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IS DEMOGRAPHY DESTINY?

THE ECONOMIC IMPLICATIONS OF IRAQ'S DEMOGRAPHY

Alexander Hamilton

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Is Demography Destiny? The Economic Implications of Iraq's Demography

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About the Author

Alexander Hamilton is an economic adviser for the UK Foreign, Commonwealth and Development Office (FCDO) based in Baghdad, where he leads the FCDO's economic reform programme in Iraq. He completed his PhD in Political Economy at the University of Oxford and has previously worked for the World Bank. His area of expertise is the economics of fragile states. Specifically, he focuses on the application of political economy tools to better understand and support economic reforms in resource-rich, fragile state contexts.

Abstract

This paper examines the fiscal and economic implications of Iraq's current demographic trajectory. We find that, given Iraq's almost total dependence on oil for government revenues, slight changes in the demographic transition rate could result in significant cumulative per capita expenditure changes- equivalent to $2.9bn, or approximately 7% of the current health budget, 9% of the current defence budget, or 17% of current aid flows. Furthermore, evidence from the entire Middle East and North Africa (MENA) region, suggests that Iraq's relatively slow demographic transition is reducing per capita economic growth, especially as it is combined with a hostile business environment. Specifically, using a panel dataset, we find that the interactive effect of a 1% decrease in the dependency ratio and a 1% decrease in the unit costs of starting and running a business could add, on average, 1.2% to GDP per capita in a typical MENA country. Therefore, investing in Iraq's demographic transition could potentially yield significant economic returns. This is especially pertinent if the COVID-19 induced recession results in a significant increase in the budget deficit. As reducing demographic momentum will be equivalent to a per capita increase in resources available for basic services. Evidence from other MENA countries, especially neighbouring Iran, suggests that interventions that support a faster demographic transition, by promoting reproductive rights, are feasible to implement and could, therefore, have quite a profound effect on future economic growth.

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For more information about the Centre's work on the CRP, please contact Sandra Sfeir (s.sfeir@lse.ac.uk).

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Introduction[1]

This paper examines the economic implications of Iraq's demographic transition.[2] We find that, given Iraq's almost total dependence on oil for government revenue, slight changes in the rate of demographic transition could result in cumulative per capita expenditure cuts or gains equivalent to 0.72% of GDP between 2020–24. Furthermore, evidence from the entire Middle East and North Africa (MENA) region, suggests that Iraq's relatively slow demographic transition is reducing per capita economic growth, especially as it is combined with a hostile business environment. We find that a 1% decrease in the dependency ratio combined with a 1% decrease in the cost of operating and running a business could add approximately 1.21% to GDP per capita.

Iraq's demographic profile is atypical of the MENA region.[3] In fact, alongside Yemen and Syria, its population growth is more akin to a sub-Saharan African country than its geographical peers. The interaction of Iraq's current demographic profile with a hostile business environment, the dependence of public service provision on oil revenues, and the inability and unwillingness to use current oil revenues for long-term economic growth and economic diversification, means that Iraq's youth bulge is likely to result in increased political instability, lower provision of public services and less per capita economic growth.

However, Iraq could potentially turn its demographic profile, marked by an increasingly large portion of working age people, into an asset if it combined economic reforms and job creation with policies to support reproductive rights in order to bring down the dependency ratio.[4] There are good examples from other MENA countries in how to achieve this outcome. If this issue is not addressed directly, it is very likely that Iraq's demography will undermine stability and development in the short- and long-term.

The rest of this paper is organised as follows: section one reviews the literature regarding population economics – the link between demographic change and economic growth. Section two explores Iraq's specific demographic profile and therefore, what the possible economic and political implications of this profile might be. Section three combines the data on Iraq's demography with projections on economic growth and oil revenues to examine how variations in demographic transition might affect public finances and hence the viability of the current social contract. Section four uses a panel data set to analyse the dynamic economic effects of demographic transition across MENA countries. It finds, consistent

[1] This paper greatly benefited from feedback provided by Christopher Marlow, Victoria Penson, Isam Taha, and two anonymous peer reviewers. The views and opinions expressed are the author's own and do not necessarily reflect the views of DFID.

[2] Defined as the generalised description of the changing population growth rate of a country brought about by changes in fertility, mortality and/or net migration. 'The Demographic Transition. PAPP101 - S01: Demography on the World Stage', *UNFPA* (2020). Available at: http://papp.iussp.org/sessions/papp101_s01/PAPP101_s01_090_010.html (accessed 24 September 2020).

[3] Specifically, Iraq clusters with Sudan, Egypt, the Palestinian Authority, Yemen and Syria in having a natural population growth rate of over 2 percent per annum, in sharp contrast to countries with rapidly decreasing fertility rates (namely the GCC states, Tunisia and Morocco).

[4] Defined as the ratio of working age adults over young and old dependents.

with the literature in section one, that demographic transition, especially when combined with economic reforms, can make a significant contribution to per capita economic growth. Having quantified both the short-term financial costs and long-term economic opportunity costs of population momentum, section five explores how neighbouring countries, especially Egypt and Iran, have sought to mitigate population growth through support for reproductive rights, and the extent to which these policies could be replicated in Iraq. The final section concludes with a review of the evidence and possible next steps.

1. The Link Between Demography and Economic Development

The link between a country's demographic structure and economic development is well-established.[5] Specifically, the empirical literature suggests that countries that are experiencing a *decrease* in their age dependency ratio, can reap a *demographic dividend*[6] associated with the fact that a larger proportion of the population is of working age and engaged in productive endeavours. However, this demographic dividend is conditional on certain socio-economic conditions having been met. Specifically, countries need to have an economic and business environment that can employ the working age population in productive activities.[7]

There are several identified mechanisms through which a changing population structure can generate a 'demographic dividend'.[8] Specifically, an increase in the proportion of the population who are of working age generates three key effects. The first is an increase in the labour supply, especially of women, who are more likely to be able to join the workforce if they have fewer children. Secondly, an increase in savings: unlike the young and old who tend to consume more than they save, the working age population tend to save more than they consume. This means that the availability of funding for capital investment increases. Finally, there may be increased investment in education, as smaller families result in more per capita expenditure in the future prospects of their children. The interaction of the demographic transition with the economic environment can therefore yield a huge developmental dividend. Bloom, Canning and Sevilla estimate that one-fourth to two-fifths of the East Asian economic miracle was due to the change in demography coupled with an economic model able to scale up export-oriented, labour-intensive industries.[9]

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[5] David Bloom, David Canning and JP Sevilla, *The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change* (Santa Monica, CA: RAND Corporation, 2006); David Canning, Sangeeta Raja and Abdo S. Yazbeck, 'The Economic Effects of the Demographic Dividend,' in David Canning, Sangeeta Raja and Abdo S. Yazbeck (eds), *Africa's Demographic Transition: Dividend or Disaster?* (Washington DC: The World Bank, 2015); David Canning and T. Paul Schultz, 'The Economic Consequences of Reproductive Health and Family Planning', *The Lancet* 380 (2012), pp. 165–71.

[6] Formally defined as: 'the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population (15 to 64) is larger than the non-working-age share of the population (14 and younger, and 65 and older).' See 'The Demographic Transition', *UNFPA* (2020).

[7] David Bloom, David Canning and JP Sevilla, 'Economic Growth and the Demographic Transition', *National Bureau of Economic Research Working Paper Series* no. 8685 (2001), pp. 1–87.

[8] Ibid., pp. 21–4.

[9] Ibid.

Is Iraq Placed to Benefit from a Demographic Dividend?

Whether or not a country can benefit from the demographic dividend depends on whether its economy can allocate the increased number of working age people into productive employment. Unfortunately, even before the effects of COVID-19,[10] Iraq's economic policies made this unlikely. As the most important function of economic decision-making in the country is to placate clientelist networks of political incumbents rather than support long-term economic growth.[11]

Specifically, Iraq's labour market is dominated by oil revenue dependent jobs in the public sector and informal small firms in the private sector. The capital-intensive oil sector generates less than 1 percent of employment.[12] Public sector employment has grown from less than 800,000 in 2003 to 3 to 7 million by 2017 but is generated via oil revenue, as Iraq lacks a broad tax base.[13] Furthermore, non-state formal employment is limited as Iraq's hostile business environment, marred by corruption, political instability and inconsistent regulation, deters the creation of formal firms and the development of potentially labour intensive agricultural and tourism sectors.[14] Therefore, as the below sections will explore in more detail, the growing youth bulge in Iraq coupled with a sclerotic economic model means that the country's ability to generate a demographic dividend, in the absence of significant policy change, is very limited.

Paradoxically, the collapse in oil prices induced at the time of writing by COVID-19, make the returns of the demographic dividend higher. This is because the budget deficit is set to increase to possibly 30 percent of GDP in 2020.[15] Therefore, supporting demographic transition would deliver relief, as the per capita fall in public expenditure would be more limited than would otherwise be the case. As public sector spending is used to 'buy social peace' in Iraq, supporting demographic transition could potentially generate significant 'security' externalities, reducing the risk of violence.

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[10] At the time of writing (Spring 2020) the full economic, social, and political effects of COVID-19 are yet to fully manifest. However, as much of the analysis at hand is about the *marginal impact of a change* in population growth given an existing economic baseline, the analysis is likely to remain useful even if the baseline economic context is radically different. If anything, by making the imperative for economic and labour market reforms more essential, due to much lower oil prices, this paper is likely to understate the effect of rapid population growth in Iraq.

[11] Alexander Hamilton, 'The Political Economy of Economic Policy in Iraq', *LSE Middle East Centre Paper Series* 32 (2020).

[12] World Bank, 'Iraq: Systematic Country Diagnostic', *World Bank* (2017). Available at: http://documents.worldbank.org/curated/en/542811487277729890/Iraq-Systematic-Country-Diagnostic (accessed 22 September 2020).

[13] Ibid.

[14] World Bank, *Doing Business 2019: Training for Reform* (Washington, DC: World Bank, 2019).

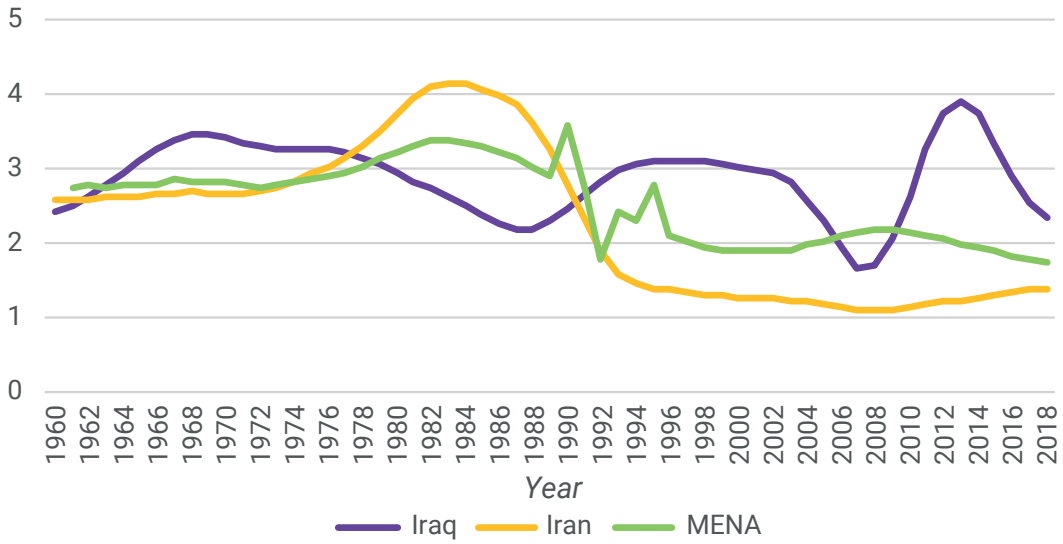
[15] Wael Mansour, Ashwaq Natiq Maseeh, Bledi Celiku, Alexandre Hugo Laure, Marolla Haddad and Zoe Cordelia Lu, *Iraq Economic Monitor: Navigating the Perfect Storm* (*Redux*) (Washington, DC: World Bank Group, 2020). Available at: http://documents.worldbank.org/curated/en/446201588465646751/Iraq-Economic-Monitor-Navigating-the-Perfect-Storm-Redux (accessed 22 September 2020).

2. Iraq's Unique Demography[16]

Before analysing the economic consequences of Iraq's demography, it is useful to examine the comparative trajectory of its population growth vis-a-vis the MENA region. This not only allows us to identify the absolute changes in population, but also how they compare to neighbouring countries. Thereby helping us to identify the magnitude of the potential financial and economic consequences of Iraq's demographic profile.

Figure 1 below shows annual population growth rates in Iraq, Iran and the MENA regional average. Population growth has fallen since 1960 across the region, with average growth rate in the MENA going from 2.8% in 1962 to 1.7% in 2018. However, this broad trend masks significant temporal and cross-country variation in population growth rates. While Iraq actually started the period with a population growth rate just below the MENA average (2.6% vs. 2.8%), this quickly changed; and, with the exception of the years in which the Iran-Iraq war raged (1980–8), Iraq has had a population growth rate that is only marginally below what it was in 1960 (2.3% in 2018 vs. 2.6% in 1960) and significantly above the MENA average (1.7% by 2018). This Iraqi 'exceptionalism' is even more dramatic in relation to neighbouring Iran, which had a population growth rate above that of Iraq in 1960 (2.7%) but which had fallen to 1.4% by 2018.

Figure 1: Population Growth (%) by Country



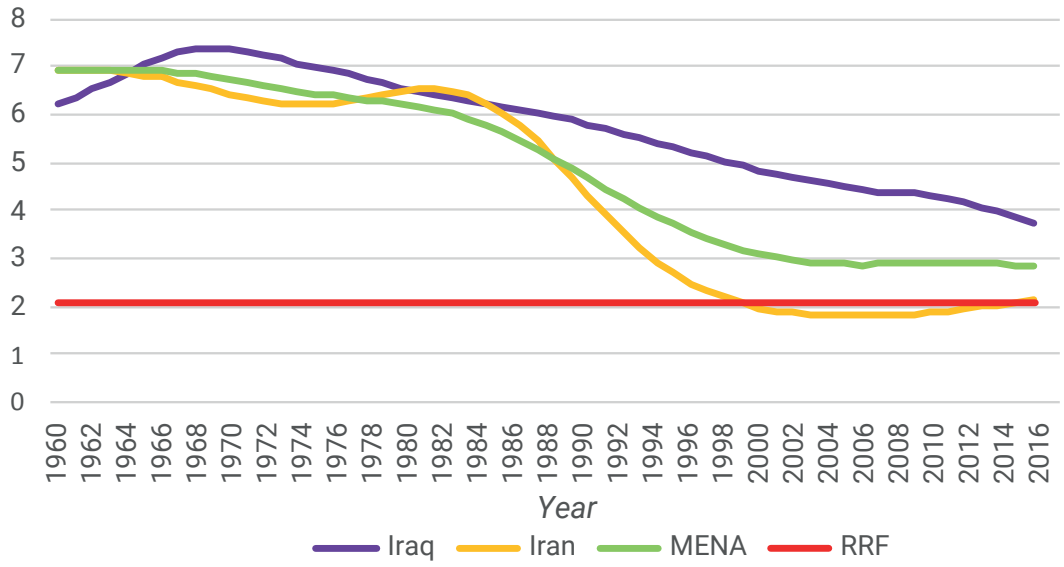
Source: World Bank[17]

[16] While the data used in this section comes from the World Bank, it is important to note that it relies on underlying datasets collected at the national level by a variety of actors. Given the difficulty in collecting reliable data in Iraq, and the absence of a proper census (the last partial census was held in 1997), the specific details, although not the broad trends, need to be treated with some caution.

[17] World Bank Data for Development, *World Bank* (2019). Available at: https://data.worldbank.org/ (accessed 22 September 2020).

While annual population growth rate can tell us what is happening to the population structure today, fertility rates[18] can give us an indication of the future trajectory of population growth. Unsurprisingly, there is a clear association between past fertility rate and population growth patterns. As Figure 2 below shows, in 1960 Iraq's fertility rate of 6.2 births per woman was slightly lower than that of the MENA or Iran (both 7). However, by 2016, significant divergence between fertility rates had occurred. Iran's fertility rate, at 1.8 in 2016 was lower than the UK's (1.9) and below the high-income replacement rate fertility (RRF) of 2.1.[19] The MENA average fertility rate is 2.8 and Iraq's rate of 3.7 is closer to the sub-Saharan average of 4.3 than its MENA peers. In fact, Iraq has one of the highest fertility rates in the MENA region.[20]

Figure 2: Fertility Rate by Country



Source: World Bank[21]

The implications of Iraq's current and expected future fertility rate can be seen in Figure 3 below. The United Nations Population Fund's (UNFPA) median population projection suggests that, on the current trajectory, Iraq's population of 40 million in 2020 will reach approximately 108 million by 2100.

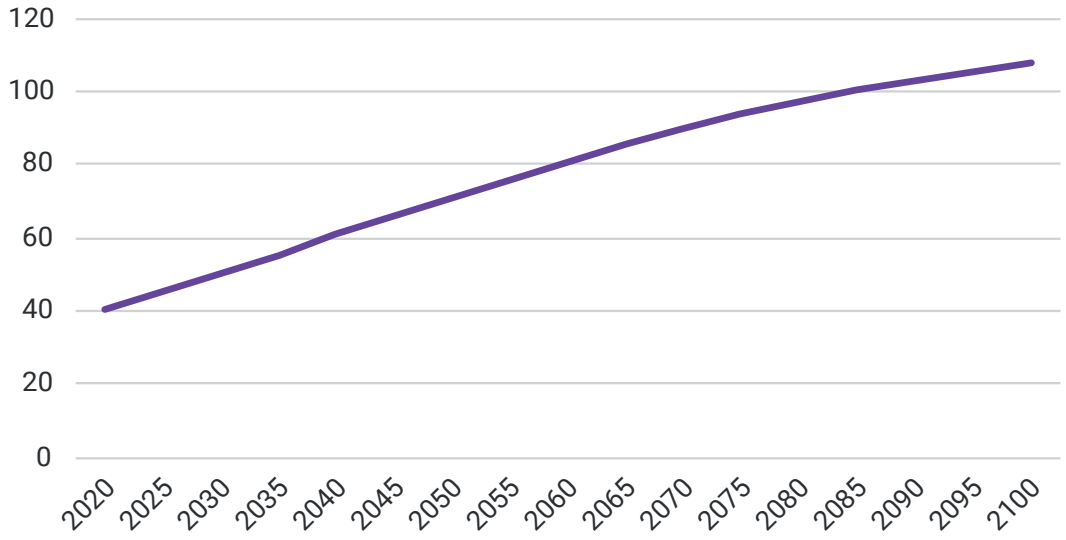
[18] Defined as the number of children a woman of childbearing age is expected to have.

[19] The replacement fertility rate in high-income countries (with low infant mortality) is 2.1 Meaning that if this is the fertility rate then, net of migration, the population will remain constant (not grow or shrink). In developing contexts like Iraq, the replacement fertility rate is higher than 2.1 owning to variations in infant mortality.

[20] Only Yemen and Gaza, with a fertility rate of 4.1 and 4.0 respectively, have a comparable fertility rate to Iraq.

[21] World Bank Data for Development (2019).

Figure 3: Iraq Median Population Projection (m)



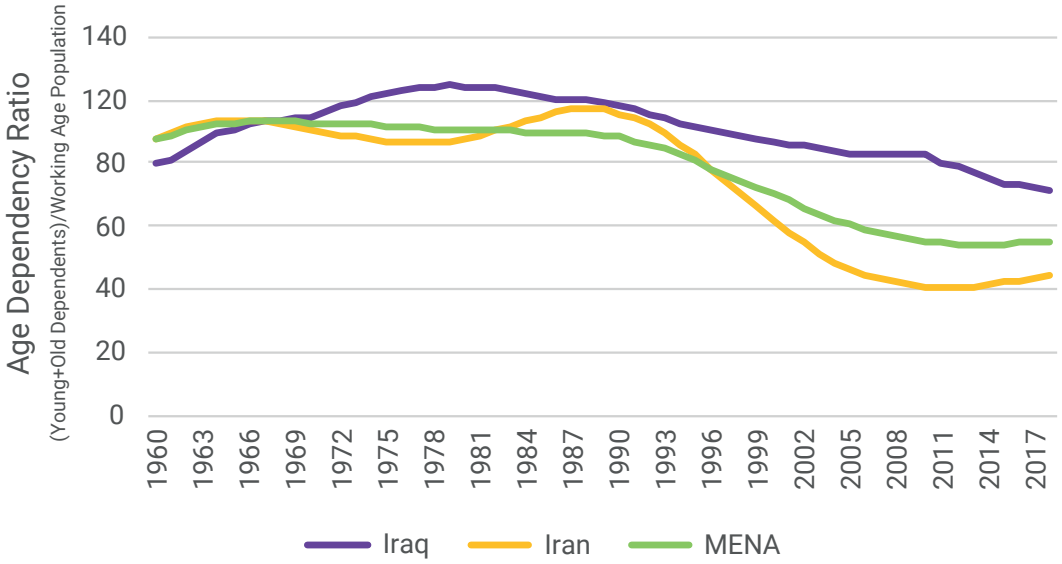
Source: World Bank[22]

However, despite its significant population growth, as Figure 4 below shows, Iraq has begun its demographic transition, marked by a declining age dependency ratio. As the fertility rate has fallen, the proportion of working age adults has increased relative to young dependents while the proportion of old age dependents remains low. Linked with the gradual decline in fertility, Iraq's dependency ratio, which peaked at 104 in 1979,[23] had gradually declined to 71 by 2018 as the fall in young dependents offset any increase in old age cohorts. Of course, given Iraq's relatively slow demographic transition, the decline in the dependency ratio has been less dramatic vis-à-vis the MENA average, which went from 89 in 1960 to 55 in 2018 or Iran's which went from 88 in 1960 to 44 in 2018.

[22] Ibid.

[23] Meaning there were 104 dependents for every 100 people of working age.

Figure 4: Age Dependency Structure Across MENA



Source: World Bank[24]

In short, Iraq in 2018 had a demographic momentum that is atypical of the MENA region. Still, the decline in the fertility rate has resulted in a change in the age dependency ratio. Whether or not Iraq can turn this demographic transition into an advantage, or whether this results in economic and political upheaval, depends on the economic policy and reproductive health decisions it makes.

Can Iraq take Advantage of its Demographic Dividend?

The consensus in the economic literature is that, in order for a country to take advantage of the rise in the proportion of the working-age population, the economy must be able to utilise this growing resource by allocating it to productive use.[25] In many East Asian states, the rise in the working age population coincided with an economic context in which labour-intensive export industries could absorb this extra labour and use it to significantly grow the manufacturing export base.

Unfortunately, as noted in section one, even before the impact of COVID-19, Iraq's economy is not well placed to absorb the growing numbers of entrants into the labour market every year.[26] This is because, with the exception of the capital-intensive oil sector, most formal employment in Iraq is through the public sector. The country's private sector consists of mostly small informal businesses exhibiting low productivity. Furthermore, there has been little investment in human capital development through skills and education training. In fact, the very difficult business environment (Iraq is ranked 171 out of 190 in the World Bank's Ease of Doing Business Index[27]) means that the availability of jobs for this growing population are likely to remain limited in the absence of radical economic

[24] World Bank Data for Development (2019).
[25] Bloom, Canning and Sevilla, 'Economic Growth and the Demographic Transition', p. 14.
[26] World Bank, 'Iraq: Systematic Country Diagnostic' (2017).
[27] World Bank, *Doing Business 2019: Training for Reform.*

change. The limited opportunities for Iraqi youth can also be seen by the poor returns to education.[28] Generally, labour markets that provide opportunities for skilled graduates have higher returns to education than those that do not. Given that most formal employment in Iraq is driven by the clientelist distribution of jobs in the public sector and that the small-scale informal sector invests little in research and development, it is not surprising that Iraq has one of the lowest returns to education in the world.[29]

At the time of writing, the impact of COVID-19-induced recession is also likely to limit the ability of any demographic transition to foster better economic outcomes because the private sector in Iraq is under quarantine. However, as noted in section one and expounded on in section four, the per capita fiscal effect of reducing demographic momentum could significantly bolster real spending on social services even as the huge budget deficit forces spending cuts.

3. Forecasting the Impact of Population Growth on Iraq's Public Finances

While all forecasting exercises need to be treated with caution, especially given the difficulty in modelling the effects of the COVID-19 crisis at the time of writing, exploring the short-term link between different population projections and their fiscal consequences is made more plausible by the fact that 40 percent of GDP and 91 percent of government revenue in Iraq is derived from oil production,[30] which is highly insensitive to short-term variations in population growth.[31] As such, a simple accounting exercise that explores how marginal variations in population growth affect the economy and public finances is not without merit. This is especially pertinent because Iraq's status as a fragile state means that short-term economic shocks, such as the impact of marginally faster than expected population growth, could have significant effects on the economy, social welfare and even socio-political stability. This exercise is complemented, in section four, by an examination of the more *dynamic* consequences of demographic change on the broader economy.

Independent Variable of Interest: Population Projections

In order to identify realistic variations in Iraq's population growth, we use the 2019 UN

[28] That is the financial returns of additional years of schooling/attending higher education. George Psacharopoulos and Harry Anthony Patrinos, 'Returns to Investment in Education: A Decennial Review of the Global Literature', *World Bank Policy Research Working Paper* no. 8402 (2018). Available at: http://documents.worldbank.org/curated/en/442521523465644318/Returns-to-investment-in-education-a-decennial-review-of-the-global-literature (accessed 23 September 2020).

[29] Ibid.

[30] 'World Economic Outlook', *IMF* (2019). Available at: https://www.imf.org/en/Publications/SPROLLS/world-economic-outlook-databases#sort=%40imfdate%20descending (accessed 23 September 2020).

[31] It is entirely plausible that, in the long-run, continued population growth could result in government efforts to increase oil production. However, at the time of writing, there is scant evidence of significant changes in such investment in the coming years, with oil exploration, gas capture, and other related investments remaining sluggish over the last few years. Ibid.

estimations for population growth between 2020–4.[32] Accurate population projections are notoriously difficult to make. However, the UN, estimates mitigate against this by providing low, median, and, high variants of population change (Table 1, below). This allows our analysis to look at a plausible range of population parameters, and how changes between the different forecasts might impact on a given forecasted oil revenue.

Table 1: Iraq Population Projections

Population Projection (m)	2020	2021	2022	2023	2024
High variant	40.22	41.27	42.33	43.41	44.50
Medium variant	40.22	41.18	42.17	43.17	44.18
Low variant	40.22	41.17	42.10	43.00	43.89

Source: UN Population Division (2019)

Dependent Variable of Interest I: Economic Growth Forecasts of Iraq

We use the IMF's 2019 forecast for GDP growth to 2024 as one of our dependent variables of interest (Figure 5).[33] While this forecast does not consider the effects of COVID-19 on the economy generally, and oil production specifically, it still offers a plausible, if somewhat optimistic, trajectory for Iraq's future.[34] If anything, as the COVID-19 pandemic is likely to make the Iraqi economy more fragile, it is likely to mean that our analysis underestimates the costs of marginal population growth in Iraq vis-à-vis a baseline forecast that included the effects of COVID-19. This is because the size of oil rents to the total population will be sufficiently diminished, making the per capita distribution of rents, for any given population level, less generous than initially expected.[35] As plausible economic forecasts can only be made for a relatively short period of time, we restrict ourselves to projections up to 2024 (at which point the detailed IMF estimates end). The IMF forecast makes some specific assumptions regarding Iraq's medium-term economic trajectory. Specifically, the IMF forecast assumes that oil production in Iraq increases substantially – from 4.4 million barrels per day (m.b.p.d.) in 2018 to 5.18 m.b.p.d. (18 percent increase); although it also assumes that the price of Iraqi oil exports decreases by $10 per barrel (from $65.2 to $55.4). We can also decompose GDP per capita into its oil dependent (population invariant) and non-oil dependent (more sensitive to population growth) sub-components.

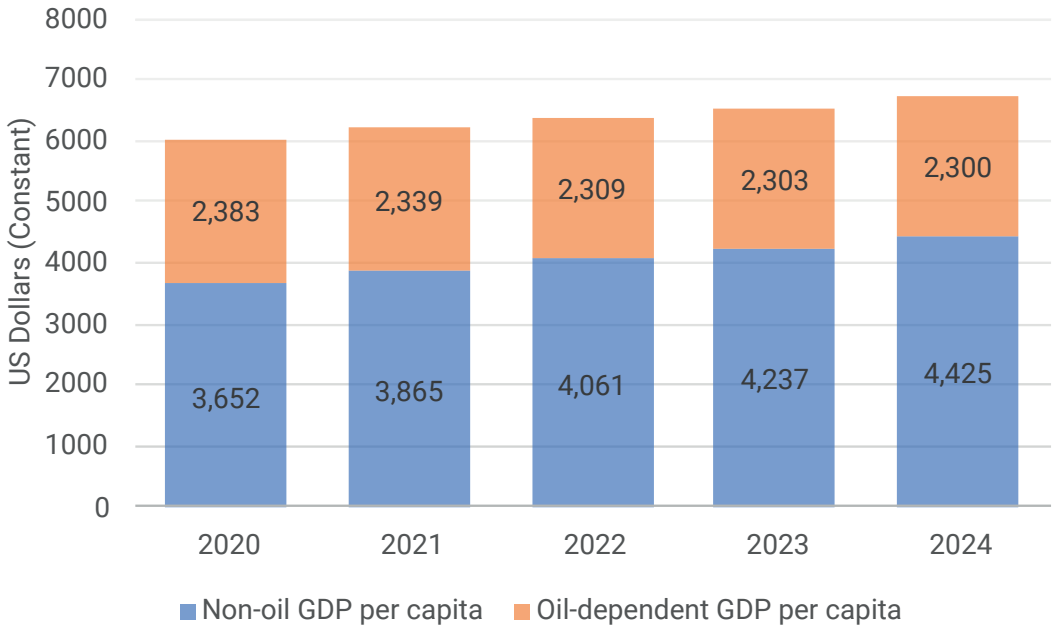
[32] Details for all the variables used in this section can be found in Table 11, Annex A.

[33] This analysis does not account for the impact of COVID-19 on the global economy (evolving at the time of writing). However, it hopefully represents a reasonable 'average' overall projection over the entire time period.

[34] While not considered in the analysis below, Iraq's compliance with the OPEC++ deal for 2020 and 2021 would mean about a 17% reduction in production in each of these years, while Iraq oil prices, at least in 2020/21 would decrease by up $30 per barrel in 2020 and up $20 per barrel in 2021. As our analysis explores the qualitative change in per capita expenditure given a prior level of oil revenues this does not change the thrust of our findings. Although, the absolute magnitude of this effect will vary by the size of oil rents available. We choose not to include the impact of OPEC++ cuts in production because Iraq has historically failed to honour these, and it is unlikely that this will change in the future.

[35] In its 2020 'World Economic Outlook', the IMF has downgraded Iraq's economic growth and revenues from oil. Forecasting a possible budget deficit equal to 20–30% of GDP and the doubling of poverty from 20% to 40% of households.

Figure 5: Iraqi GDP per Capita

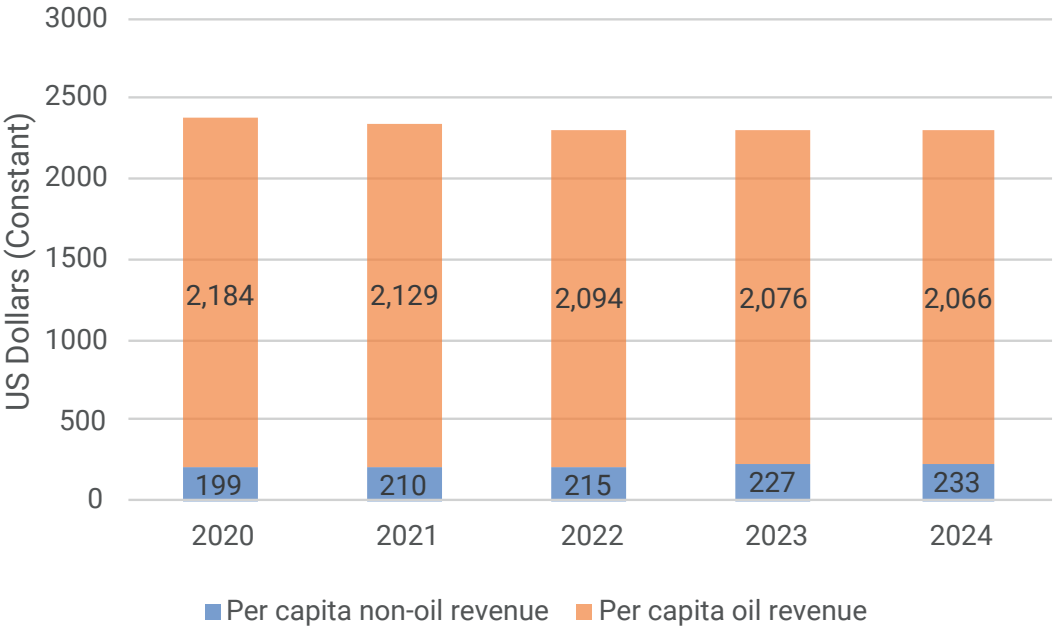


Source: IMF (2019)

Dependent Variables of Interest II: Fiscal Revenues

Figure 6 shows Iraqi government revenues per capita, once again decomposed into oil and non-oil revenues given the IMF's estimation. Unsurprisingly, the vast majority of government revenue in Iraq are from oil revenues, with 91 percent in 2020 and 89 percent by 2024.

Figure 6: Iraqi Government Revenues per Capita



Source: IMF (2019)

Results

Table 2 below shows the effect of shifting between Iraq's UN high/median/low population projection for 2020–4 on GDP per capita. The cumulative effect of a shift from the median to the high population projection is a per-capita income that is 0.72 percent less than it would be if the median population projection was maintained.

Table 2: Iraqi GDP per Capita and Population Shifts

Constant USD	2020	2021	2022	2023	2024
High variant	$6,017	$6,159	$6,302	$6,450	$6,618
Medium variant	$6,017	$6,172	$6,326	$6,486	$6,666
Low variant	$6,017	$6,173	$6,336	$6,511	$6,710
Shift from medium to high variant		-$13	-$24	-$36	-$48
Shift from medium to high variant (% of GDP)		-0.21	-0.37	-0.56	-0.72

Source: author's own calculations.

Of course, Table 2 assumes that per capita GDP is unaffected by marginal changes in population growth (an unrealistic assumption). This is unlikely to be true for the non-oil component of GDP but is not an unrealistic assumption (in the short run) for the oil-generated component of GDP. Table 3 therefore repeats the analysis but focuses only on the impact of marginal population change on the oil-generated element of GDP, which generates the same proportional effect.

Table 3: Iraqi (Oil-Generated) GDP per Capita and Population Shifts

Constant USD	2020	2021	2022	2023	2024
High variant	$3,652	$3,856	$4,045	$4,213	$4,393
Medium variant	$3,652	$3,865	$4,061	$4,237	$4,425
Low variant	$3,652	$3,866	$4,068	$4,254	$4,454
Shift from medium to high variant		-$9	-$16	-$24	-$32
Shift from medium to high variant (% of GDP)		-0.21	-0.37	-0.56	-0.72

Source: author's own calculations.

Given the almost complete dependence of government spending on (population insensitive) oil revenues, we can (realistically) model the effect of changes in marginal population growth on government expenditure per capita. As Table 4 below indicates, the cumulative net effect of a shift from the median to the high population projection has a very similar effect on public expenditure per capita as with GDP per capita; with public expenditure being 0.72 percent smaller by 2024 due to population growth, equivalent to $2.9bn worth of government spending.

Table 4: Iraqi per Capita Public Expenditure

Constant USD	2020	2021	2022	2023	2024
High variant	$2,383	$2,334	$2,300	$2,290	$2,283
Medium variant	$2,383	$2,339	$2,309	$2,303	$2,300
Low variant	$2,383	$2,340	$2,313	$2,312	$2,315
Shift from medium to high variant (% of spend)		-0.22	-0.38	-0.55	-0.72

Source: author's own calculations.

The potential magnitude of these figures can more intuitively be understood by focusing on the impact on specific sectors. If we assume that the proportion of expenditure to GDP devoted to each sector remains constant until 2024,[36] and the entire fiscal adjustment of shifting from the median to the high population growth projection falls on just one sector, then this marginal change in population is equivalent to a cumulative per capita cut in expenditures on health of 7%, or defence 9%, or official development assistance (ODA) of 17%.

Table 5 shows that a shift from the median to the high population projection would result in a 7 percent cut in per capita health expenditure if the whole cost of the population adjustment fell on the healthcare budget. Given that Iraq already has one of the lowest life expectancies in the region, hospitals require significant reconstruction funds, and there is significant leakage due to corruption, a real cut in public expenditures at a time of increased needs would represent a significant challenge for improving healthcare systems.

Table 5: Health Spending per Capita and Demography

Constant USD	2020	2024	% Change
Medium variant	$214	$237	~
High variant	$214	$220	-7

Source: author's own calculations.

Table 6 shows what would happen if the entire fiscal effect of the population adjustment occurred to the military budget – a 9 percent fall in per capita expenditure. Given Iraq's fragility, including the risk of terrorism, such a decline could be significant and result in increased violence and instability. However, it is difficult to gauge the extent to which funds allocated to defence affect defence capacity, rather than simply support clientelist militia and civilian networks.

[36] Of course, the budgets for different sectors such as health, education and defence can fluctuate widely year-on-year – especially given changed in oil prices. However, these are not particularly affected by population growth, which has slowly declined in recent years as actual budgets have fluctuated significantly.

Table 6: Defence Spending per Capita and Demography

Constant USD	2020	2024	% Change
Medium variant	$162	$179	~
High variant	$162	$162	-9

Source: author's own calculations.

Finally, although not part of the Iraqi budget, and possibly more sensitive to changes in population growth, if ODA flows remained constant as a percent of GDP, then population momentum could result in the equivalent of a 17 percent fall in per capita ODA flows. Given that a large proportion of ODA in Iraq is focused on supporting displaced persons and vulnerable communities, the effect of even much lower per capita changes could be quite significant.

Table 7: ODA Spending per Capita and Demography

Constant USD	2020	2024	% Change
Medium variant	$88.4	$98	~
Medium to high variant	$88.4	$81	-17

Source: author's own calculations.

The analysis in this section suggests that the potential fiscal impact of even minor changes in population growth can be quite large. Of course, the analysis assumes that there is limited change in behaviour following marginal changes in population growth. This assumption is not unrealistic when it comes to government expenditure in the short-run, given the dependence of government on oil revenue. However, as the literature in section one indicates, the dynamic effects of population change can be significant. It is possible that the static analysis above might be overestimating the effect of population momentum, because governments or other actors may strategically react to mitigate the effects of increased population growth and/or take advantage of the demographic dividend to increase the growth rate. Given these concerns, the next section explores the dynamic consequences of population growth.

4. The Economic Consequences of Demographic Change: Evidence from across the MENA Region

The previous section focused on using forecasts of short-term population growth to examine the fiscal effects effects of demographic change. Such static analysis is inherently limited as it cannot fully capture the dynamic effects of demographic change on the economy and/or how actors, such as governments, households, and/or individuals may react to augment the benefits and/or mitigate the costs of demographic change. There-

fore, exploring the impact of population change over time in the MENA region can help us identify what the net effect of changes in population structure may be for Iraq. Specifically, we can use data on demographic change in Iraq and neighbouring countries to explore how a shift in demographic transition due to a lower age dependency ratio can impact on per capita economic growth. We can utilise an identification strategy similar to those used in existing literature to identify this relationship. Thereby, we can complement the analysis regarding the static fiscal costs of Iraq's demography with their dynamic economic opportunity cost as well.

Dependent Variable

Our dependent variable of interest is the log of GDP per capita in purchasing power parity USD.[37] Despite its limitations, GDP remains the single most reliable indicator of economic activity. Ideally, it would have been useful to complement the analysis using a measure of poverty headcount, as such a variable would capture the effect of demographic momentum on inclusive economic growth. This may be especially pertinent as there are good and intuitive reasons to expect that rapid population momentum may more severely impact lower income households. However, the paucity of data, with many MENA countries only having poverty headcounts once per decade, limit the feasibility of using this approach.

Independent Variables of Interest

The first independent variable of interest is the age dependency ratio. That is the ratio of dependents, young and old, to the working age population (ages 16–64). As noted in section two, most MENA countries are slowly experiencing a demographic transition in which the proportion of dependents is falling as birth rates decline, but there is still not a large portion of old age dependents. Theory and evidence suggests that there should be a negative association between an increase in the number of dependents and GDP per capita. Therefore, a demographic transition in which a falling birth rate reduces the dependency ratio faster than ageing increases it should be associated with higher per capita income (if the literature in Section 1 is correct).

However, while the age structure has been shown to affect economic growth, the literature suggests its impact may be conditional on the broader microeconomy – that is, on the ability of the private sector to generate jobs for the working-age population. In the worst-case scenario, a falling dependency ratio may yield limited economic benefits if there is no ability to absorb working-age adults into productive employment. Therefore, a second independent variable of interest is a sub-indicator of the World Bank's 'Ease of Doing Business Index', which quantifies the costs of setting up and running a small and medium-sized enterprise (SME) for both married men and women (see Annex A for details). While, like GDP per capita, this indicator is likely to only capture elements of the microeconomic environment, it provides a reasonable proxy for salient economic conditions for a significant period of time across MENA countries. In order to explore the hypothetical conditionality

[37] See Table 12 in Annex A for details on all the variables used in this section.

between the microeconomy and population structures, we also interact the doing business indicator with the age dependency ratio. As theory suggests that a decrease in both indicators would be associated with more economic growth. In other words, a larger proportion of working age adults and fewer regulatory costs associated with opening and running a business would result in higher economic growth. Therefore, we would expect the interaction term between the two variables to be negatively associated with GDP per capita.

Control Variables and Robustness Checks

Other determinants of GDP per capita are also included in the analysis. Time and country fixed effects are used throughout – thereby controlling for such critical variables as the price of Brent Crude (time-fixed effect) and non-time variant attributes of countries. Due to the paucity of data in the MENA region, time-country varying variables are included, but there is an acute trade-off as the lack of data in at least one MENA country significantly reduces the sample size. In order to include as many of these variables as possible, and also test the robustness of the model specifications, two separate clusters of such control variables are included. 'Basic Controls' includes absolutely essential controls that are theorised to significantly affect GDP per capita in MENA. This includes: natural resource rents as a % of GDP – essential given the large oil and natural gas deposits in some of the countries; Overseas Development Assistance (% of GDP) – a proxy for socioeconomic development; and government expenditure (as a % of GDP) – a proxy of state capacity and direct contributor to GDP. As a robustness check we also run some models using a vector of 'Additional Control' variables in order to test the sensitivity of results. 'Additional Controls' include exports (% of GDP); Fragile State Index score; foreign direct investment (% of GDP); Polity Regime score; unemployment (%); and urbanisation (%).[38] We also use a sex disaggregated version of the Doing Business independent variable of interest to explore whether the effects are different for men and women.

Model Specification

For the time series panel format, our specification can be written as:

$$y_{it} = \beta_0 + \beta_1(x_{it} * z_{it}) + \beta_2 x_{it} + \beta_3 z_{it} + \beta_4 \gamma_{it} + \beta_5 \theta_t + \beta_6 \vartheta_i + \varepsilon_{it} \quad (1.01)$$

Where y_{it} is the log of per capita income at purchasing power parity in country *i* and time period *t*; x is the age dependency ratio in country *i* and time period *t*; z is the ease of doing business score in country *i* and time period *t*; γ is a vector of country-year control variables; θ is a time fixed effect; and ϑ is a country fixed effect.

[38] Other desirable controls, like investment (% of GDP), education spending and literacy could not be included because of the extreme paucity of data in a significant subset of MENA countries.

Results

Table 8 overleaf reports the results of our regression analysis. As anticipated by prior research, the age dependency ratio is negatively and robustly associated with a significant change in GDP per capita. Model 1 shows that a one unit *increase* in the dependency ratio is associated with a statistically significant *decrease* in per capita income of 1.2%. Model 2 shows that a one unit *increase* in costs associated with starting and operating a business are associated with a statistically significant 0.2% *decrease* in per capita income. Model III brings together the age dependency ratio and the ease of doing business. The interaction effect between the two variables is negatively and statistically significantly associated with *lower* per capita income (a one unit *increase* in the interaction effect is associated with a 0.01% *decrease* in per capita income). This means that countries which invest in reducing the age dependency ratio and reducing the cost of doing business will have higher per capita income vis-à-vis countries that do neither, or only focus on one or the other. Interestingly, when including the interaction term (Model III-V), (1) the independent effect of the age dependency ratio remains robust and significant throughout (a one unit *increase* in the age dependency ratio is associated with a 1.6% *decrease* in per capita income – Model III), but (2) the independent effect of the Doing Business Index is no longer significant; suggesting that (3) in MENA countries the effects of economic reforms may be conditional on demographic transition – as the interaction variable between the age dependency ratio and the cost of doing business always remains significant (with a joint one unit increase in the age dependency ratio and the cost of doing business bring per capita GDP down by 0.01% above and beyond the independent effect of the age dependency ratio). Model IV is the same as Model III but includes the additional vector of controls. The fact that the results are similar to the results in Model III – both the independent effect of the age dependency ratio and the interaction effect of the age dependency ratio and the cost for doing business remain highly significant – is reassuring, as this suggests that the results are not being driven by omitted variable bias. Finally, Model V is identical to Model IV, except that it uses the costs of opening and operating a business by a woman (instead of a man). This change in variables does not alter the results, which suggests that the age dependency ratio and the interaction of the age dependency ratio and the cost of opening and running a business are robustly associated with changes in per capita income.

Table 8: The Relationship Between Economic Reforms and Dependency Ratio

Independent Variable	Dependent Variable: (Log) Per Capita Income				
	Model I	Model II	Model III	Model IV	Model V
Interaction Effect			-5.15e-05 (2.53e-05)**	-6.13e-05 (2.58e-05)**	-6.13e-05 (2.58e-05)**
Age Dependency Ratio	-0.012 (0.00070)***		-1.59e-02 (2.56e-03)***	-1.17e-02 (3.42e-03)***	-1.17e-02 (3.42e-03)***
Ease of Doing Business		-0.0019 (0.00037)***	2.33e-03 (1.75e-03)	2.60e-03 (1.89e-03)	2.60e-03 (1.89e-03)
Basic Controls	Yes	Yes	Yes	Yes	Yes
Additional Controls	No	No	No	Yes	Yes
Country Fixed Events	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Sample Size	576	149	149	139	139
Adjusted R^2	0.38	0.27	0.47	0.54	0.54

****, denotes significance at the 1% level, ** denotes significance at the 5% level, * denotes significance at the 10% level.*

These regression results complement the analysis in the previous section that documented how changes in population growth affect per capita public expenditures. Essentially, what the results above show is that there is potentially a significant and dynamic opportunity cost of Iraq failing to speed up its demographic transition and thereby decreasing its dependency ratio. As such, not only does rapid population growth threaten the quality of public service provision, but possibly through lower levels of investment in human capital, also results in long-term economic opportunity costs. Of course, given the data limitations, we need to treat our results with a certain level of caution. The poor data quality in MENA countries limits the number of variables and techniques (including instrumental variables) that have been used in our analysis. Therefore, issues of omitted variable bias, and reverse causality cannot be precluded. However, given that the results for the MENA region are consistent with the results of other empirical studies (that use larger datasets from more regions and more sophisticated econometric techniques to test causality[39]), at least suggests that there is no reason to believe that the MENA region in general, and Iraq specifically, could not improve economic growth by fostering its demographic transition.

[39] For example, Bloom et al. (2001) uses rainfall as an instrumental variable for per capita income when looking at sub-Saharan African countries to establish the link between changes in the age dependency ratio and per capita income: Bloom, Canning and Sevilla, 'Economic Growth and the Demographic Transition'.

5. Policy Lessons from the MENA Region

The financial and economic consequences of population dynamics documented above suggest that it is important to explore how demographic transition can be supported in Iraq. Given that demographic transition can be instigated by falls in fertility rates (that reduce the inflow of young dependents while there are still few old dependents), it is worth focusing on what interventions have worked to facilitate changes in the total fertility rate (TFR) in the MENA region. As noted in section two, despite experiencing a fall in average fertility rates, the MENA region continues to have one of the fastest natural population growth rates in the world. However, the region, like virtually all others, has experienced a significant drop in the natural population growth rate. This has been partly driven by the increased adoption of rights-based support for voluntary family planning interventions across the region. The success of such strategies varies significantly. For example, Iran have managed to achieve a rapid and sustained fall in fertility rates and corresponding changes in the age dependency ratio by adopting a comprehensive rights-based voluntary family planning strategy. Conversely, other countries such as Egypt have failed to achieve the same results despite political support and a concerted effort to invest in voluntary family planning and reproductive rights.

There is evidence that increasing voluntary access to modern contraceptives, measured by the modern contraception prevalence rate (MCPR), has a significant effect on fertility rates. Specifically, as Figure 7 below illustrates, increase in the MCPR in one year is associated with a significant decrease in fertility rates in the subsequent year across the MENA region.[40] Of course, as noted in section two, there is significant variation in the extent to which different sets of interventions appear to be associated with declines in fertility rates. In fact, as a large literature has demonstrated, the effectiveness of different voluntary family planning methods can vary significantly, and, if not properly designed and calibrated to the specific country context, could prove ineffective.[41]

Furthermore, as the empirical analysis above indicates, the effects of supporting voluntary family planning depends significantly on other factors, such as the ability of the economy to provide employment opportunities for the working age population. Given Iraq's hostile business environment, it is plausible that augmenting Iraq's demographic transition would not lead to rapid economic growth in the absence of economic reforms. However, given Iraq's extreme dependence on oil revenues to finance public service provision and human capital investment, the fiscal impact of supporting demographic transition could be atypically large (see section four). Therefore, despite the challenges of implementing

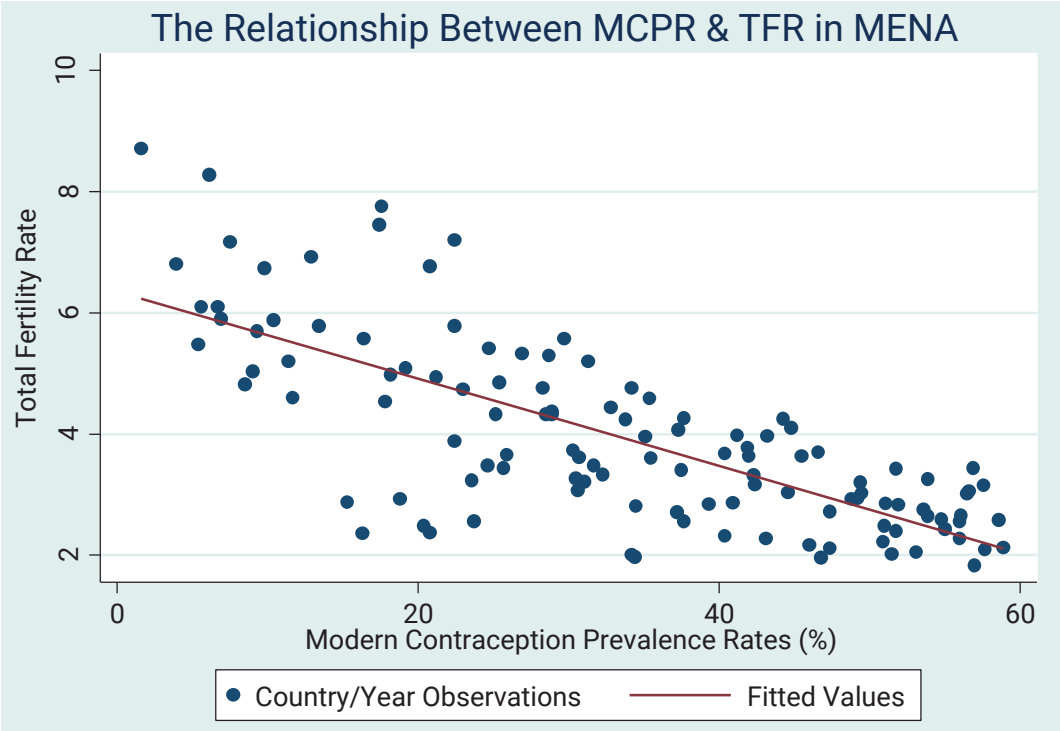
[40] A tobit regression between the contraception prevalence rate and the (1-year lagged) fertility rate found a very strong association between increases in the contraception rate and lagged falls in fertility. A 10 percentage-point increase in the MCPR was associated with an 0.72 decrease in the total fertility rate and highly significant well beyond the 1% confidence interval (t-value of -12.09), and a pseudo-R^2 of 0.22. The relationship becomes even stronger when country fixed effects are added (-0.97), remains highly significant at the 1% level and the overall model fit is even better (pseudo-R^2 of 0.51) .

[41] Anushka Ataullahjan, Zubia Mumtaz and Helen Vallianatos, 'Family planning in Pakistan: A site of resistance', *Social Science and Medicine* 230 (June 2019), pp. 158–65.

successful voluntary family planning programmes in developing countries, and Iraq's specific stability and economic challenges, the potential fiscal returns of investing in these interventions is potentially very high.

Figure 7: Modern Contraception Prevalence and Fertility in MENA

Source: Author's calculation using UN and WB data.



In order to better understand what interventions may be effective in Iraq, it is useful to explore lessons from two other neighbouring states that have sought to reduce population growth through voluntary family planning in recent years. Specifically, we look at the very successful case of neighbouring Iran, and the less successful case of Egypt.

Iran[42]

In 1986 Iran and Iraq had a comparable fertility rate of approximately 6.0 children per woman, with both countries being above the MENA average of having 5.6 children per women. By 2016, the two countries had diverged considerably. Iran now has one of the lowest fertility rates in the region at 2.01 (just below the high-income replacement rate fertility of 2.1) and considerably below the MENA average of 2.8. Iraq's fertility rate on the other hand is 3.7, and although declining it nevertheless remains considerably above the regional average. A big driver of this policy divergence has been Iran's

[42] This case study is adapted from Laura Bolton, 'Family Planning Lessons with a Focus on MENA Countries', *K4D Helpdesk Report* 688 (Brighton: Institute of Development Studies, 2019).

policy response to the 1986 census which, by highlighting Iran's population momentum, spurred policy change. In 1989, Iran's pro-natalist policies were reversed and the government pursued a multi-pronged policy aimed at supporting demographic transition. This included the following objectives:

- Spacing of births between children of 3–4 years;
- Discouraging teenage and geriatric pregnancies;
- Limiting families to 2–3 children;

The regime sought to realise these goals by:

- Free contraceptives for married couples;
- The provision of high quality and multi-type contraceptive methods across the country (including in historically underserved rural areas);
- The development of social protection systems (mainly pensions), aimed at reducing the need to have children as security in old age;
- A media and education information campaign, which was also endorsed by religious leaders;
- Active monitoring and research of family planning policy and implementation in order to improve effectiveness;
- A coordination mechanism (from 1990 the Birth Limitation Council) aimed at ensuring coherent policy across implementing agencies.

Results of the programme included an increase in contraception use from 49 percent in 1989 to 76 percent in 1997.[43] While the fertility rate is influenced by multiple different factors, not least socio-economic development, the fact that Iran's fertility rate fell so much and so much faster than many of its peers in the region (that had experienced faster per-capita economic growth) suggests that Iran's coherent and multi-faceted approach to voluntary family planning is likely to have made a significant contribution to its demographic transition.

Egypt[44]

Egypt begun investing heavily in voluntary family planning at the end of the twentieth century. By 2012 it had one of the highest contraceptive use rates in the MENA region (over 60 percent[45]), and over 95 percent of the population lived within 5 kilometres of a

[43] Masoumeh Simbar, 'Achievements of the Iranian family planning programmes 1956–2006', *Eastern Mediterranean Health Journal* 18/3 (2012), cited in Bolton, 'Family Planning Lessons with a Focus on MENA Countries'.

[44] This case study is adapted from Bolton, 'Family Planning Lessons with a Focus on MENA Countries'.

[45] UNFPA, 'Family Planning: Demographic Household Survey Brochures', *UNFPA Egypt* (2010), cited in Bolton, 'Family Planning Lessons with a Focus on MENA Countries'.

health clinic.[46] Despite this extensive coverage the fertility rate increased between 2008 and 2014, rising from 3.0 to 3.5. The fertility rate has not materially changed since then, despite renewed high level political commitment to its reduction.

There are several reasons why, despite widespread access and high-level support, Egypt's voluntary family planning may not have yielded a significant drop in fertility rates. These include:

- Poor targeting and information campaign: despite physical proximity to clinics;
- Higher income groups were more likely to access family planning in comparison to more marginalised high fertility groups;
- Significant reduction in donor support: the reductions in the success of the programme were strongly correlated with the ceasing of USAID funding in 2007;
- Quality and awareness: there is a lack of information, including in the secondary education curriculum, and availability of different types and high quality contraceptive methods in some clinics.

Given the multifaceted nature of interventions used to try and induce changes in the fertility rate, it is difficult to identify which specific sub-set of interventions is most effective. However, the examples above do demonstrate that it is possible to achieve very quick and rapid changes in fertility rates and age dependency ratios. In addition, it is likely that increased access to voluntary and modern family planning needs to be combined with successful information campaigns, a focus on gender inequalities, tacking social norms, support from religious stakeholders and/or enjoy consistent financial support in order to be effective.

What Iraq is Doing About Demographic Transition

Iraq has an official voluntary family planning strategy pending final approval.[47] Over the next four years, the UNFPA plans to support the further expansion of a modern, voluntary and rights-based family planning programme aimed at increasing access to modern contraceptive methods from 36 to 45 percent; ensure that youth, women, and marginalised groups have access to information about their reproductive choices; and to support the implementation of a population census, which will make evidence-based decision-making around reproductive services possible. Other multilateral agencies are also working to support the collection of data essential for making voluntary family planning more effective.[48]

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[46] Tamer Rabie, Zuzana Boehmova, Loraine Hawkins, Nahla Abdel Tawab, Sally Saher and Atef El Shitany, 'Transforming Family Planning Outlook and Practice in Egypt: A Rights-Based Approach', *World Bank* (2013). Available at: http://documents.worldbank.org/curated/en/351971468026087900/pdf/905960WP-0Box3800July0160FINAL0PROOF.pdf (accessed 24 September 2020).

[47] Executive Board of UNDP, UNFPA and UNOPS, 'Provisional agenda, annotations, list of documents and workplan', *United Nations* DP/2020/L.1 (2019). Available at: https://www.unfpa.org/sites/default/files/board-documents/main-document/dp2020L1.19.12.2019.pdf (accessed 24 September 2020).

[48] 'World Bank in Iraq', *World Bank* (2019). Available online at: https://www.worldbank.org/en/country/iraq/overview#2 (accessed 24 September 2020).

Given Iraq's atypically large demographic challenge, even the partial implementation of a successful rights-based and voluntary family planning programme could facilitate demographic transition and thereby support the economic and political benefits associated with it. This would be especially beneficial in the highly likely event that COVID-19 induces an even larger budget deficit. However, in order to maximise the returns of voluntary family planning, and therefore to take advantage of the economic returns of a declining dependency ratio, Iraq must undertake significant economic and welfare reforms.

Conclusion

A country's dependency ratio has long been known to affect its economic growth. The MENA region, including Iraq, has begun to experience a slow transition away from very high dependency ratios due to a falling birth rate but a still small proportion of older age cohorts. Iraq is atypical for the region in that its demographic transition is particularly slow. The financial and economic effects of Iraq's slow transition are particularly acute because much of the economy, and virtually all government revenues, are associated with oil production and export and are insensitive to population change. This is particularly salient as approximately 300,000 youths enter the labour market every year.

Using economic projection developed by the IMF we show that changes in population momentum can have a significant effect on spending per capita. Just shifting from the median to the high population projection between 2020–4 results in a cumulative fall in per capita expenditures equivalent to 0.72% of GDP (or about a 7% cut in healthcare or 9% cut in defence spending per capita). Looking at the dynamic economic effects of a slow demographic transition we can also see that a failure to support demographic change can significantly slow economic growth per capita, especially as in the case of Iraq where this is combined with a hostile business environment. On average, a 1% fall in the dependency ratio results in a 1.17% increase in per capita income or 1.18% if combined with a one unit decrease in the cost of doing business.

As evidence from the region shows, and especially neighbouring Iran, it is possible to accelerate demographic change. If this is simultaneously combined with economic reforms and human capital formation aimed at generating economic growth, then a double demographic dividend can be realised. Given Iraq's dependency on oil for government revenues, a lack of demographic change may significantly impair the social contract, resulting in political instability. Therefore, investment in voluntary and rights-based family planning and economic reforms are not just important for material welfare, but also (potentially) for political and social stability.

Annex A: Descriptive Statistics

Table 11: Descriptive Statistics for Section 4

Variable	Descriptor	Source
Population Projections	Total population (both sexes combined) country, annually for 1950–2100 (thousands). Low/Median/High population projections	United Nations Population Division
Fertility Rate	Fertility rate, total (births per woman)	World Bank
Modern Contraception	Contraceptive prevalence, modern methods (% of women ages 15–49).	World Bank

Table 12: Descriptive Statistics for Section 5

Variable	Descriptor	Source
(Log) GDP Per Capita	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2010 US dollars.	World Bank
Age Dependency Ratio	Age dependency ratio is the ratio of dependents – people younger than 15 or older than 64 – to the working-age population – those aged 15–64. Data are shown as the proportion of dependents per 100 working-age population.	World Bank
Ease of Doing Business	The cost for men/women is the total cost required for five male/women married entrepreneurs to complete the procedures to incorporate and operate a business. It is calculated as a percentage of income per capita. All the fees and costs associated with completing the procedures to start a business are recorded, including all official fees and fees for legal and professional services, if such services are required by law or commonly used in practice. Only incorporation costs are counted, which excludes value added taxes and bribes.	World Bank (Doing Business)
Government Expenditure (% of GDP)	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defence and security but excludes government military expenditures that are part of government capital formation.	World Bank
Natural Resource Rent (% of GDP)	Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.	World Bank

Variable	Descriptor	Source
Overseas Development Assistance (per capita)	Net official development assistance (ODA) per capita consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA recipients; and is calculated by dividing net ODA received by the midyear population estimate. It includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent).	World Bank
Exports (% of GDP)	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.	World Bank
Fragile State Index	The Fragility Matrix scores each country on both Effectiveness and Legitimacy in four performance dimensions: Security, Political, Economic, and Social, at the end of the year 2018. Each of the Matrix indicators is rated on a four-point fragility scale: 0 'no fragility', 1 'low fragility', 2 'medium fragility', and 3 'high fragility' with the exception of the Economic Effectiveness indicator, which is rated on a five-point fragility scale (including 4 'extreme fragility'). The State Fragility Index, then, combines scores on the eight indicators and ranges from 0 'no fragility' to 25 'extreme fragility'.	Polity Project
Foreign Direct Investment	Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors and is divided by GDP.	World Bank
Health Expenditure	Current expenditures on health per capita in current US dollars. Estimates of current health expenditures include healthcare goods and services consumed during each year.	World Bank
Polity	The 'Polity Score' captures this regime authority spectrum on a 21-pont scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). The Polity scores can also be converted into regime categories in a suggested three-part categorisation of 'autocracies' (-10 to -6), 'anocracies' (-5 to +5 and three special values: -66, -77 and -88), and 'democracies' (+6 to +10). Note: -66, -77, and -88 coded as missing.	Polity IV Project
Unemployment	Unemployment refers to the share of the labour force that is without work but available for and seeking employment (modelled ILO estimate).	World Bank
Urban	Urban population refers to people living in urban areas as defined by national statistical offices. The data are collected and smoothed by United Nations Population Division.	World Bank

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Jack McGinn

Cover Image
Akram Hashim Akram Hashim, 25, holds his daughter as he and his wife picnic at the riverbank in Basra, Iraq, 340 miles (550 kilometers) southeast of Baghdad.

Middle East Centre

Middle East Centre
London School of Economics
Houghton Street
London, WC2A 2AE


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