunisia’s high production costs.<sup>21</sup> In addition, the production of phosphate, a major source of revenue and domestic stock of foreign exchange, halved between 2010 and 2016 in part due to labour and union strikes. Oil and gas production also nearly halved over this period.<sup>22</sup>

The performance and profitability of Tunisia’s many large state-owned companies continue to decline. These large monopolies, which depend on ongoing injections of capital from the government to survive, distort markets and hinder competition and innovation.<sup>23</sup>

In addition, the trade deficit grew to an all-time high of €6.9 billion in 2019 with imports at over €22.6 billion (TND<sup>24</sup> 63 billion) and exports at €15.6 billion (TND 43.9 billion).<sup>25</sup>

Given the low levels of intra-regional trade in the region, it is no surprise that almost 80% of Tunisia’s exports go to the European Union (EU) rather than its neighbours. The lack of regional integration is a major constraint on development in Tunisia and North Africa.

Negotiations for a Deep and Comprehensive Free Trade Area (DCFTA) between the EU and Tunisia were launched on 13 October 2015 to include agriculture and services.<sup>26</sup> The negotiations are expected to create new trade and investment opportunities and ensure Tunisia is better integrated into the EU single market, but the domestic impact is contested.<sup>27</sup>

Tunisia has a significant informal and parallel economic sector that is substantially larger than the average for OLMICs when measured as a portion of the total economy or GDP. A World Bank study notes that 60% of Tunisia's graduates end up in the informal sector or unemployed.<sup>28</sup> This high level of informality constrains growth, as informal sectors are generally less productive than formal sectors and make a smaller contribution to taxes.

Many Tunisians are forced to engage in the informal sector in spite of their high levels of education; a situation that contributed to the overwhelming frustration that underpinned the revolution.<sup>29</sup>

Although some economists believe that the government relies on the informal sector to reduce unemployment,<sup>30</sup> labour absorption in the informal sector is actually about a third below the average for OLMICs. In spite of its large informal sector (as a percent of GDP), informal labour as a portion of total labour in Tunisia is more than 30 percentage points below the OLMICs average.

The theory that Tunisia's large informal and parallel economy (estimated at 38% of GDP in 2013) is more than survivalist

and involves considerable illicit activity is borne out by a World Bank estimate that about 25% of fuel consumed in Tunisia is smuggled from Algeria, where fuel is cheaper.<sup>31</sup> Much of the informal sector in Tunisia could therefore more appropriately be described as being part of the shadow economy, consisting of black market transactions such as smuggling and undeclared work. This is generally the case because formal sector opportunities are unavailable.

Tunisia's high import taxes, outdated regulations and corrupt customs officials are some of the issues that deter business people from complying with official trade and currency exchange laws. They also contribute to the extremely low level of formal trade between countries in the Maghreb. In 2017 a former trade minister estimated that the share of small enterprises in the parallel economy amounted to an annual loss of €1.2 billion for the state just from value-added tax alone.<sup>32</sup>

A study of the prevalence of the informal sector and the challenges to its formalisation shows that a third of informal workers and entrepreneurs listed bureaucracy, nepotism and corruption as major impediments to formalisation.<sup>33</sup>

Nonetheless, IFs forecasts that the informal economy will decline by just over three percentage points of GDP by 2040 from nearly 23% in 2019, but it remains around five percentage points larger than the average for OLMICs across the forecast horizon. From a structural point of view, more rapid formalisation of the informal sector would boost government revenues, accelerate economic growth and expand regional trade.

### Box 3: Measuring productivity in IFs

The IFs system assesses the stock (e.g. labour force size) and flow (e.g. investment) dynamics between capital, labour and technology as a means to assess and model countries' long-term growth prospects.

Technology is measured as multifactor productivity (MFP), and is further divided into four components – human capital, knowledge capital, social capital and physical capital. Additions to the initial MFP are computed within the IFs system using inputs from other sub-models, such as education.

The growth forecast therefore represents the expected economic output from financial interaction between households, firms and government on the basis of both direct economic inputs such as labour and domestic/foreign investment, and deeper drivers such as the level of human development, quality of governance, and physical infrastructure that augment the quality and/or quantity of the direct inputs. In this way, IFs integrates longer-term issues, whereas most economic models focus on shorter-term equilibration and deal with the long run exogenously.

To examine the other reasons for slow growth beyond the large size of Tunisia's shadow economy, we turn to analysis of the three standard contributors to economic growth, namely labour, capital and technology (or multifactor productivity [MFP] – see Box 3).

Compared to OLMICs, labour and capital contribute the least to Tunisia's growth, although, by 2035, the contribution from labour reaches the current mean of OLMICs. Of the three primary factors MFP makes the greatest contribution to economic growth in Tunisia compared to OLMICs and UMICs, as shown in Figure 4 at five-year intervals.

The reason for labour's low contribution is that Tunisia's labour participation rate has steadily diverged from the OLMICs' mean since 1985, and is currently about 12 percentage points lower, with rates for females significantly below that of males.

The poor contribution from capital is because investment in Tunisia's economy is over seven percentage points below that for OLMICs at around 20% of GDP. Since the 2011 revolution, foreign direct investment (FDI) has declined sharply. In 2017, for example, FDI inflows amounted to €894 million, a 45% decrease from 2012. The result is that Tunisia's stock of FDI declined to €29 billion in 2017 compared to €29.8 billion in 2016.<sup>34</sup>

The Tunisian government has taken a number of measures to attract FDI to industries such as energy, tourism, construction material, telecommunications, finance and electronics. In 2018, for example, the government passed legislation to simplify the procedures required to work and do business as a foreigner.<sup>35</sup>

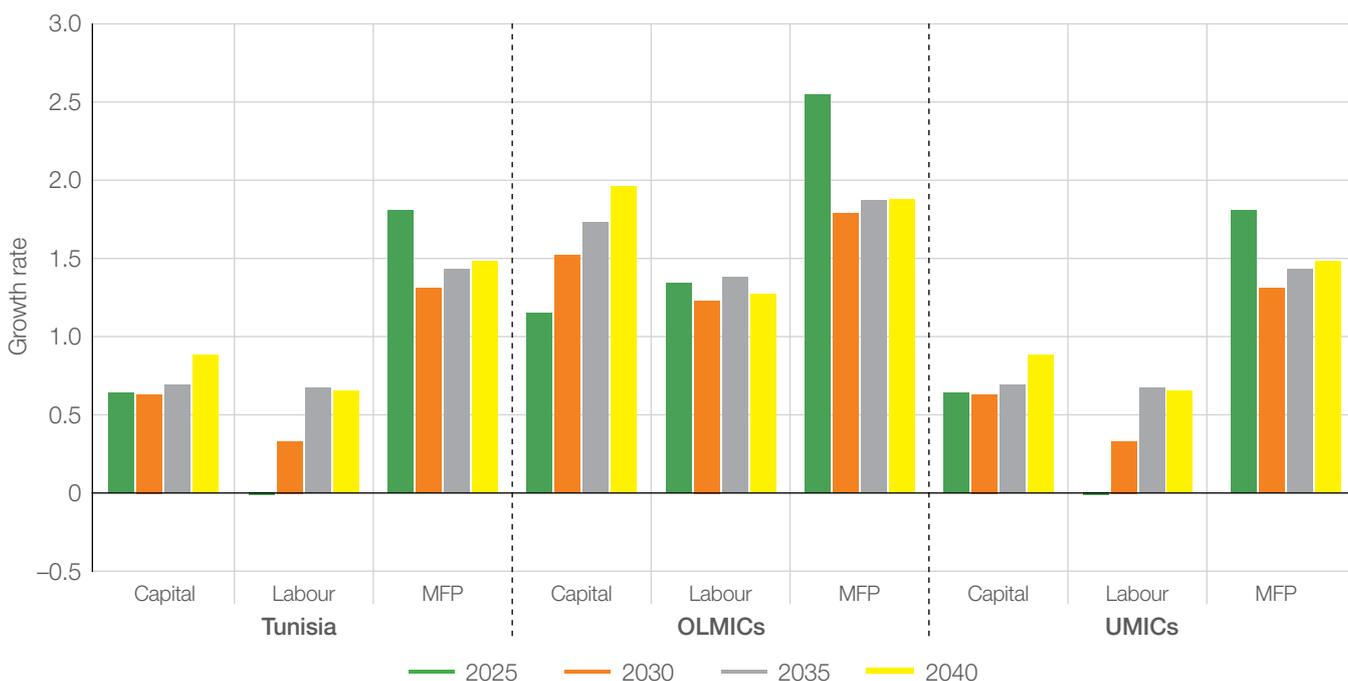
Furthermore, in 2017 remittance inflows came to roughly €1.9 billion while outflows were approximately €29.5 million. In 2018 inflows were estimated to be over €2 billion. While remittances have contributed significantly to livelihoods (consumption) in Tunisia, only a small portion is allocated to investment.<sup>36</sup>

Although MFP performs well, according to the World Bank's human capital index, Tunisia scores lower than expected in terms of its education and income levels.<sup>37</sup> It is one of the few countries where a higher level of education decreases employability, particularly for women.<sup>38</sup>

In addition to the opportunities offered in the shadow economy and barriers to entry into the formal economy, one of the reasons for this is the lack of fringe benefits like maternity leave in the private sector.<sup>39</sup>

The World Bank estimated that unemployment was approximately 15% in 2018, and disproportionately affects the youth and women. The unemployment rate

**Figure 4: Growth accounting for Tunisia, OLMICs and UMICs**



Source: IFs v7.45

for graduates and women hovers at roughly 30% and 25%, respectively.<sup>40</sup>

Theoretically, the country has an ambitious legislative reform agenda and a progressive constitution, and indices on governance quality closely track the averages for ULMICs rather than OLMICs. But it is also evident that the post-2011 economic environment is characterised by a deteriorating business climate, a decline in investment and a shift away from capital investment. Instead of declining, cronyism seems to have survived the Freedom and Dignity Revolution.<sup>41</sup>

These dynamics highlight the extent to which economic growth and opportunity has not matched political progress in Tunisia. In addition to responding to the COVID-19 crisis in the short term, Tunisia will have to reduce the size of the parallel economy, contain unemployment, reduce public debt, improve public spending efficiency and address the social and regional disparities in the country.

These challenges require a reassessment of the country's governance model and the introduction of substantive competition that will take time to have an impact. Lowering taxes and barriers to participation in the formal sector and reviewing tariff differentials with neighbours, among other things, could gradually lead to greater investment and formalisation.

## Agriculture

Agriculture is an important element of the Tunisian economy. It is one of the world's largest producers and exporters of olive oil and one of the few African countries that is fully self-sufficient in dairy products, vegetables and fruit. The sector contributes about 12% of GDP and employs roughly 16% of Tunisia's labour force.<sup>42</sup>

Roughly two-thirds of the country is suitable for agriculture, and is mostly cultivated by small-scale farmers.<sup>43</sup> Although foreign investors cannot own agricultural land, they can get long-term leases on public land from the Ministry of Agriculture.<sup>44</sup>

However, Tunisia's average crop yields are low, at under 2.2 tonnes per hectare, compared to the average for OLMICs at 6.3 metric tonnes, indicating challenges in the agricultural sector and the potential for improvement. In fact, yields have hardly changed since independence, although agriculture consumes 80% of the country's natural water resources.<sup>45</sup> By 2040 average crop yields are projected to increase to only 2.8 tonnes per hectare compared to the average for OLMICs at about 7.5 tonnes per hectare.

Since 2008 the government has renewed its efforts and formulated a number of national economic and social strategies to address agricultural production and food security as key pillars of the economy, but the results have been disappointing.<sup>46</sup>

Tunisia also loses more than one-fifth of all of its crops to loss and waste –approximately two percentage points higher than countries in the MENA region and OLMICs. The *Institut national de la statistique* (INS) estimated that approximately 900 000 units of bread, the staple food in Tunisia and the greater Mediterranean region, are wasted per day, amounting to roughly TND 100 million (€50.8 million) annually.

The INS also estimates that food expenditure related to cereals represents about 13% of food expenses, or TND 149 (€53.2) per person per year.<sup>47</sup>

Additionally, agricultural demand has outstripped supply since 1966. Tunisia's *L'Observatoire de la Souveraineté*

### Box 4: Governance measures

IFs draws the measures of **government effectiveness** and **regulatory quality** from the World Bank's Worldwide Governance Indicators (WGI) project. Government effectiveness 'captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies'. Regulatory quality reflects perceptions of the government's ability to create and implement policies and regulations that promote the development of the private sector. Greater government effectiveness and regulatory quality link forward to improved ICT and enhanced social capital.

*Alimentaire et de l'Environnement*<sup>48</sup> (OSAE) reports that one out of two Tunisians consume imported food, and food dependence exceeded 55% of consumption in 2019. This heavy food dependence, according to the OSAE, could worsen if Tunisia enters into the DCFTA with the EU, since it would remove the remaining barriers protecting the country's agriculture.<sup>49</sup>

A World Bank study suggests that Tunisia does not have an agricultural policy but rather a food security policy that in fact hinders the development of its agricultural sector. State intervention has pushed production away from Mediterranean products – in which Tunisia has a natural comparative advantage – towards less competitive continental products, keeping agricultural productivity at suboptimal levels and preventing the sector from achieving its full potential.<sup>50</sup>

As a result, reliance on food imports has increased over the years, particularly wheat.<sup>51</sup> According to the Observatory of Economic Complexity (OEC), Tunisia imported food-related goods to the tune of more than €2.1 billion in 2017.<sup>52</sup> The FAO forecasted that in 2018/2019 cereal imports would average about 3.5 million tonnes.

According to IFs, import dependence on crops as a percent of net demand is expected to decline

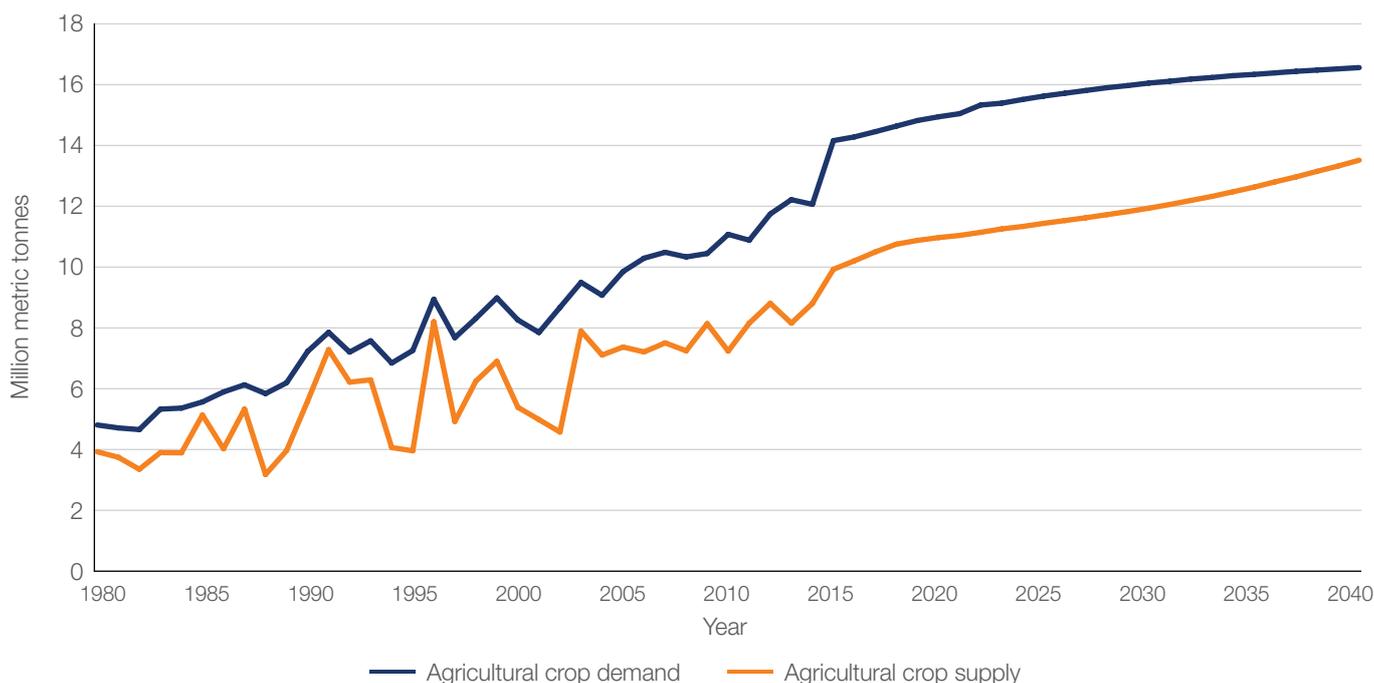
from 30% in 2020 to about 19% in 2040, as shown in Figure 5. From a food security perspective, Tunisia is vulnerable to shocks such as fluctuating international prices, which could negatively impact food security, especially in light of declining foreign exchange reserves.

To reduce food dependence, Tunisia needs agrarian reform. The OSAE reports that 3% of agricultural producers in Tunisia have more than 100 ha each, making up 30% of the total arable land. Most of their produce is exported. The remaining 97% largely produce for the local market and could, with better support and help from the government, reduce the country's food dependence problem.<sup>53</sup>

Climate change also threatens agriculture in Tunisia. USAID projects that Tunisia's economy will suffer a reduced output of €2–2.7 billion between 2000 and 2030 owing to the combined effects of increasing global food prices and stagnant agricultural yields.

From an agricultural perspective, climate risks to the sector include the decrease in crop yields, a shift in growing seasons, the degradation of soil quality, increased salinisation of aquifers, the decreased availability of water for irrigation and higher food prices.

**Figure 5: Tunisia's agricultural crop demand and supply in million metric tonnes**



Source: IFs v7.45, historical data from the Food and Agriculture Organisation

### Box 5: Climate change

Tunisia, like the rest of the region, is highly exposed to the impacts of climate change, which extend beyond agriculture. With 84% of its population located along its 1 150 km coastline, sea-level rise, floods, coastal erosion, warmer fishing waters and droughts are among the more urgent threats that the country faces. Aside from economic disruption, this will displace exposed and vulnerable populations unless better disaster risk management systems are put in place.<sup>54</sup>

The annual maximum temperature is likely to increase by 1.5–2.5°C by 2030 and 1.9–3.8°C by 2050, while the annual minimum temperature is likely to rise by 0.9–1.5°C by 2030 and 1.2–2.3°C by 2050. The number of hot days is also projected to increase by roughly 1.3 days per year between 2020 and 2039, while the duration of heatwaves will increase by four to nine days by 2030 and by six to 18 days by 2050. The sea level is expected to rise by 3–61 cm this century.<sup>55</sup>

Higher sea levels threaten the low-lying islands off Tunisia's coast. The effects of climate change will damage infrastructure such as roads, water and sanitation facilities, worsening existing water security challenges<sup>56</sup> and weakening coastal structures. The resulting loss in tourism revenue will also negatively impact the economy.<sup>57</sup> Together with political instability and other drivers this will in turn increase vulnerability to climate change.

Climate change will also directly impact health in Tunisia. Climate-related risks in the future will include higher mortality rates from extreme heat, increased malnutrition from crop failure, potential increased spread of diseases, and lack of access to clean water.<sup>58</sup>

### Poverty, inequality and subsidies

Tunisia has already achieved the headline Sustainable Development Goal (SDG) of eliminating extreme poverty as measured at US\$1.90 per person per day. In fact, less than 1% of its population fall below this level of income. Data shows that poverty was generally on the decline in the years leading up to the revolution in December 2010, a trend enabled by economic growth and food subsidies.<sup>59</sup>

Despite having already achieved this important SDG goal, the country will continue to struggle with poverty and social inequality. Figure 6 shows progress on eliminating poverty against the national poverty level of US\$2.60 per day,<sup>60</sup> and the World Bank's US\$3.20 extreme poverty level for lower-middle-income countries and US\$5.50 per day for UMICs. At all three levels, poverty is projected to increase until 2030 before gradually declining to 2040.

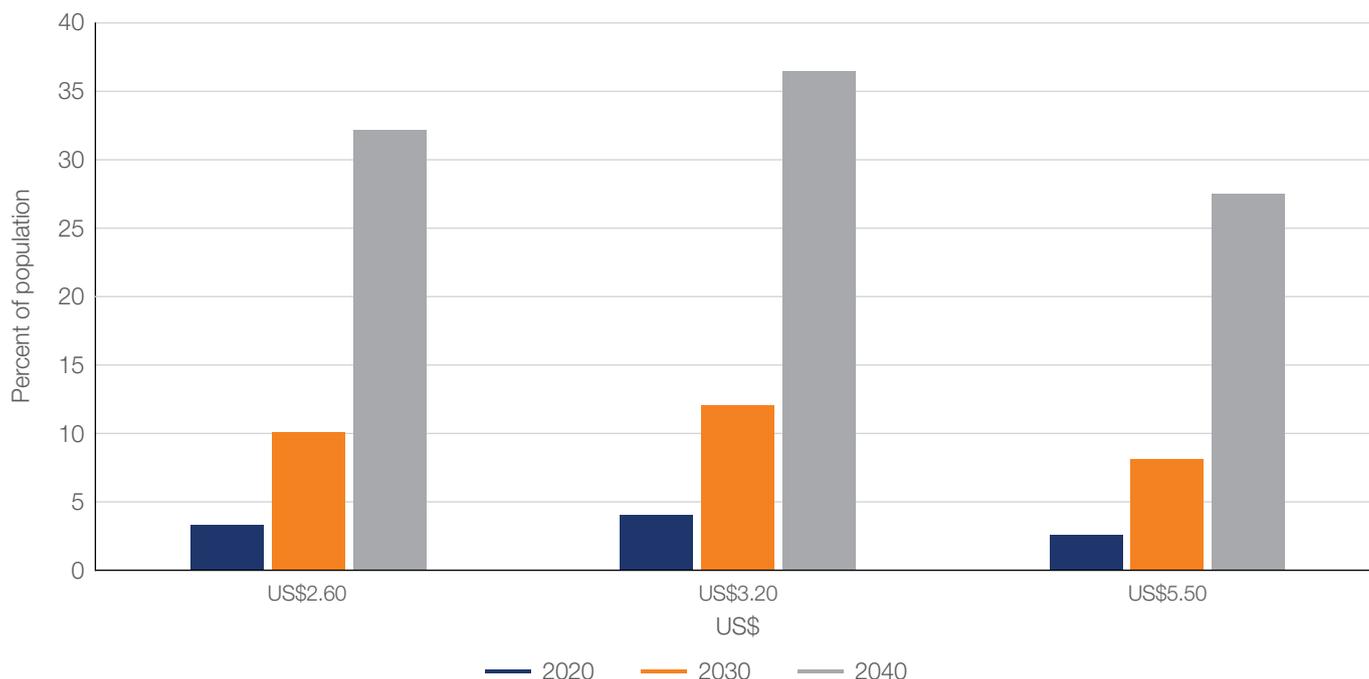
The global Multidimensional Poverty Index (MPI),<sup>61</sup> which measures 10 indicators across three dimensions, namely health, education and living standards, estimates that approximately 1.3% of Tunisians are multidimensionally poor.<sup>62</sup>

In addition, poverty is more pronounced in rural areas and among children. In fact, poverty among children,<sup>63</sup> estimated at over 21%, is nearly twice as high as poverty among adults, and the rural poverty rate of 30% is far above the urban poverty rate of 5 to 12%.<sup>64</sup>

Although inequality as measured by the Gini coefficient is declining and lower than in comparable countries, there are significant disparities beyond income among Tunisians across gender lines and between regions. Inequalities in the labour market and general well-being continue to disproportionately affect women and young graduates.<sup>65</sup>

Tunisia, like many countries in the MENA region, has used government subsidies, including food subsidies, as a key pillar of the social contract to alleviate poverty and inequality. However, subsidies to the energy sector have come at a high cost and now threaten fiscal sustainability in Tunisia, where they have generally been found to be inefficient and wasteful. In fact, more than 16% of energy subsidies accrue to the wealthiest, compared to only 6.1% for the poorest decile of the population.<sup>66</sup>

**Figure 6: Poverty rate at US\$2.60, US\$3.20 and US\$5.50 per day in Tunisia**



Source: IFs v7.45

Attempts to reform the subsidy policy, particularly in the energy sector, have not been successful, although cuts to the subsidy bill are crucial to reducing the budget deficit.

Tunisia is aware of the need to move away from universal food subsidies towards targeted social assistance programmes that would optimise the budget allocated to this purpose. A 2013 study by the African Development Bank examined various scenarios to this effect.<sup>67</sup> Among the various proposals is a universal child allowance to mitigate the negative impact of general food and energy subsidy reform while effectively promoting poverty reduction and investment in human capital development.<sup>68</sup>

## Education

Tunisia has achieved remarkable progress in education outcomes since independence by investing in pre-primary education and making education free and compulsory for students aged six to 16. At present, Tunisia has the second most educated population in North Africa after Libya and ranks ninth on the continent, as measured by the average years of education attained by Tunisian adults (15 years and older).

The adult literacy rate is just above 80%, which makes it the 16<sup>th</sup> highest in Africa, and about 16 and six

percentage points higher than the African and OLMICs average, respectively.

In 2020 the average Tunisian adult has about 8.2 years of education, projected to increase to 9.6 years by 2040. The average woman has about 7.7 years of education while the average man has 8.8. Yet, in spite of the high levels of female education women's share of the labour force is, on average, around five percentage points below that for OLMICs (although significantly above the MENA average).

On the Current Path, gender parity in education will improve, with the average (+15 years) man and woman in 2040 having 9.6 and 9 years of education, respectively. Only about 22% of adults in Tunisia have no education or incomplete primary education – roughly on par with the average rate of 24% in OLMICs.

The legacy of colonialism and Tunisia's proximity to the EU have complicated progress, however. Since the 1970s education has experienced significant Arabisation, although most scientific subjects are still taught in French. The language policy designates classical Arabic as the language of instruction at the initial stages of learning. Thereafter students are expected to learn and take exams in French.

In spite of its generally impressive educational outcomes, Tunisia is experiencing bottlenecks in upper secondary

transition and completion rates, where the requirement for literacy in French in key subjects like science contributes to high drop-out rates.

Gross enrolment and graduation rates for tertiary education, although generally good, are impacted by the bottlenecks at the secondary level.

Given the budgetary constraints and increasing demand for secondary education, government finances are under considerable pressure, but Tunisia still spends significantly more on education than the OLMICs' average.

Despite successful efforts in improving public education and enrolment, the system is now faced with challenges in the quality of education it is offering.

There has been a drop in student scores in international assessment measures like the Organisation for Economic Co-operation and Development's (OECD) Programme for International Student Assessment.<sup>69</sup>

In addition, the country's low education outcomes are evident in the Multiple Indicator Cluster Surveys in 2018, which showed that 33% and 72% of children aged 7–14 do not have foundational reading or math skills, respectively, with large disparities depending on residence and socio-economic status.

The decline in baccalaureate pass rates (end of secondary) at 41% in 2018 from 52% in 2016 is another indication of the challenges faced by the education system.

**Table 1: Education flow (latest data from 2018)**

Country/region	Primary		Lower secondary		Upper secondary		Tertiary	
	Enrol (gross)	Completion	Enrol (gross)	Completion	Enrol (gross)	Completion	Enrol (gross)	Graduation
Tunisia	115.4	95.5	107.7	74.9	79.7	48.7	35.3	22.5
Algeria	109.9	118.2	129.5	93.6	65.7	37.5	51.4	29.2
OLMICs	105.2	95.9	85.2	67.1	60.6	35.6	26.3	25
UMICs	106.7	105.7	99.6	88.5	85.5	48.7	49.4	29.6

Source: IFs v7.45, historical data from UNESCO Institute for Statistics and UNICEF MICs 2018 survey

### Box 6: Education in IFs and definitions<sup>70</sup>

In IFs, education is conceptualised as a pipeline in which learners progress from primary to secondary and all the way to tertiary level (i.e. completion of one level enables transition to the subsequent level). The more learners a country can enrol in primary school, the larger the pool of learners who can graduate and transition to secondary and tertiary level.

**Gross enrolment rate:** The number of students enrolled in a given level of education, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education.

**Completion rate:** The number of persons in the relevant age group who have completed the last grade of the given level of education, as a percentage of the population at the theoretical graduation age for the given level of education.

**Gross graduation rate:** The number of graduates who have completed the last grade of a given level of education, regardless of age, as a percentage of the population at the theoretical graduation age for the given level of education.

Source: UNESCO glossary, <http://uis.unesco.org/en/glossary>

Apart from straightforward challenges such as the quality of the curriculum and teachers, geographical location also creates differences in educational outcomes.

Educational facilities and institutions are mostly located in Greater Tunis and along the coast. The shortage of educational resources, including human resources, in areas like the governorate of Kairouan impedes learning. In addition, educational infrastructure, like school buildings, is fragile and poorly maintained, especially in rural areas.<sup>71</sup>

Overall, the education curriculum is considered to be out of step with the requirements of the job market and the economic and social realities of Tunisia. In addition, recent years have also seen a greater demand for English in the workplace – a requirement that Tunisia will have to grapple with if it wishes to remain economically competitive.

Tunisia's Strategic Plan for the Education Sector 2016–2020 seeks to address the quality of education in the country. The five-year plan aims to improve teacher training, upgrade the curriculum and education infrastructure, and promote private partnerships. Moreover, vocational training is limited in Tunisia, but is necessary for the country to absorb students who do not proceed to upper secondary school and to provide crucial skills for technical jobs.<sup>72</sup>

Tunisians are generally well educated, and enrolment rates are quite high by global standards. The considerable number of well-educated people without economic opportunities contributed to the Freedom and Dignity Revolution.

It is critical that the country reforms its education system, ensuring that it is relevant globally and appropriate for the Tunisian context, if it hopes to produce graduates who can create jobs, promote economic growth, reduce socio-economic inequalities and contribute to social stability.

## Health

Tunisia introduced free healthcare at independence and has since made significant investments in the sector. As a result, it is estimated to have gone through its epidemiological transition during the late 1960s and early 1970s. Since then, NCDs have been the primary cause of death, replacing communicable diseases.

However, healthcare services started to deteriorate in the late 1970s, at the height of authoritarian rule followed by Tunisia's financial crisis of the mid-1980s. Despite the challenges in the sector, a large majority of Tunisians have access to medical services and there are increasing private investments in the health sector.<sup>73</sup>

This generally positive situation is reflected in the fact that life expectancy in Tunisia is nearly 78 years in 2020 and is projected to reach 80 years by 2040 – nearly four years above the global average.

Infant mortality stands at about 10 deaths per 1 000 live births and is lower than that of UMICs globally. Tunisia is projected to have an infant mortality rate of eight deaths per 1 000 live births by 2030 and seven by 2040. The country will therefore not meet the SDG goal of eliminating preventable deaths of newborns and children by 2030.

Tunisia's maternal mortality ratio is estimated at 56 deaths per 100 000 live births – less than a third of the average for low-middle-income countries globally. On the Current Path, the maternal mortality ratio is projected to decline to 15 deaths per 1 000 live births by 2040.

## Tunisia's education curriculum seems out of step with the country's economic and social realities

It has also made impressive strides in reducing malnutrition, and in 2019 the World Hunger Index ranked hunger as 'low' in the country.<sup>74</sup> However, obesity has become a significant issue. The Tunisian Health Examination Survey of 2016 indicates that 64.5% of Tunisians are overweight, with 72.4% of this number women and 30% obese.<sup>75</sup>

Economic development and the intensification of urbanisation have been accompanied by changes in lifestyle and nutrition; fostering the rise of NCDs. Cardiovascular-related deaths and cancer are the leading causes of mortality in terms of NCDs. Although the importance and impact of NCDs were recognised in the early 1990s in Tunisia, the primary healthcare system is still ill equipped to manage and implement a comprehensive approach to NCDs.<sup>76</sup> Awareness of prevention measures for NCDs is also low.

Among communicable diseases, ‘other’ communicable diseases (a catch-all category for communicable diseases that are globally less prevalent/prominent) and respiratory infections are the leading causes of death. In 2020, cases of COVID-19 threaten the healthcare system, which only has approximately 700 beds for intensive care in public and private hospitals. Tunisia’s significantly high NCD prevalence is also cause for concern, despite its relatively young population compared to that of Europe.

Additionally, the crisis has highlighted regional disparities in access to healthcare. Although the marginalised regions have not recorded many cases there is concern that without aggressive testing, clear identification of primary transmission routes, contact tracing and isolation, the virus may be spreading more rapidly in these regions.<sup>77</sup>

While tobacco smoking is on the rise among both men and women in Tunisia, it is declining across Europe and the United States. Due to the absence of legislation on the issue, the share of young people who smoke tobacco remains high, a trend that is expected to negatively influence mortality in the next decade if appropriate legislation measures are not implemented.<sup>78</sup>

Meanwhile, deaths from road traffic accidents are quite high. In fact, the World Health Organization reported in 2015 that Tunisia had the second-worst traffic death rate per capita in North Africa, behind war-torn Libya.<sup>79</sup> In 2018 the National Observatory for Road Safety (ONSR) showed a nearly 16% decline in traffic accidents, although Tunisian roads are still considered deadly.<sup>80</sup>

Going forward, mortality from NCDs will continue to increase sharply. Mortality from communicable diseases will decline, but very slowly, while deaths from injuries will rise. In fact, the mortality burden from injuries has surpassed that of communicable diseases and this trend is expected to continue to 2040.

Because NCDs are inherently more expensive to diagnose and treat than communicable diseases, Tunisia will have to scale up its health framework and the associated amenities to respond to its evolving disease burden.

## Basic infrastructure

Tunisia has a relatively well-developed basic infrastructure system. Basic utilities and services like water, sanitation, electricity, telecommunications and transport were

rolled out in the 1980s as part of the broader push on economic and human development.

## Water and sanitation

Water scarcity has long been a challenge in North Africa, complicated by rapid urbanisation and climate change. Nonetheless, Tunisia has achieved significant success in expanding access to improved water sources and sanitation facilities.<sup>81</sup> In 2018 an estimated 14.2% of the population lacked access to safe water<sup>82</sup> and only 3% lacked access to an improved sanitation facility – a major improvement from 2000, when 20% of Tunisians lacked access to an improved sanitation facility.<sup>83</sup>

On the Current Path, only about 2% do not have access to safe water, and all Tunisians will have access to safe water by 2036. The generally good health outcomes, particularly with regard to communicable diseases described in the previous section, can be attributed to adequate provision of services like water and sanitation in the country.

Tunisia will have to scale up its health framework and the associated amenities to respond to its evolving disease burden

However, the growing population and increased demand for water for agriculture are straining the country’s water resources. Between 2012 and 2013 water use grew by 12%, mainly owing to the rise in the urban population of Tunis.<sup>84</sup> In the summer of 2013 the greater Tunis area, with a population of 2.5 million people, experienced its first water cuts due to shortages.

To avoid future water shortages, Tunisia needs to reduce inefficiency in water use by modernising infrastructure, implementing modern farming practices and launching public awareness campaigns on sustainable water use.

## Energy and electricity

The energy sector in Tunisia is heavily subsidised through a complex system. In 2005 energy subsidies accounted for 3% of GDP. By 2012 this had risen to 12% of GDP (TND 5 600 million). The IMF and the World Bank have pushed for Tunisia to limit energy subsidies, which they argue mostly benefit the affluent, and to curb the high levels of government expenditure.<sup>85</sup>

Nonetheless, Tunisia has achieved near universal electricity access.

Currently, about 97% of Tunisia's electricity generation comes from fossil fuels, mostly from domestic and imported natural gas, almost half of which comes from Algeria. The energy law of 2015 encourages independent power producers (IPPs) to invest in renewable energy.

Since 2017 the government has awarded private companies 12 solar projects of 10 MW each and four wind projects of 30 MW each, all of which are still under construction. By 2018 Tunisia had an installed capacity of about 240 MW of wind power, 10 MW of solar, and 62 MW of hydroelectric, making up 5.7% of national energy production.<sup>86</sup>

Tunisia has one of the most developed telecommunications infrastructures in North Africa but Tunisians are not reaping the full benefit of ICT

The government aimed to source 11% of electricity from renewable sources by 2016 and 30% by 2030.<sup>87</sup> According to IFs, Tunisia will only achieve that target by 2040, indicating the need for a much more aggressive push on renewables.

### Information and communications technology

Tunisia has one of the most developed telecommunications infrastructures in North Africa, with some of the continent's highest market penetration rates. In 2020 ICT is estimated to contribute 4.3% of GDP. The mobile sector in particular has experienced exceptional growth since competition was introduced in 2002. By 2017 Tunisia had recorded 14.2 million mobile subscribers with over 124 subscriptions per 100 people.

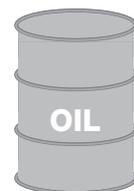
A nationwide fibre-optic backbone and international access via submarine cables have supported the rapid development of the Internet sector.<sup>88</sup> In 2017 an estimated 7.4 million people were connected to mobile broadband.

However, the sector is characterised by low levels of competition owing to high entry barriers. Because of limited competition and restrictions on inter-operator services, Tunisian consumers pay very high prices, which affect firms' competitiveness and efficiency.<sup>89</sup>

As a result, ICT is largely confined to basic communications and not fully integrated into the economy. Tunisia is thus not reaping the full benefits of ICT, in spite of the fact that its value-added contribution to the economy is comparable to that in UMICs and two percentage points above the average for OLMICs.

### Scenarios

In this section, we complement the Current Path forecast of Tunisia's likely future (presented in the sections above) by contrasting three additional



97% OF TUNISIA'S  
ELECTRICITY GENERATION  
COMES FROM FOSSIL FUELS

**Table 2: Summary of sectoral interventions**

Going for Growth		Leapfrogging		Sustainability
Promote export of manufactured goods and increase prices of imported manufactured goods		Ensure more graduates in science and engineering		Reduce smoking and obesity
Increase FDI and reduce investment outflows		Improve upper secondary vocational training		Improve lower and upper secondary transition and graduation rates, improve tertiary intake
Reduce firm tax		Increase research and development (R&D) spend		Equip more land for irrigation and reduce food loss and waste
Increase investment in economy		Ensure more and better fixed and mobile broadband, improved ICT penetration		Reduce capital cost of renewable energy and introduce a carbon tax
Ensure more effective government		Pave more roads		Increase social transfers to unskilled households
Pave more roads				Ensure more effective government
Improve business regulation				
Ensure more economic freedom				
Reduce corruption				
Improve primary and secondary education quality				
Reduce social transfers to wealthier households				

scenarios, namely **Going for Growth**, **Leapfrogging** and **Sustainability & Equality**. These will demonstrate the alternative development pathways that Tunisia can pursue towards a more prosperous future.

The three scenarios illustrate the options within the reach of decision makers in Tunisia and thus set out the range of possibilities and trade-offs that need to be considered. Each presents a unique strategy for advancing development (Table 2).

However, they share five reforms that are foundational to progress: improved governance, consisting of better business regulation, more economic freedom and less corruption; improved quality of primary and secondary education; and a reduction in subsidies to wealthier households. Tunisia will not progress without addressing all five of these fundamentals.

Table 2 provides a schematic summary of the interventions. More detail of how these were modelled in IFs is given in Annex B. The yellow interventions at the bottom of Table 2 are common to all three scenarios. The orange, blue and green cells represent the summary

interventions included in Going for Growth, Leapfrogging and Sustainability & Equity.

Based on the Current Path analysis and feedback from our workshops in Tunis, the governance interventions represent a successful five-year push; education represents a 10-year sustained push, given the slow-moving nature of education outcomes; and subsidy reform is gradually implemented to 2040. All interventions begin in 2021 and are benchmarked to improvements achieved in other countries and regions.

## Scenario analysis

### Going for Growth

The Going for Growth scenario simulates a future in which Tunisia prioritises economic growth with limited regard to consequences like environmental degradation and implications for inequality and inclusivity.

In this scenario, Tunisia increases investments through savings and policies that attract FDI. It also improves infrastructure such as roads and enhances the quality

of education to boost educational outcomes and provide students with skills relevant to the labour market. More importantly, the government of Tunisia becomes more effective. Because energy subsidies have been a key pillar of the industrial policy and social contract in Tunisia and other MENA countries,<sup>90</sup> greater economic freedom and related reforms can act to offset the rollback in the current subsidy policy.

In the Going for Growth scenario, economic growth is achieved through high levels of investments, supported by incentives to promote industrial production (manufacturing) and export-led trade. These will address distortions caused by monopolies and state-owned enterprises and promote competition and innovation.

The reforms simulate the state's redefining its role in the economy, encouraging greater private sector competition in manufacturing, health, education and finance, and identifying protected assets such as land and basic services such as energy and water supply. These assets and basic activities have for a long time been implicitly the exclusive preserve of state-owned enterprises.

The governance interventions are particularly powerful in this scenario. By 2040, if implemented, the governance interventions alone increase the size of the economy by nearly 93% (i.e. €97.7 of €105.6 billion) relative to the Current Path forecast for that year.

Meanwhile, the total impact of the Going for Growth scenario – i.e., the four governance interventions in addition to the scenario's other interventions (listed in the annex) – increases GDP by nearly €23 billion in 2040 relative to the Current Path forecast for that year. This translates into a cumulative total increase of roughly €163 billion relative to the Current Path. This is an improvement of nearly 10% in cumulative GDP relative to the Current Path in 2040.

The Going for Growth scenario also increases per capita income by roughly €2 245 by 2040 compared to the Current Path forecast for that year.

## Leapfrogging

In the Leapfrogging scenario, Tunisia takes full advantage of its considerable human capital and ICT potential in the adoption of modern systems in finance, education, health and the telecommunications industry. This is a future that is primarily private sector driven with substantive liberalisation of the sector and the introduction of competition.<sup>91</sup>

Technology and innovation is already transforming Africa, and Tunisia is no exception. The proliferation of mobile phones in particular has been revolutionary. Through the use of mobile phones citizens can buy electricity with the touch of a button, farmers are more connected with market information and doctors can remotely consult with patients.<sup>92</sup>

However, for a Leapfrogging scenario to be achieved in Tunisia, the country needs to invest in basic physical infrastructure such as roads and ICT infrastructure. It also needs to make substantial investments in research and development (R&D), with a particular focus on science and technology, and create a regulatory climate that encourages new business models to take off and survive.

This scenario makes a targeted push for improvements in ICT infrastructure, Internet access and infiltration, and the ability of the government and citizens to extend the benefits of the Internet beyond calling, messaging and accessing social media. This means integrating technology into business and government activities, thereby improving efficiency in the day-to-day operations of the Tunisian economy.

Leapfrogging means integrating technology into business and government activities

The Leapfrogging scenario also improves education, as it is challenging to achieve innovation and technological advancement without a well-trained population. This scenario envisions a quality education system that is up to date and relevant to the Tunisian context. The education system promotes science and technology and improves outcomes in science and engineering subjects. A substantial push for R&D is also included in this scenario to augment the drive towards innovation.

Furthermore, the Leapfrogging scenario envisions technical skills acquisition by increasing vocational training. Vocational training is particularly important to boost technology adoption so that no one is left behind by the rapidly and ever-evolving technological advances.

Additionally, the Leapfrogging scenario simulates a more conducive regulatory environment through policies that promote government effectiveness, which would improve

entrepreneurship, regulation and registration of start-ups, and access to finance.

This scenario also takes into account the role and ability of renewables to bypass the need for traditional investment in energy infrastructure. It simulates an improved regulatory environment where, together with various innovations, a small capital investment is required to gain entry to this sector.

The Leapfrogging scenario would improve economic development by significant margins. The governance interventions alone account for close to 98% (i.e. €89 of €91 billion) of the boost in GDP, and the combined impact of the Leapfrogging scenario improves GDP by a cumulative total of about €62 billion relative to the Current Path by 2040.

Additionally, in the next 20 years Tunisians could expect to have roughly €853 more in per capita income relative to the Current Path.

The Leapfrogging scenario embodies the use of frontier technology, particularly in digital technology and innovation, which can facilitate Tunisia's development process and obviate the traditional catch-up process that requires process technology, design and development.<sup>93</sup>

Tunisia therefore achieves progress by boosting its technological development, changing its economic structure, strengthening its education system and supporting public institutions through R&D while promoting partnerships with the private sector.

### **Sustainability & Equality**

This scenario envisions a future in which Tunisia moves towards economic and human development without compromising the long-term ability of future generations to meet their needs. It simulates a development paradigm that promotes environmental stability, better access to basic infrastructure and offers more opportunities to all segments of the population.

The Sustainability & Equality scenario improves agricultural yields by increasing the land area equipped for irrigation while reducing agricultural and food loss. In this scenario, Tunisia increases the portion of treated waste water, promoting the reuse and better management of water in a country that is projected to face a water crisis well into the future.

Additionally, Tunisia promotes the adoption of renewables by adopting technologies that reduce the level of capital investment needed to gain entry in this sector. To enable greater viability and uptake of renewables, the country gradually reduces energy subsidies that largely accrue to middle- and upper-class Tunisians while reasonably increasing targeted social protection programmes for vulnerable populations.

Tunisia also reduces the rate of smoking and obesity to promote human development and a healthier population. Moreover, the country promotes quality education to develop a skilled workforce.

This scenario makes an aggressive push for better and effective governance, including reducing corruption levels and allowing greater economic freedom.

The Sustainability & Equality scenario eliminates agricultural import dependence along the Current Path from about 19% of net demand to roughly -0.13% in 2040, protecting Tunisia against shocks in international food prices and making the country a net exporter, albeit marginally.

Improved governance indicators are particularly powerful drivers of economic growth in each scenario

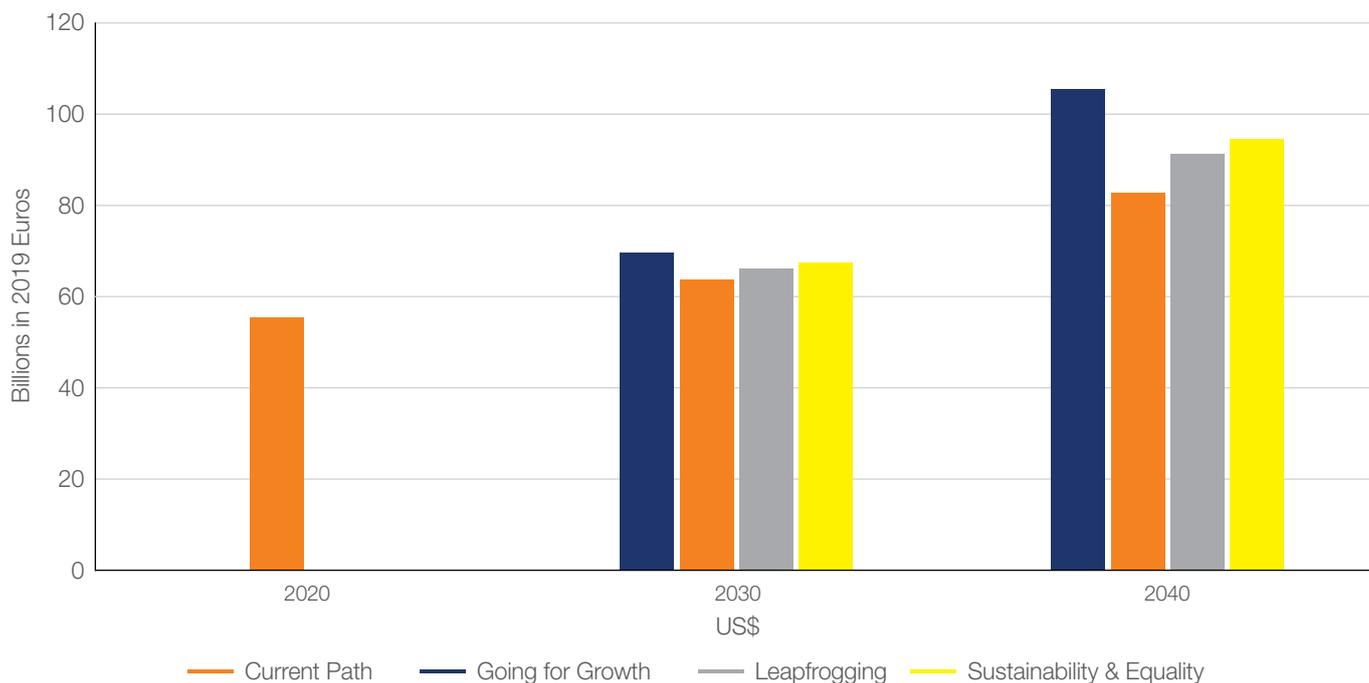
The governance interventions in this scenario account for about 96% (€91 of €95 billion) of the boost in GDP that the entire scenario generates.

In 2040 the size of the economy increases by roughly €12 billion relative to the Current Path and cumulatively it would have achieved a total increase of €92.5 billion against the Current Path from 2020 to 2040. GDP per capita will have improved by €1 179 in 2040, showing that policies that protect the environment and encourage the sustainable use of resources can promote innovation and long-term development.

### **Comparing scenario impacts**

It is clear that each of these scenarios has a positive impact on the size of the economy compared to the Current Path in 2040. Improving the governance indicators are particularly powerful drivers of economic growth in each scenario, showing the significance of the

**Figure 7: GDP in the four scenarios**

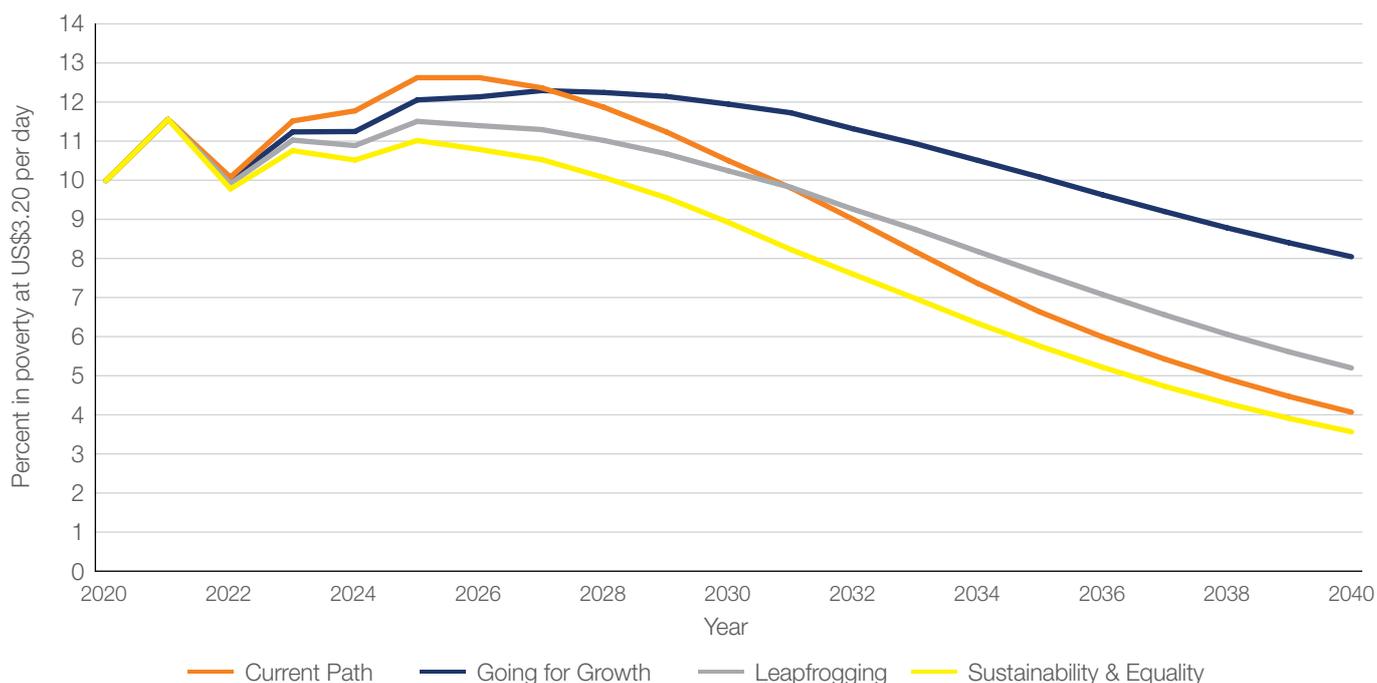


Source: IFs v7.45, historical data from IMF

governance deficit, in both economic and political terms, as discussed throughout the report, and the extent to which poor governance undermines development. Figure 7 illustrates the impact of the scenarios on GDP.

In 2040, relative to the Current Path forecast for that year, the Going for Growth scenario improves GDP by 27% (€23 billion) while the Leapfrogging and the Sustainability & Equality scenarios boost

**Figure 8: Extreme poverty in the four scenarios (US\$3.20)**



Source: IFs v7.45, historical data from World Bank data

GDP by 10% (€8.4 billion) and 14% (€11.8 billion), respectively.

Moreover, all three scenarios significantly reduce extreme poverty (using the US\$3.20 threshold). The Sustainability & Equality scenario achieves the most significant reduction in extreme poverty compared to the Current Path (8%) in 2040, with only about 3.6% of the population still living in extreme poverty. The Going for Growth scenario follows closely with just over 4% and the Leapfrogging scenario records about 5% of the population living in extreme poverty.

Extreme poverty at US\$3.20 is more than halved by 2040 from 2020 levels in the Going for Growth and Sustainability & Equality scenarios. The percent of people surviving on US\$2.60 per day (national poverty line) declines to about 1% in all three scenarios.

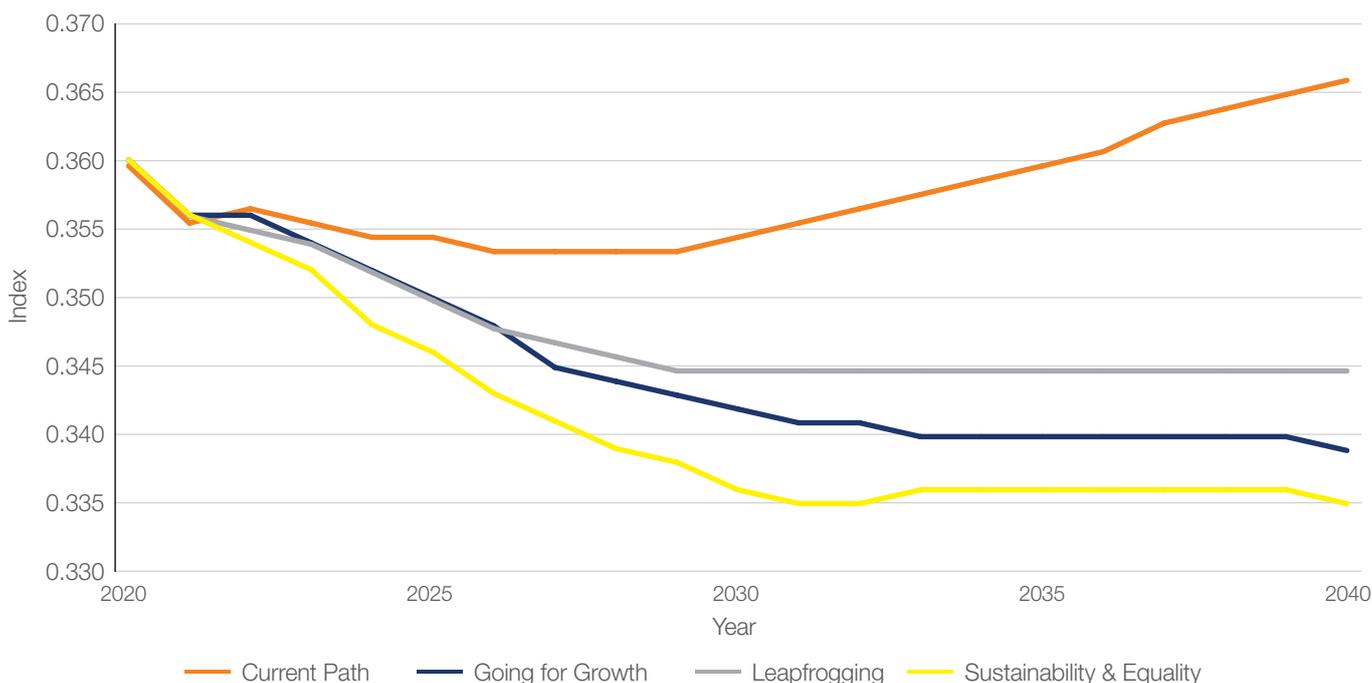
The Going for Growth scenario will increase poverty above the Current Path forecast until 2026, owing to the diversion of funds to investments made in the economy. However, from 2031 Going for Growth reduces the percent of Tunisians living below the US\$3.20 income threshold to below that in the Leapfrogging scenario and, by 2040, approaches the levels of poverty in the Sustainability & Equality scenario.

When looking at the total number of people who escape extreme poverty over the forecast horizon, the Sustainability & Equality scenario does significantly better than any other. The Leapfrogging and Going for Growth scenarios have roughly similar impacts. All do significantly better than the Current Path forecast, which would see over 1 million Tunisians living in extreme poverty (using US\$3.20) in 2040.

Relative to the Current Path, in 2040 inequality as measured by the Gini index reduces by approximately 8.4% in the Sustainability & Equality scenario, while the Going for Growth and Leapfrogging scenarios achieve a 7.9% and 5.7% reduction, respectively. The IFs system does not, however, fully account for the impact of increased employment in the formal sector on reductions in inequality. It is therefore likely that these impacts are understated.

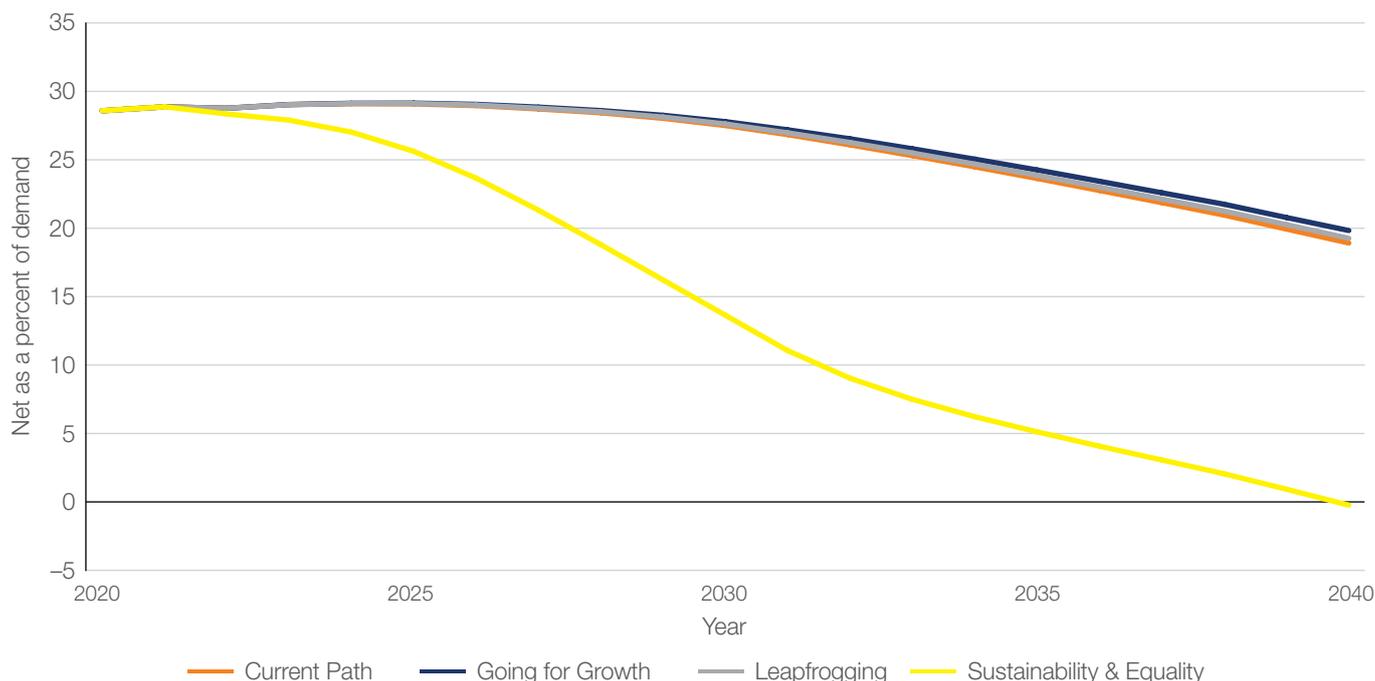
Although all three scenario approaches boost GDP and other human development indices relative to the Current Path, there are trade-offs associated with pursuing one or the other. From a food security perspective, only the Sustainability & Equality scenario achieves a significant reduction in food imports, making Tunisia food self-sufficient. The risk of shocks in international food prices is thus an issue Tunisia will need to address in the Going for Growth and Leapfrogging scenarios.

**Figure 9: Inequality in the four scenarios**



Source: IFs v7.45, historical data from Food and Agriculture Organisation

**Figure 10: Agricultural import dependence**



Source: IFs v7.45, historical data from Food and Agriculture Organisation

From an environmental perspective the Going for Growth and Leapfrogging scenarios increase Tunisia’s carbon emissions by nearly 9% and 4% by 2040 relative to the Current Path forecast for that year. The Sustainability & Equality scenario reduces carbon emissions by almost 7% relative to the Current Path in 2040.

Given the global challenge of climate change, the country has to consider both the implicit and explicit trade-offs of its approach to achieving its development goals. Moreover, by 2040 the three scenarios will also affect Tunisia’s industrial, municipal and agricultural water demand. The country is already experiencing water stress and the implication of greater water consumption is a policy choice that decision makers have to grapple with.

**Table 3: Percent change in water demand in the three scenarios relative to the Current Path in 2040**

	Going for Growth	Leapfrogging	Sustainability & Equality
Municipal	19%	8%	11%
Industrial	15%	4.4%	0.5%
Agriculture	-1.2%	-0.4%	9%

Source: IFs v7.45, historical data from AQUASTAT

## Conclusion

The new administration tasked with redefining Tunisia’s future trajectory faces numerous challenges, not least crafting a coherent development vision among the fragmented parties represented in Parliament. Tackling the macroeconomic challenges faced in the country will require great understanding, sacrifices and tough decisions by all Tunisians.

Tunisia shares many characteristics of an upper-middle-income economy and has the potential for much more rapid economic growth. However, inclusive and sustainable growth has remained elusive in spite of the political gains made with the Freedom and Dignity Revolution.

The country’s enormous potential has stagnated as a result of an opaque political and insider/outsider economic system that constrains opportunity and forces many into the informal and parallel economy. Tunisia lacks a clear development vision and orientation that can drive the allocation of scarce resources for the future. Meanwhile, challenges such as high unemployment rates – especially among university graduates – and regional inequalities persist.

Tunisia's poor economic performance is deeply rooted in its highly protective regulatory environment, the dominance of state-owned enterprises, outdated regulations and corrupt customs, lack of competition, inefficient agricultural system, problematic labour rules, and its constrained social and political space that promotes exclusion and inequalities. Collectively these impede greater productivity and growth.

With almost one-third of goods traded in the domestic market imported illegally because of high import taxes and poorly designed regulations, only a comprehensive review of regulations and customs practices can draw Tunisians back into the formal economic sector. Regional instability feeds off Tunisia's large shadow economy and the rampant smuggling in southern border towns such as Ben Guerdane.<sup>94</sup>

Our analysis indicates that none of the three policy options is available to Tunisia without better business regulation that introduces substantive competition, much more economic freedom, less corruption, improvements in primary and secondary education and an end to the distortions from energy and other subsidies.

## Tunisia requires radical economic and socio-political reforms to achieve inclusive development

Only once these are addressed will Tunisia attract more FDI, reduce poverty and inequality, and unlock its human capital potential for more rapid inclusive growth. To achieve this, the government has to promote more substantive democratic and accountability measures in political governance, as spelled out in the country's progressive constitution of 2014.

Tunisia finds itself at a crossroad that requires radical but necessary economic and socio-political reforms if it is to achieve inclusive development.

### In summary:

**Opening the economy:** Tunisia needs to open up its economy with a series of policy reforms to level the playing field, improve competition and remove market barriers in the form of restrictive business regulations. This would significantly boost productivity and job

creation to reduce unemployment, particularly in sectors such as services, where Tunisia has a comparative advantage. This transformation needs to happen alongside cuts in public spending, including a gradual rollback from the current subsidy system in favour of a more targeted social safety net programme for the most vulnerable and poor.

### Formulating a labour policy and addressing

**inequality:** The government of Tunisia needs to formulate a more coherent labour policy to address gender bias and other social and economic inequalities in the country. In addition, a progressive labour policy augmented by a much less restrictive business environment, greater economic competition and an end to the multitude of state-owned enterprises would reduce the size of the informal sector and boost income tax revenues.

**Improving the quality of education:** Although educational attainment levels are relatively high, the country needs to ensure that gains made in the education system are not eroded. Apart from maintaining high enrolment levels, the quality and relevance of education from primary throughout the education pipeline is key to sustaining a robust economy.

### Managing natural resources and adapting to climate

**change:** Tunisia is already under water stress and will likely suffer water-related challenges in the future given the projected impacts of climate change. Proper and efficient use of water at the industry and household level is critical to mitigate these impacts.

**Improving food security:** Tunisia needs a food security policy that does not undermine development of the agricultural sector. Moreover, it has the potential to improve agricultural yields and overall productivity through greater efficiency in the agricultural system. This can be achieved by strengthening institutional aspects such as investing in both soft and hard infrastructure (like land ownership, access to finance and transport systems).

Tunisia has the structural foundations needed to facilitate sustained and robust growth. It now needs to undertake comprehensive and deliberate reform to unlock economic growth and ensure the equitable distribution of opportunity for all Tunisians.

## Acknowledgements

In addition to extensive desktop research, the project team undertook two expert consultation workshops in Tunisia during 2019. We would like to extend our appreciation to the staff of UNICEF in Tunisia, particularly Lila Pieters (Resident Coordinator), Silvia Chiarucci (Deputy Country Representative) and Samir Bouzekri (Social Policy Specialist), as well as numerous partners and experts who participated at these workshops, for their valuable contribution to our analysis. The final report also benefited from extensive comments from Prof. Jelel Ezzine, Former Director General of International Cooperation at the Ministry of Higher Education and Scientific Research, and Taylor Hanna at the Frederick S Pardee Centre in Denver, CO.

## Annex A: Project Data file

For this report, we used a Project Data file to replace certain data in IFs with either more recent data or data from an alternative source, e.g. the National Statistics Bureau. We were able to get recent data for certain series from the Multiple Indicator Cluster Survey (MICS) of 2018 conducted by the United Nations Children’s Fund (UNICEF) and *Institut national de la statistique* (INS) in Tunisia.

Series	Alternative source/reasoning
EdPriCompletionFemale%/Male%/Total	Survey from UNICEF’s MICS survey data
EdSecAdultGrads15Female%/Male%/Total%	Survey from UNICEF’s MICS survey data
EdSecLowerGradRateAllFem/Mal/Tot	Survey from UNICEF’s MICS survey data
IncBelow1D90c%WDI	WDI latest data update
InfMortRateIHME	Survey from UNICEF’s MICS survey data
LandCrop	Tunisia Institute of Statistics (INS)
LandIRArea	Tunisia Institute of Statistics (INS)
PolityDemoc	Center for Systemic Peace data
PovertyGap\$1c90perday	WDI latest data update
WSSJMPSanitationTotal%Improved	Survey from UNICEF’s MICS survey data
WSSJMPWaterTotal%Improved	Survey from UNICEF’s MICS survey data

## Current Path adjustments

Series	Adjustment in IFs	Reasoning/justification
gdpadjsw	Set to 0.	Turns on the exogenous specification for GDP.
gdprext, GDP growth rate, exogenous target (%)	Set to 1.249 in 2016, 1.918 in 2017, 2.664 in 2018, 1.043 in 2019, –4.276 in 2020 and 4.087 in 2021 before returning to –100 (which returns it to the IFs forecast) in 2022.	IFs imposes IMF’s 2-year GDP growth projections (2020 and 2021) exogenously. The forecast was too aggressive given developments on the COVID-19 pandemic and its potential impact on growth. We updated 2020 and 2021 data with IMF’s latest projection, which assumes that the pandemic fades in the second half of 2020 and containment efforts can be gradually unwound to reasonable levels.

## Annex B: Scenarios

All interventions start in 2021 unless otherwise specified.

### Common interventions to all three scenarios

Parameter	Definition	Adjustment in IFs	Magnitude of change (CP and intervention)	Reasoning/Benchmark
Econfreem (economic freedom multiplier)	Improve economic freedom	Interpolate to 1.2 by 2026 and hold to 2040.	2026-from 6.3 to 7.6 2031-from 6.3 to 7.6 2040-from 6.4 to 7.6	Improves freedom on the Fraser Index by roughly 21% between 2021 and 2026. Zambia improved economic freedom by 53.5% between 1990 and 1995 and has sustained that growth for over 15 years.
Govcorruptm (government corruption multiplier)	Reduce government corruption	Interpolate to 1.3 by 2026 and hold to 2040.	2026-from 3.8 to 5 2031-from 3.9 to 5.1 2040-from 4 to 5.3	Reduces corruption by 30% between 2021 and 2026. Nigeria improved its corruption perception index by 58.3% between 2000 and 2005. It has sustained improvements for over 6 years.
Govregbusindm (business regulation index multiplier)	Improve business regulation index	Interpolate to 0.85 by 2026 and hold to 2040	No specific series for this intervention	Improves conditions required to set up a business and bolsters regulatory quality. Côte d'Ivoire reduced its regulatory index by 51.4% between 1997 and 2002.
Govhtrnwelm-skilled (government to skilled household welfare transfers)	Reduce the rate of transfers to skilled (middle and upper class)	Interpolate to 0.2 by 2040.	2026-from 10.7% to 9.9% of GDP 2031-from 10.6% to 8.9% of GDP 2040-from 10.7% to 7.5% of GDP	Among lower-middle-income countries in Africa, Tunisia currently has the second highest portion of GDP allocated to household transfers. The country also has very high government subsidies in fuel that mostly accrue to the middle- and upper-class segment of the population. Reduces welfare transfers by 3.1 percentage points between 2021 and 2040. Egypt is cutting fuel subsidies by 40.5% and electricity subsidies by 75% in the 2019/2020 financial year.
Edqualpriallm (primary education quality, multiplier)	Improve the quality of primary education	Interpolate to 1.1 by 2031 and hold to 2040.	2026-from 38.3 to 40.2 2031-from 38.8 to 42.7 2040-from 40.3 to 44.3	The quality of education is deteriorating in the country because of inadequate infrastructure, human resource and educational supplies. Improves the quality of primary education by 10% in 2031.
Edqualsecallm (secondary education quality, multiplier)	Improve the quality of secondary education	Interpolate to 1.1 by 2031 and hold to 2040.	2031-from 46 to 50.6 2040-from 47.4 to 52.1	The quality of education is deteriorating in the country because of a curriculum that is out of step with the labour market, language of instruction and inadequate and unevenly distributed infrastructure and educational supplies. Improves the quality of secondary education by 10% in 2031.

## Going for Growth

Parameter	Definition	Adjustment in IFs	Magnitude of change (CP and intervention)	Reasoning/Benchmark
Goveffectm (governance effectiveness multiplier)	Improve government effectiveness	Interpolate to 1.3 by 2026 and hold to 2040.	2026-from 2.5 to 3.3 2031-from 2.6 to 3.4 2040-from 2.7 to 3.7	Tunisia has a very bureaucratic system of government and service delivery. This intervention improves government effectiveness by about 30% between 2021 and 2026. Côte d'Ivoire improved government effectiveness by 49.8% between 2010 and 2015.
Infraroadpavedpctm (roads % paved, multiplier)	Increase the percent of paved roads	Interpolate to 1.3 by 2040	2026-from 78.4% to 84.5% 2031-from 78.6% to 90.9% 2040-from 78.8% to 100%	Increases the percent of paved roads to 100% by 2040, a 22 percentage point improvement from 2021 to bring it in line with global average.
Firmtaxm (firm tax rate multiplier)	Reduce firm tax	Interpolate to 0.85 by 2026 and hold to 2040.	2026-from 2.8b to 2.4b 2031-from 3.2b to 2.7b 2040-from 4b to 3.5b	Tunisia has a complicated tax system associated with ease of doing business in the country, and reducing taxes could attract FDI. This intervention initially reduces the amount of tax but it would attract investments and job creation. Egypt collects more firm tax among lower-middle-income countries than Tunisia.
Inv (investment in the economy multiplier)	Improve investment	Interpolate to 1.1 by 2026 and increase to 1.2 by 2040.	2026-from 18% to 19.9% of GDP 2031-from 17.8% to 20.5% of GDP 2040-from 18.9% to 23.2% of GDP	Improves investments (1.9 percentage points of GDP) and gross capital formation by 10.5% in 2026, and improves government savings by more than 4 percentage points of GDP in 2040. The ratio of investments relative to GDP in Tunisia is lower than in countries like Djibouti, Comoros, Lesotho, Mauritania, Cape Verde, Cameroon, Senegal, Zambia and Morocco.
Xfdifinm (foreign direct investment, flow of investment from abroad, multiplier)	Improve FDI inflow	Interpolate to 1.3 by 2031 and hold to 2040	2026-from 3.28 to 3.35 2031-from 3.4 to 3.6 2040-from 3.7 to 3.9	FDI inflows into Tunisia have declined since the revolution. Improves FDI inflows as a percent of GDP by nearly 4% in 2031. Zambia improved FDI inflows by 4.25 percentage points between 2005 and 2010.
Xfdioutm (foreign direct investment, flow of investment abroad, multiplier)	Reduce FDI outflow	Interpolate to 1.1 by 2026 and to 1.2 and hold to 2040.	2026 2031 2040	Augments improvement in FDI inflows to allow existing businesses to stay and encourage domestic investment.

Parameter	Definition	Adjustment in IFs	Magnitude of change (CP and intervention)	Reasoning/Benchmark
Xshift (export shift as a result of promotion of exports (manufactures))	Improves exports	Interpolate to 0.02 by 2031 and hold to 2040	2026-from 29.2b to 29.5b 2031-from 32.6b to 33.3b 2040-from 39b to 40.9b	Increases export earnings by about 34% from 2021 to 2031.
Protecm(protectionism in trade, multiplier on import prices (manufactures))	Reduces imports	Interpolate to 1.2 by 2031 and hold to 2040	2026-from 28.6b to 28.8b 2031-from 31.5b to 27.6b 2040-from 40.2b to 33.3b	Encourages manufacturing by restricting imports. Reduces spending on imports by over US\$6.8 billion in 2040 (between CP and scenario).

## Leapfrogging

Parameter	Definition	Adjustment in IFs	Magnitude of change (CP and intervention)	Reasoning/Benchmark
Randexpm (RD (total) expenditure multiplier)	Increase spending on research and development (R&D)	Interpolate to 1.2 by 2031 and hold to 2040	2026-from US\$ 0.399B to US\$0.4B 2031-from US\$0.415 b to US\$0.417 b 2040-from US\$0.505 to 0.511	Research and development is a key and strategic pillar to promoting science and innovation. Increases R&D spend by over 4% between 2021 and 2031.
Ictbroadm (ICT broadband multiplier)	Improve broadband rate	Interpolate to 1.2 by 2026 and hold to 2040	2026-from 13.9 to 16.7 2031-from 19.1 to 22.9 2040-from 30.7 to 36.9	Tunisia already has a relatively good ICT infrastructure. Creating greater access to the Internet will help to scale use of technology. Increases subscriptions per 100 people by nearly 50% from 2021 to 2026. Cape Verde increased fixed broadband per 100 subscriptions by 390% between 2007 and 2012.
Ictbroadmobilm (ICT mobile broadband multiplier)	Improve mobile broadband rate	Interpolate to 1.2 by 2026 and hold to 2040	2026-from 133.2 to 141.2 2031- 149 2040-from 153.5	Allows greater Internet access on mobile phones. Increases subscriptions per 100 people by roughly 32% between 2021 and 2026. Ghana increased fixed broadband per 100 subscriptions by over 850% between 2010 and 2015. Tunisia has achieved even greater progress in that time horizon.
Ictintnetbwpum (Multiplier on Internet bandwidth per user)	Improve internet bandwidth rate per user	Interpolate to 1.3 by 2026 and hold to 2040	No specific series for this intervention	
Ictindexm (Multiplier on ICT index)	Improve ICT pervasiveness	Interpolate to 1.2 by 2026 and hold to 2040	See above	Scales up the use of the Internet and technology to other productive sectors of the Tunisian economy.

lctcybbenefitm (ICT cyber benefit multiplier)	Improve the benefit of ICT	Interpolate to 1.3 by 2026 and hold to 2040	See above	See above
Edsecupprvocadd (upper secondary vocational share additive factor)	Improve upper secondary vocational training	Interpolate to 3 by 2031 and hold to 2040	2026- from 11% to 12.5% 2031- from 11% to 14% 2040- from 11% to 14.1%	To create important technical skills that are in short supply in the country.
Edtersciेशradd (Tertiary science-engineering share of graduates, additive factor)	Improve the rate of graduates in science and engineering subjects	Interpolate to 3 by 2026 and hold to 2040	2026-from 26.1 to 27.6 2031-from 25.9 to 28.9 2040-from 25.5 to 28.5	Improves the share of students proceeding on to study science and technical studies like engineering by 4.4% from 2021 to 2026.

## Sustainability & Equality

Parameter	Definition	Adjustment in IFs	Magnitude of change (CP and intervention)	Reasoning/Benchmark
Goveffectm (governance effectiveness multiplier)	Improve government effectiveness	Interpolate to 1.2 by 2026 and hold to 2040	2026-from 2.5 to 2.75 2031-from 2.6 to 2.8 2040-from 2.7 to 3	Increases government effectiveness by 10% in 2026.
Govhhrnwelm- unskilled (government to unskilled household welfare transfers)	Increase transfers to unskilled (poor and vulnerable)	Interpolate to 1.1 by 2031 and hold to 2040	2026-from 10.7% to 11% of GDP 2031-from 10.6% to 11.2% of GDP 2040-from 10.7% to 11.3% of GDP	Increases welfare transfers by 0.6 percentage points between 2021 and 2040.
Qem-Q (Capital costs- to-output ratio) in energy multiplier (OthRenew)	Reduce capital cost of renewable energy	Interpolate to 0.85 by 2031 and hold to 2040	2026-from 14.3 to 18.1 2031-from 27.3 to 43.3 2040-from 57.4 to 74.2	Because of high subsidies in energy and electricity prices, the cost of investing in renewables is still high in Tunisia. Increases renewable energy production as a percent of total by over 36 percentage points between 2021 and 2031.
Carbtax (Carbon tax-dollars/ton)	Increase carbon tax	Interpolate to 400 by 2031 and hold to 2040	2026-from 0.0090 to 0.0092 2031-from 0.0095 to 0.0092 2040-from 0.0101 to 0.0097	Reduces carbon emissions by roughly 4.5% between 2021 and 2031.
Landirareaequipm (multiplier on land area equipped for irrigation)	Increase land area equipped for irrigation	Interpolate to 1.2 by 2026 and hold to 2040	2026-from 436.6 to 459.8 2031-from 436.6 to 470.2 2040-from 439.3 to 481.2	Increases land area in hectares under irrigation by 4.5% between 2021 and 2026.

Parameter	Definition	Adjustment in IFs	Magnitude of change (CP and intervention)	Reasoning/Benchmark
Aglosstransm (loss rate of agriculture as moves from producer to consumer multiplier)	Reduce agricultural losses from producer to consumer	Interpolate to 0.8 by 2026 and hold to 2040	2026-from 21.6% to 20.7% 2031-from 21.2% to 19.5% 2040-from 19.8% to 18.2%	Tunisia has the most food wastage compared to OLMICs and other MENA countries. Reduces waste from production to consumption.
Aglossconsm (waste rate of agricultural consumption multiplier)	Reduce food waste at consumption level	Interpolate to 0.8 by 2026 and hold to 2040	See above	Tunisia wastes over US\$100 million worth of food, the majority of which is bread (also Tunisia's staple).
Edsecuprtranm (upper secondary transition rate multiplier)	Improve transition rate to upper secondary	Interpolate to 1.2 by 2031 and hold to 2040	2026-from 99.6% to 100% 2031-from 99.7% to 100%	Increases upper secondary transition to 100% by 2031.
Edseclowrgram (lower secondary graduation rate multiplier)	Improve lower secondary graduation rate	Interpolate to 1.2 by 2031 and hold to 2040	2026-from 75.3% to 83% 2031-from 76.3% to 92.1% 2040-from 80.7% to 96.4%	Increases lower secondary graduation by over 16 percentage points (22%) between 2021 and 2031.
Edsecupprgram (upper secondary graduation rate multiplier)	Improve upper secondary graduation rate	Interpolate to 1.2 by 2031 and hold to 2040	2026-from 54.1% to 59.5% 2031-from 57.2% to 66.7% 2040-from 65.1% to 77.5%	Increases upper secondary graduation by over 17 percentage points (33%) between 2021 and 2031.
Edsterintm (tertiary intake rate multiplier)	Improve tertiary intake rate	Interpolate to 1.3 by 2040	2026-from 36.3% to 36.4% 2031-from 36.8% to 37.5% 2040-from 40.6% to 42.1%	Improves tertiary enrolment by 1.6 percentage points (15%) between 2021 and 2031.
Wastewatertreatedm (Treated wastewater multiplier-Cubic Km)	Increase the rate of wastewater treated	Interpolate to 1.3 by 2040	2031-from 0.23 to 0.26 2040-from 0.25 to 0.33	Increases wastewater treated by roughly 44% between 2021 and 2040.
Hlsmokingm (Smoking rate multiplier)	Reduce smoking rate	Interpolate to 0.8 by 2026 and hold to 2040	Many effects of smoking	Reduces smoking.
Hlobesitym (Obesity rate multiplier)	Reduce obesity rate	Interpolate to 0.8 by 2026 and hold to 2040	Reduces prevalence of non-communicable diseases	Reduces the prevalence of obesity.

## Notes

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