Iran Economic Monitor

OIL-DRIVEN RECOVERY

Special Focus on:
Iran's Pension System: The Need for Reform; and
Towards Water Security in Iran: Challenges and Opportunities

Spring 2017

Global Practice for Macroeconomics & Fiscal Management
Middle East and North Africa Region

WORLD BANK GROUP

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PREFACE

The Iran Economic Monitor provides an update on key economic developments and policies over the past six months. It examines these economic developments and policies in a longer-term and global context, and assesses their implications for the outlook for the country. Its coverage has ranged from the macro-economy to financial markets to indicators of human welfare and development. It is intended for a wide audience, including policy makers, business leaders, financial market participants, and the community of analysts and professionals engaged in Iran.

The Iran Economic Monitor is a product of the World Bank's Global Practice for Macroeconomics & Fiscal Management team. This third issue was prepared by Kamer Karakurum-Ozdemir (Senior Economist, Task Team Leader), Majid Kazemi (Economist) and Fayavar Hayati (Economist), under the general guidance of Eric Le Borgne (Acting Global Practice Manager) and Saroj Kumar Jha (Country Director). The Special Focus on pensions was prepared by Montserrat Pallares-Miralles (Senior Social Protection Specialist) with inputs from Robert Palacios (Pension Team Leader) and under the guidance of Hana Brixi (Practice Manager), and the one on water was prepared by Claudia Sadoff (Lead Economist), Edoardo Borgomeo (Consultant) and Irene Rehberger Bescos (Analyst) under the guidance of Steven Schonberger (Practice Manager). Janet Minatelli (Senior Country Officer) provided helpful comments. Muna Abeid Salim (Senior Program Assistant) print-produced the report. The team is grateful to the Government of Iran for its contributions to this publication.

The findings, interpretations, and conclusions expressed in this Monitor are those of World Bank staff and do not necessarily reflect the views of the Executive Board of the World Bank or the governments they represent.

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OVERVIEW

Iran's economy recorded an impressive recovery in 2016 in line with the favorable expectations after the removal of the nuclear related sanctions. Following a contraction of close to 2 percent in 2015, GDP grew by an estimated 6.4 percent in 2016, the fastest since 2010.[1] While there are some recent signs of a spillover into the non-oil sectors of the economy, this growth performance was driven primarily by the bounce back in oil production and particularly in oil exports, despite lower oil prices. Iran's ability to increase production despite the cuts agreed to by the rest of the OPEC members helped production near its pre-sanctions levels. The surge in exports led to a sharp improvement in the current account surplus, to 6.5 percent of GDP in 2016, as growth in imports remained stagnant. As oil revenues gained pace, the budget performance also improved, and the deficit shrank to 1.5 percent of GDP in 2016 from 1.9 percent a year ago. Notwithstanding the achievement of single digit inflation in 2016, inflationary pressures have resurfaced towards the end of the year, as liquidity rose, the Iranian Rial continued to depreciate and economic activity picked up. Against this background, the Central Bank postponed the unification of the official and market exchange rates to the end of 2017.

In the medium-term, growth rates are expected to retreat to slightly above 4 percent, in the absence of structural reforms and a major change in the pace of reintegration in trade and investment. As Iranian banks face barriers in establishing correspondent banking relationship with large international banks, foreign direct investment inflows to Iran and trade relationships with the rest of the world are restrained. Still, recent developments suggest non-oil sector and investments are likely to play a bigger role in the next few years, bringing growth to an average of 4.1 percent in 2017–19. This positive growth outlook hinges on the assumption that some of the agreements between Iran and major foreign companies in the oil and gas and other key sectors, including manufacturing, will materialize. This would create renewed confidence, validating the very positive expectations generated in the immediate aftermath of JCPOA implementation in January 2016 and leading to gradually improving medium to long term growth dynamics as potential output starts to rise as well.

There are significant downside risks to this moderate outlook. The major risk in the near future is the political uncertainty around the full implementation of JCPOA. This is likely to continue influencing consumer/investor confidence and may lead to a further weakening in private consumption

[1] The years in this note refer to Iranian calendar year, which runs from March 21 to March 20 of the following Gregorian year. For example, 2016Q1 in this text refers to the first quarter of the Iranian calendar year 1395 (April-June).

and investment. Under this scenario, GDP growth would remain below 3 percent. Furthermore, lower than projected oil prices could put pressure on government revenues and undermine growth.

Going forward, implementing the domestic reform agenda is likely to bring the highest growth dividend in the medium to long term, even if the external conditions remain the same. The challenge faced by the recently re-elected President Rouhani and his government will be to prioritize the reforms outlined in the 6th five-year development plan and steadily implement them. This would involve tackling the structural reform agenda that will boost non-oil sector growth, through creating a level-playing field for existing and new firms, improving the business environment and the efficiency of labor markets. In the long-term, the primary determinant of Iran's growth prospects is likely to be how effective it utilizes its resources beyond oil and gas. Growth simulations for Iran's long-term growth prospects conducted for this report suggest there is great potential to be exploited in moving towards the technology frontier and better utilizing Iran's abundant educated labor force.

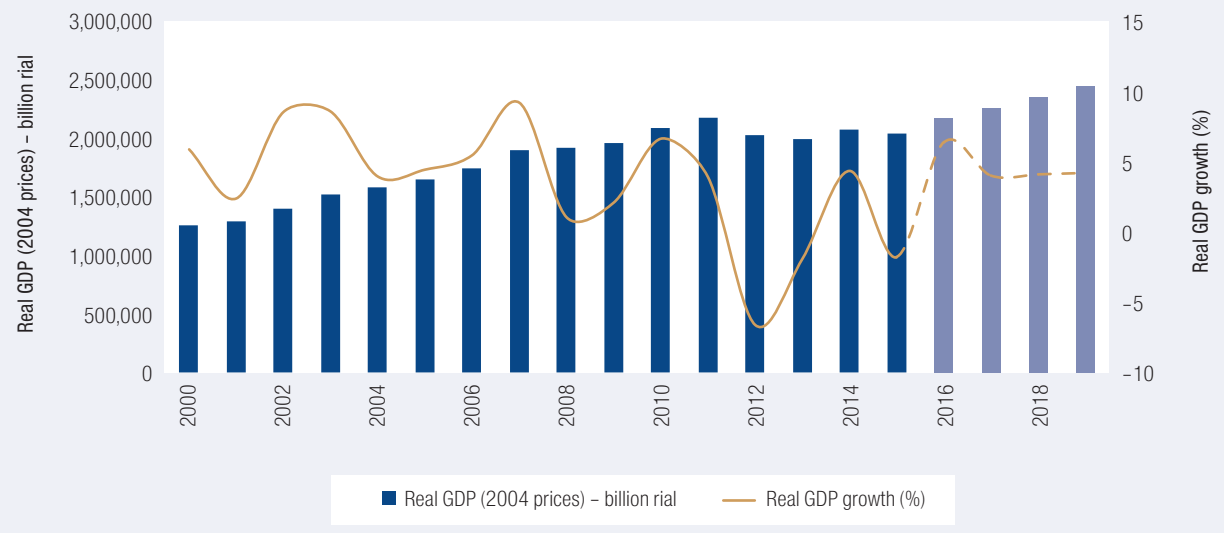
1

RECENT ECONOMIC AND POLICY DEVELOPMENTS

Output and Demand

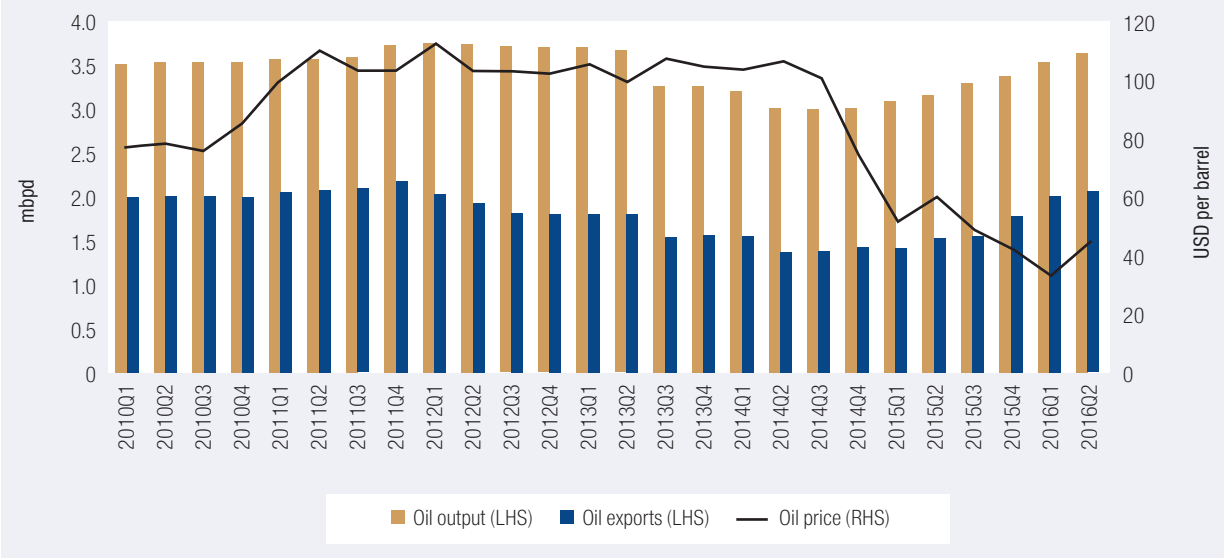
In line with the positive expectations in the aftermath of the implementation of the JCPOA, output growth in 2016 underwent a strong rebound. The real GDP level in 2016 is expected to return to its historical peak of 2011 after remaining below this value in the previous five years (Figure 1). Initial data for the first three quarters of 2016 suggest that the growth rate has continually increased in each quarter, on the back of the oil sector while the expected benefits have so far not appeared as strongly in the other sectors. Consequently, overall growth in 2016 is estimated to have reached 6.4 percent, following a 1.8 percent contraction in 2015. The major pillar of non-oil growth initially envisioned after the JCPOA implementation was a strong inflow of foreign investment into the Iranian economy. However, a surge in FDI did not materialize due initially to high transaction costs for foreign businesses of fully

FIGURE 1 • Real GDP Level and Growth Rate



Source: Government data and World Bank staff calculations.

FIGURE 2 • Oil Production, Exports and Prices.



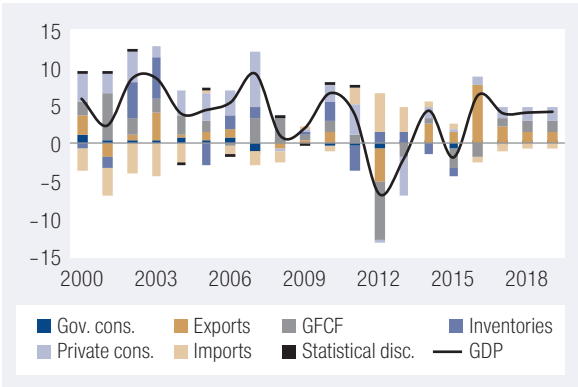
Source: CBI and World Bank.

complying with the remaining US sanctions and later complicated by increased uncertainty about possible new sanctions on Iran.

Despite challenges, oil output and exports continued to recover, returning to pre-sanctions peak and spearheading overall growth. Oil output has already increased to around 4 mbpd. This means that compared to the output in the first quarter of 2016, Iran has been able to increase production by 700 thousand bpd in only nine months. Oil exports equally received a boost, reaching 2.1 mbpd in the second quarter of 2016, up from 1.5 in the same quarter of the previous year. The quick recovery of oil production was achieved as a result of a combination of both political and technical planning by the Ministry of Oil even before the implementation of JCPOA. On the political front, the Ministry managed to successfully negotiate with OPEC an increase in Iran's production quota, regaining its market share by bringing its output to pre-sanctions levels and secure its traditional position at the organization. This coincides with the rest of the OPEC members agreeing to an output cut to counteract the falling global oil prices. On the technical front, Iran managed to recover production levels in the existing fields to pre-sanctions levels, following an abrupt drop in extraction due to sanctions. As a result, the decomposition of estimated annual growth in 2016 suggests that oil-driven exports contribution to growth of 7.7 percent dominates the –1.7 and 1 percent contributions of investment and private consumption (Figure 3).

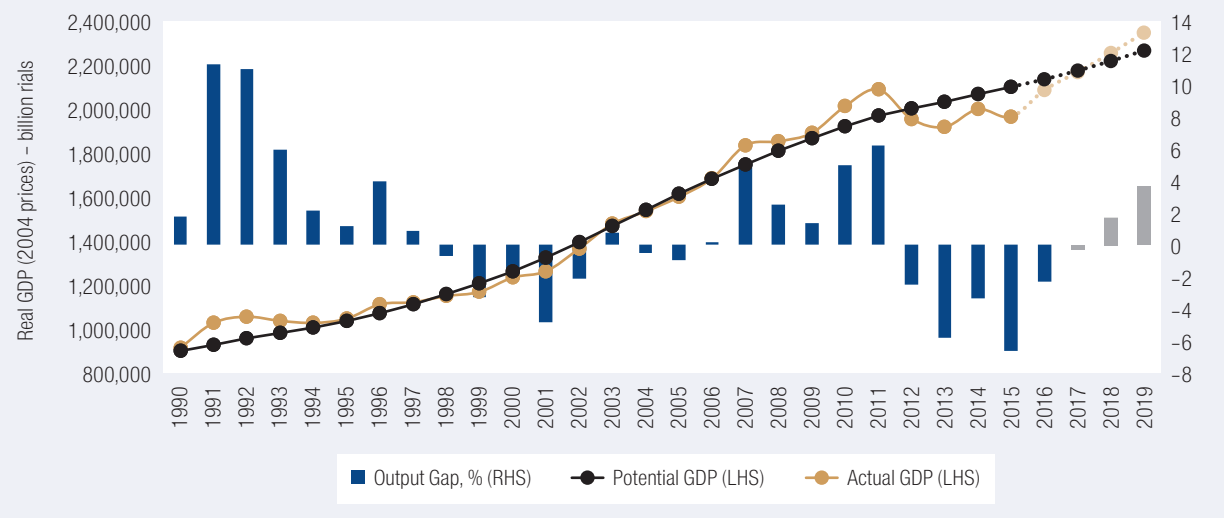
The output gap has recently been closing. The recent spur in economic growth is estimated to have contributed to the narrowing down of the output gap from –6.6 percent in 2014 to –2.3 percent in 2015 (Figure 4). This is in line with the increase in credit

FIGURE 3 • Contribution of Expenditure Components to Growth (%)



Source: Iranian authorities.

FIGURE 4 • Potential GDP and the Output Gap



Source: Government data and World Bank staff calculations.

expansion and the increase in liquidity, which would support the expected recovery in private consumption and gross capital formation shown in Figure 3.

Investment levels continue to remain weak—a drag on future growth. Gross capital formation figures report an 8.9 percent contraction in the first three quarters of 2016.[2] This trend has been the most important ongoing legacy of the nuclear sanctions in which investment performance has continued to remain bleak with a trough of 19 percent contraction in 2012. Out of the two subcomponents of gross fixed capital formation, machinery investment growth reached 5.3 percent in the first three quarters—driven by a 10.1 percent increase in the third quarter. However, investment in construction shrank by 14.4 percent during this period. Although the contribution of oil to growth is expected to diminish, as Iran reaches its OPEC quota, the outlook for growth contribution of gas is promising. Despite the importance of investment-led growth, the disinvestment trend in the economy is even present in the domestic component of investment. This trend reflects the weaknesses in the general business climate and outlook for the economy, in addition to the external factors. Addressing the domestic reform agenda would allow for a more resilient economy while increasing the prospects of foreign investment.

More recently, the non-oil sector growth has started to show moderate signs of recovery. The Central Bank data for the first nine months of 2016 indicate that non-oil output has grown by 1.9 percent which is a considerable improvement compared to –3.9 percent non-oil growth in the same period in 2015. The figures show that quarterly non-oil GDP has improved consistently, reaching 4.6 percent in the third quarter. The engine of non-oil growth in this quarter seems to be services and agriculture that grew by 5.6 percent and 5 percent respectively. At the same time, growth in the output index for large manufacturing firms in the first nine months of 2016 is reported to be 6.8 percent year over year which is a substantial improvement in comparison to the 3.5 percent contraction in the similar period of the previous year. This improvement was led by growth in chemicals and the automotive sectors that experienced growth rates of 7.7 and 35.6 percent. These two sectors combined accounted for around 43 percent of the weighted overall index that could also benefit job creation in this period.

[2] Data based on 2011 constant prices, since the 3rd quarter figures for 2016 were recently released by CBI after a change in the base year from 2004 to 2011.

TABLE 1 • Islamic Republic of Iran: Selected Macroeconomic Indicators (2013–16)

	2013	2014	2015E	2016F*
Real GDP growth, at factor cost (2004=100)	–1.8	3.0	–1.8	6.4
Agriculture	4.8	3.8	3.9	4.6
Industry**	–4.7	4.9	4.2	8.1
Services	–0.6	1.7	–6.3	5.4
Real GDP growth, at market prices (2004=100)	–1.9	4.3	–1.8	6.4
Private Consumption	–9.3	3.1	0.8	2.0
Government Consumption	1.6	2.7	–8.3	1.7
Gross Fixed Capital Investment	–6.9	3.5	–9.8	–7.3
Exports, Goods and Services	0.0	12.0	7.1	35.0
Imports, Goods and Services	–18.7	–5.7	–5.2	6.4
Prices				
Inflation (Consumer Price Index)	34.7	15.6	11.9	9.0
Current Account Balance (% of GDP)	6.3	3.8	2.7	6.5
Fiscal Balance (% of GDP)	–0.9	–1.2	–1.9	–1.6

Sources: Government data and World Bank staff calculations.
* Iranian calendar years, running from March 21st to March 20th of the following year.
**Industry includes the oil and gas sector.

A number of new agreements have been signed between Iran and international partners but renewed uncertainty regarding full implementation of the JCPOA has hindered project initiation. According to the Iranian Foreign Minister, more than 84 political delegations and numerous economic missions have visited Iran in 2016 while in the same period Iranian delegations visited 57 countries.[3] These comprised of a number of high-level visits including one in January by the French foreign minister along with a 60 member team consisting of officials and businessmen, where a number of agreements were signed and the Minister reaffirmed France's commitment to JCPOA's full implementation.[4] Since January 2016, the total value of the agreements signed between Iran and potential investors is estimated to have reached between $8 to 12 billion.[5] However, even the higher estimates fall short of the authorities' targets for the medium-term. According to the recently approved 6th five-year development plan, annual FDI inflow is projected to increase to a high of $15 billion in addition to $20 billion joint ventures with domestic firms. Furthermore, progress beyond initial agreements and MOUs has stalled as foreign investors have been cautious or often hesitant to start projects in an environment of heightened uncertainty regarding sanctions on Iran.

Jobs and Labor Market

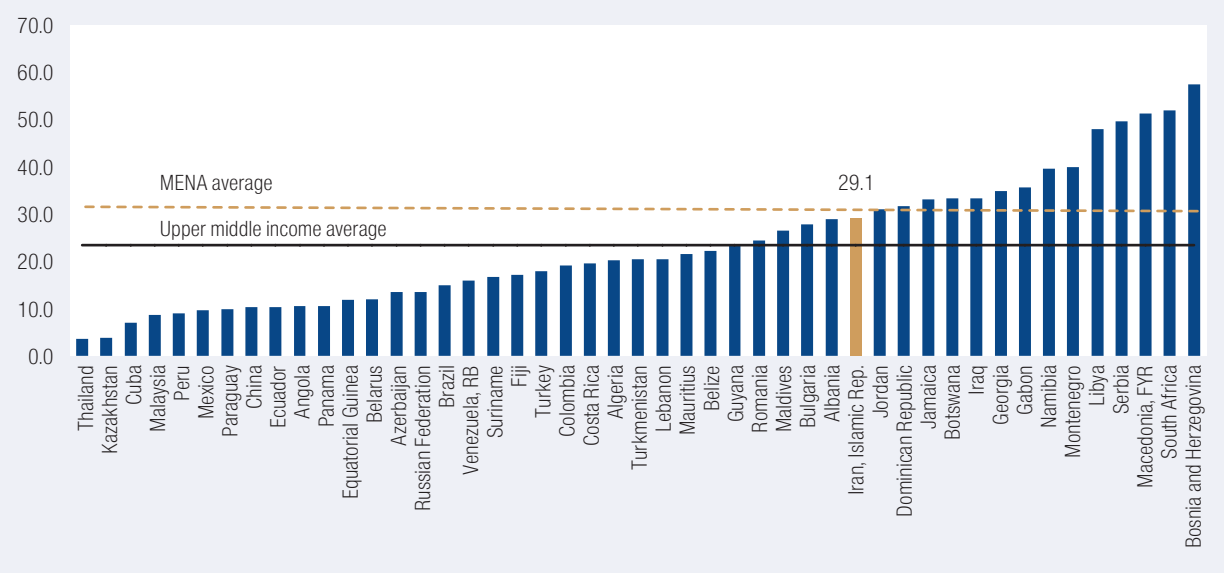
The unemployment rate has continued a rising trend and reached 12.5 percent in the last quarter of 2016 despite strong economic growth in this

[3] Interview with journalists, reported by ILNA, available at: https://goo.gl/t0eL3N.

[4] http://www.al-monitor.com/pulse/originals/2017/01/iran-french-foreign-minister-ayrault-trump-nuclear-deal.html.

[5] http://donya-e-eqtesad.com/news/1093236, https://financialtribune.com/articles/domestic-economy/57154/iran-approves-118b-of-fdi-post-sanctions and https://www.ft.com/content/f342b558–0a37–11e7-ac5a-903b21361b43.

FIGURE 5 • Youth Unemployment, Iran and other Upper Middle Income Countries (% of Total Labor Force Ages 15–24): 2013–2015



Source: Find My Friends using the World Development Indicators.

period.[6] This increase is largely a reflection of an increase in the labor force participation rate to 38.9 percent from 37.7 percent in the same period of 2015, mainly owing to inflow of some discouraged workers who restarted seeking jobs. The number of job seekers increased by 1.07 million over the last 12 months as of March 2017, significantly higher than the 766,292 new jobs created, bringing the number of unemployed up by more than 311,000. At the same time, underemployment remains high at 10.9 percent of the total employed population. Unemployment in urban areas, at 13.4 percent, remains significantly higher than in rural areas (10 percent). Unemployment is higher among youth, at 29.1 percent. High youth unemployment rates are a common feature of many MENA countries though the situation is considerably better in some countries such as Lebanon, Algeria and Morocco (Figure 5). Recent research has emphasized the importance of demand side factors in addressing the challenges of job creation in the region (see, World Bank, 2014).

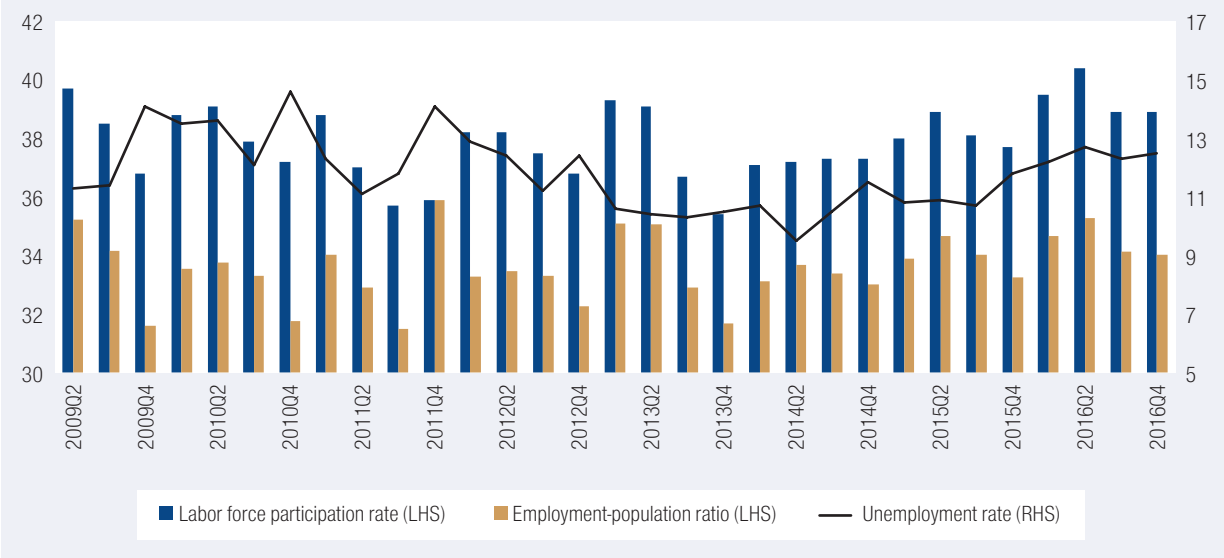
A wide gender gap continues to prevail in the Iranian labor markets. Male and female unemployment rates increased to 10.8 and 20.1 percent respectively in the fourth quarter of 2016, from 10.2 and 19.7 percent in the same period of 2015, with the gap slightly narrowing. The gender gap in Iran's labor force participation is one of the highest in the region. Participation rate for men stood at 63.7 percent in 2016Q4, as opposed to 14.2 percent for women. While more women entered the job market, the employment rate did not rise concomitantly; an indication of challenges facing women not only in participating in the labor force but also in finding jobs.

While the demographic window of opportunity remains open, increasing labor force participation would be critical to ensure Iran is prepared for the aging challenge ahead. Due to the remarkable drop in fertility during the 1980s and 1990s, from 7 in 1984 to 2 in 2000, the age-dependency ratio[7]

[6] The labor force in Iran is defined by the Statistical Center of Iran as the population 10 years of age or above.

[7] 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.

FIGURE 6 • Labor Force Participation, Employment Ratio and Unemployment Rate



Source: SCI labor force survey.

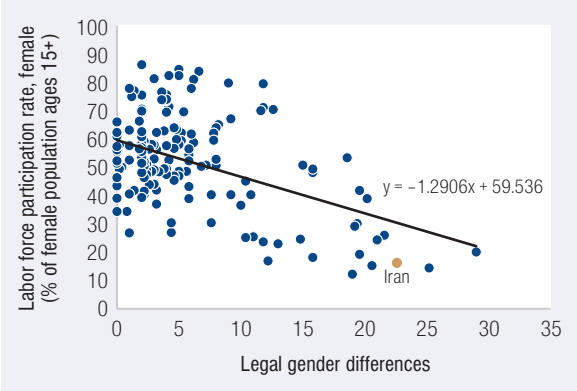
was more than halved between 1980 and early 2000s. Although life expectancy steadily increased, the ratio will remain at this low level for the next three decades, when it will start to climb back up—due to increasing aging of the population. If current trends continue, Iran would start to age drastically by 2050 with the share of elderly (65+) reaching a quarter of the total population. Only a limited portion of the working age population joins the labor force in Iran, hence, until now it has not been able to take full advantage of the "demographic window of opportunity."

It would be critical to raise labor force participation rates in the coming years not only to propel economic growth but also to prepare for the aging challenge ahead. Relaxing labor market rigidities, through for example improving labor market regulations that may affect hiring (such as severance payments that tend to protect tenured workers) and improving relevance of skills is critical to take full advantage of the demographic window of opportunity. A potential deterrent to women's participation in the labor force is the restrictions in the legal framework. According to the World Bank's 2016 report "Women Business and the Law", Iran has the third highest number of legal gender differences. More country-specific research would be needed to identify determinants of the gender gap in labor force participation in Iran and to assess the extent of these legal restrictions and the degree to which they affect participation of women in the labor force. However, cross-country data shows that there is a strong negative correlation between the number of legal restrictions and labor force participation (Figure 7). There also exists cross-country research that suggests that legal rights such as guaranteed equality and other economic rights such as being allowed to head households are associated with smaller gender gaps in labor force participation (IMF, 2015). A regional study on gender equality and development in Middle East and North Africa (World Bank, 2013) also argues that legal and social barriers limit women's labor force participation.

Public Finances

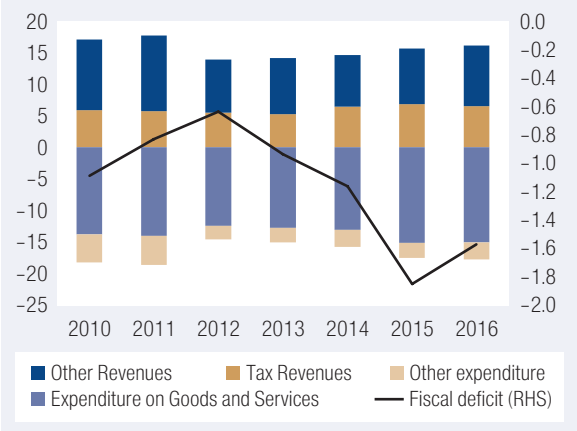
The estimated central government fiscal deficit narrowed in 2016, with the rise in revenues more than offsetting the increase in expenditures. Government revenues in the first ten months of 2016 reached about 66 percent of the amount envisaged in the budget. Expenditures on the other hand, was equivalent to 64 percent of the approved budget, reducing the

FIGURE 7 • Gender-Based Legal Restrictions and Female Labor Force Participation (%)



Source: World Bank (2015) Women, Business and the Law. and World Development Indicators.

FIGURE 8 • Central Government Budget Components (% of GDP)



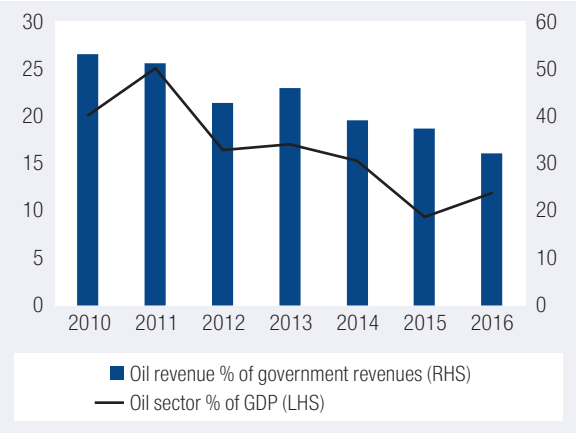
Source: SCI labor force survey.

fiscal gap for the period to around a half of the budget proposed value. In line with this budget performance, the fiscal deficit for the full year is estimated at 1.6 percent of GDP, down from a deficit of 1.9 percent of GDP in 2015 (Figure 8). In 2016, it is estimated that total government revenues increased to 16.1 percent of GDP in 2016, up from 15.6 percent of GDP in 2015, in line with the continued rise in other revenues which includes contribution from oil income. Oil revenues slightly increased by 0.2 percentage points to 6.0 percent of GDP, mainly as a result of an increase in oil export volumes despite the drop in oil prices to an average of $43 per barrel in 2016, down from $51 in the previous year. Direct taxes slightly reduced from 3.7 percent of GDP in 2015 to 3.6 percent of GDP in 2016, with weaker economic activity in non-oil sectors. Similarly, indirect taxes fell slightly from 3.2 percent of GDP in 2015 to 3 percent of GDP, though VAT rates were kept constant at 9 percent. On the expenditure side, government expenditure is estimated to have also increased incrementally to 17.7 percent of GDP compared to 17.5 percent in 2015. The marginal increase in expenditure was a result of increase in capital expenditure, from 2.4 to 2.6 percent of GDP in 2016 which signals the greater emphasis by the government on the lagging investment performance of the country.

The budget's dependence on oil income has recently moderated, but still remains high. The role of oil in government finances has been driven by recent political developments. The share of oil in terms of both government revenues and GDP started falling with the implementation of sanctions from 2011, leading the government to take measures towards resilience against external shocks. Since 2013 elections, the government of Iran has also aimed to stabilize and gradually reduce the role of oil in the budget, with the help of increased VAT rates. Despite the increase in the share of oil sector in GDP in 2016 following the JCPOA, the share of oil revenues is estimated to further decline to 32 percent, before recovering in 2017. This represents a significant diversification of government revenues, as oil accounted for more than 50 percent of total revenues in 2010–11.

In March, the Iranian Parliament approved the 2017 budget. The main assumptions of the $100 billion 2017 budget are that the economy will grow at 7.7 percent, inflation will be around 7.6 percent, oil exports will accrue at an average price of $55 per barrel in 2017 and around 35 percent of government revenues will consist of oil revenues. On the structural side, the new budget law improves public financial management by mandating the transfer of all government accounts from the banking sector to the Central Bank of Iran (CBI). Crucially, the legislation includes not only the central government funds but also all State Owned Enterprises (SOEs) and other public entities that receive governmental budgetary allocations. This will allow real time control to the CBI and the Supreme

FIGURE 9 • Oil Dependence



Source: Government data and World Bank staff calculations.

Audit Court on transactions to or from these accounts and minimize financial mismanagement. This measure along with the ongoing securitization of government arrears through provision of Islamic treasury bills to the banking system are all positive steps in improving not only the government fiscal accountability but also the overall health of the banking system. Continued securitization of government arrears would require efforts to develop the government debt market, while it would be important to factor into the budget the impact on the interest bill of the issuance of additional new debt (of 3,500 trillion rials) and coordinate this process with monetary policy (IMF Article IV, February 2017).

Monetary Policy and the Financial Sector

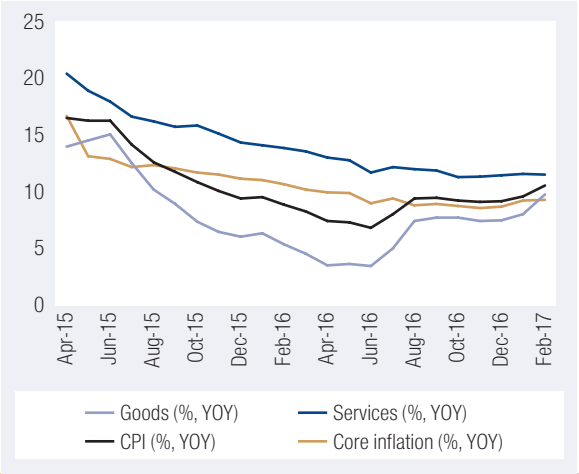
The Iranian economy experienced its first year of single digit headline inflation in a quarter of a century, though upward pressure on prices have resurfaced. Monthly CPI inflation was successfully kept at under 10 percent for 13 months between December 2015 and January 2017. However, inflationary trends picked up since November 2016 and the headline rate moved into double digits (10.6 percent) in February 2017, on the back of oil income entering the economy. The main contributor to the surge in inflation in February 2017 came from prices of goods, which rose by 9.6 percent, with food and beverages price index increasing by 12.8 percent. This is in line with the inflationary trend observed since July 2016 as global non-oil commodity prices witnessed an accelerating inflationary trend. Between July 2016-February 2017, the main drivers of this rising trend were food prices and housing prices. The declining trend in core inflation (excluding fuel, electricity and food and beverages) halted in August 2016 and the rate stabilized at around 9 percent during this period.

The downward trend in the services inflation also came to an end in October 2016, hinting the building up of inflationary pressures in the non-tradable sectors as well. In February 2017, services price index increased by 11.5 percent compared to the same period of the previous year, continuing a persistent inflation rate of around 11 percent since October 2016 and down from 20 percent in April 2015. As of February 2017, the biggest contributors to inflation in services came from health and education components, with annual price increases of 17.1 and 11.2 percent respectively. As shown in Figure 10, the decline in service prices had joined the sharp decline in food prices in bringing down the headline inflation during the past two years until mid-2016.

The increase in consumer prices can also be attributed to the surge in producer prices to around 6.8 percent in December 2016, more than twice the rate in the same month of the previous year. While agriculture prices increased by 4.9 percent, services PPI increased by 7.6 percent and manufactured goods PPI was 7.1 percent higher in December 2017 than a year before. The rise in manufacturing prices can mainly be attributed to a sharp rise in prices of basic metals, the sector's third biggest component, by around 12.5 percent. Furthermore, prices in the automobile sector grew marginally by 0.2 percent year-over-year which was largely a result of commitments by the Competition Council to limit price increases of newly manufactured motor vehicles by the two main producers Iran Khodro and Saipa.[8] The increase in minimum wage by 14.5

[8] For instance, prices were promised to stay the same between November 2016 and May 2017. See: http://www.car.ir/news/Iran-Company/increase-car-prices.

FIGURE 10 • CPI, Goods and Services Inflation



Source: CBI.

percent for 2017, a rate higher than the expected inflation, may put additional pressure on inflation.

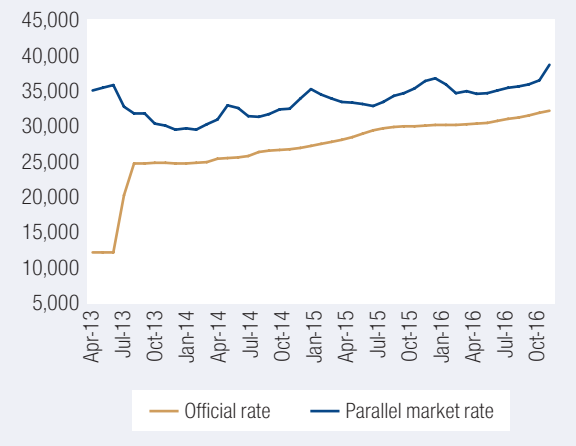
Despite the narrowing down of the output gap, unemployment rates above* the non-accelerating inflation rate of unemployment (*NAIRU) suggest absence of inflationary pressure from the labor markets. The recent growth in GDP has not been accompanied by strong employment generation, which can be attributed to the dominance of the capital-intensive oil sector. At the same time, estimates of NAIRU using a multivariate Kalman Filter suggests a declining NAIRU in recent decades. While the NAIRU reached 11 percent in 2016, actual unemployment rate remains above the NAIRU, indicating limited inflationary pressures stemming from any tightness in the labor market.

The Central Bank has boosted provision of trade finance by commercial banks for imports of intermediate goods, especially for enterprises in the industrial sector. The CBI has overseen the expansion of lines of credit by the banking system to the real economy by 37 percent in the first 11 months of 2016. The mining and manufacturing sectors received almost 30 percent of all loans which is the biggest share relative to their contribution to GDP, out of which 82 percent were directed towards their working capital requirements. The role of these directed loans was key in overcoming the long period in which industries had been contracting under the sanctions due to the shrinking of correspondent banking. This helped the recovery of large manufacturing firms (by 6.8 percent) in the first three quarters of 2016. The CBI has indicated that these funds are only temporary measures to allow firms to sustain their operations and create room for growth, which would enable them to tap into other funding sources. However, these measures have also contributed to an accelaration in liquidity growth; in January 2017 liquidity grew by 26 percent year-over-year.

Notwithstanding these challenges, the CBI has shown commitment to reform and embarked on implementing a wide range of measures to improve the banking sector operations. As part of the commitment of the Central Bank to address the issues of concern listed by Financial Action Task Force (FATF), new financial reporting based on international financial reporting system (IFRS) is being implemented. Adoption of IFRS is an ongoing process and if implemented appropriately, it would be an important step for the country to be removed permanantly from the FATF blacklist. This would be a clear signal of readiness for hosting foreign investment. Furthermore, the recently approved reforms in the transfer of all government accounts to the Central Bank, not only increases fiscal transparency and prudence but could reduce the stress of government arrears on the banking sector and increase efficiency in intragovernmental transactions. It could also greatly mitigate systemic liquidity risk across the financial system. The CBI has also taken other measures such as scaling up a vibrant and transparent interbank market, as the unique platform for all banking transactions, and issuing permits to banks to open accounts for foreign nationals.

Correspondent banking relations have gradually restarted with smaller international banks but remain as an important challenge with major international banks. One of the main impediments to short run growth in the non-oil sector has been the lack of change in the stance of major international banks in reinitiating correspondent banking relations (CBR) with Iranian banks. This reluctance of reengagement of the big banks is based on the uncertainty around dollar transactions and the

FIGURE 11 • Official and Market Exchange Rates ($)



Source: CBI.

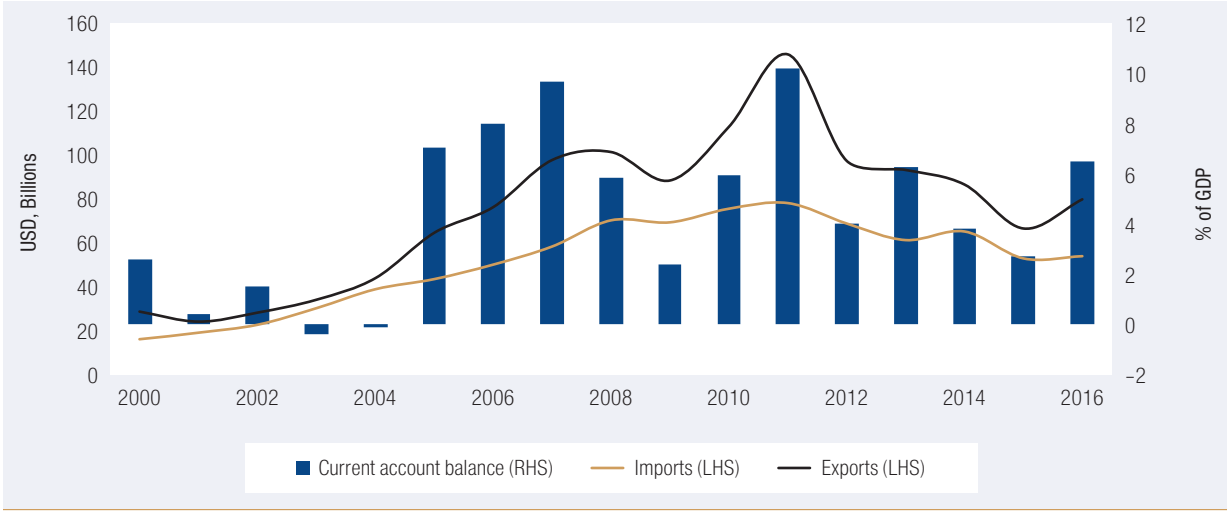
so-called U-turn transactions[9] especially since some of these banks were hit with hefty fines prior to JCPOA implementation.

The unification of the official and market exchange rates has been postponed by a year to the end of 2017. The gap between the two rates fell from a recent peak of 192 percent in June 2013 to 15 percent on average in the first three quarters of 2016/17, accompanied with a much lower volatility in both rates (Figure 11). However, the exchange rate premium has increased slightly in the third quarter of the year due to the seasonal increase in demand and expectations for a sharp depreciation after the US elections, driving the market exchange rate to above the 40,000 rial mark for a few days. At the time, the CBI was quick to react and brought the rates back down. The government also allowed the banks to clear funds at the market exchange rate in order to reduce pressure on the foreign currency reserves. Subsequently, in mid-March the official and parallel rates stood at around 32,400 and 37,000 rials respectively. However, the full unification of the rates was postponed by a year, under pressure from the recent increase in inflation to avoid the potential pass-through from a further depreciation of the rial. Reestablishment of a well-functioning correspondent banking relationship would also support the unification of the rates.

The Tehran Stock Exchange (TSE) index has experienced a slight downturn due to

[9] The U-turn dollar denominated transactions were transactions of Iranian funds that were previously allowed to be cleared through US financial institutions on the condition that the recipient and issuer of the transaction were non-Iranian banks that are not in the US or under US jurisdiction. However, the exemption allowing such transactions was revoked in 2008.

FIGURE 12 • The Current Account Surplus Rebounded in 2016



Source: World Bank.

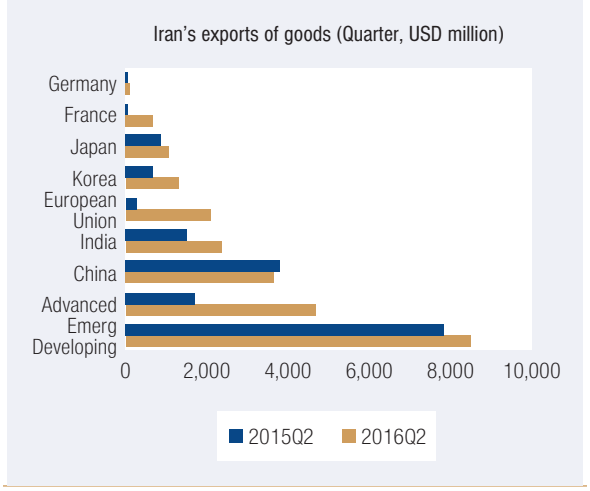
external factors influencing the future of JCPOA. After the stock exchange index reached a historical peak of 81,537 in April 2016, there was a correction through June 2016. The volatility in the index has declined after this sharp swing and as expectations for attracting investment and the longevity of the JCPOA were partially revised. The overall index has hovered around the 77,000 mark since August 2016, with mid-March levels 6 percent below the December level peak. At the same time, the top 50 or 30 index displays a more negative performance of big companies which were more likely to benefit from improvement of international trade and finance.

External Position

Iran's external position strengthened in 2016 following the six-year low in the current account surplus in 2015. The surplus is estimated to have rebounded from 2.7 percent of GDP in 2015 to 6.5 percent of GDP in 2016, with higher oil production, lifting of sanctions and improved oil prices (Figure 12). According to government sources, oil exports increased by one-third, up to 2.1 mbpd in the second quarter of 2016, compared to 1.5 mbpd in the same quarter of the previous year. Net exports, as a share of GDP, more than doubled from 2.4 to 6.1 percent of GDP in 2016, as exports recovered while imports remained close to the 2015 level.

The pick-up in exports was driven by exports to advanced economies, particularly to Europe and Korea. Exports to Europe are almost 10 times higher at 2 billion dollars in the second quarter of 2016 compared to one year prior when the sanctions were still in force (Figure 13). The largest increases occurred in France which went from only $6 million to $658 million between March and September in 2016. Korea and France were both oil importers from Iran prior to the sanctions and are amongst the most active countries since lifting of the sanctions in seeking out FDI opportunities on top of the already active trade agreements relating to the automotive sector. China and India remain Iran's most important export destinations. Exports to China did see a small fall of 4 percent between second quarter of 2016 compared to a year ago, while exports to India soared by 57 percent over the year.

FIGURE 13 • The Lifting of Sanctions Has Quickly Affected Iran's Exports Destinations



Source: IMF DOTS.

FDI and portfolio investment remained low in 2015 at 0.2 percent of GDP but is estimated to have more than doubled in 2016. FDI and portfolio equity is estimated at only $0.8 billion in 2015, but have quickly ramped up in 2016 to $2.0 billion.[10] The lifting of sanctions has drawn investor interest to the hydrocarbon sector along with automobile and telecom sectors. As Iran's reintegration with the global financial system speeds up, even larger increases in FDI are expected.

Foreign reserves were estimated at $134.3 billion at the end of 2016, which was equivalent to 21 months of imports. The high import coverage reflects Iran's continued difficulties to access international payment systems and low level of imports. Since the implementation of JCPOA, Iran has increasingly sought to conduct trade transactions, particularly for oil, in euros to avoid the challenges it faces with holding US dollars.

[10] Based on 2016 IMF Article IV Staff Report.

2

OUTLOOK AND RISKS

Iran's medium-term growth prospects are expected to moderate to around 4 percent in the baseline scenario. While the 2016 economic performance was stronger than initially envisaged on the back of a stronger bounce-back in the oil sector, medium-term growth outlook is somewhat weaker. Continued uncertainties regarding Iran's reintegration with the global banking system and global economy constrain both foreign and domestic investment and keep a cap on growth. As the growth dividend from oil weakens, growth is expected to moderate to 4 percent in 2017 with the help of a recovery in gross fixed capital investment, following two years of contraction (Annex 1). Iranian economy is expected to grow by 4.1 and 4.2 percent in 2018 and 2019, respectively, lower than projected in the Fall 2016 issue of the *Iran Economic Monitor* (IEM). This positive growth outlook still hinges on the assumption that some of the agreements between Iran and major foreign companies in the oil and gas and other key sectors, including manufacturing, will materialize. This would create renewed confidence, validating the very positive expectations generated in the immediate aftermath of JCPOA implementation in January 2016 and leading to gradually improving medium to long term growth dynamics as potential output starts to rise as well. In the long-term, the primary determinant of Iran's growth prospects would be how effective it utilizes its resources beyond oil and gas. Box 1 provides growth simulations for Iran's long-term growth prospects with a focus on key policy areas such as productivity and labor force participation.

Sustaining the downward trend in inflation may prove challenging. Following a substantial decline in CPI inflation in the last two years, inflationary pressures started to build up through food and housing prices and the closing output gap. Under the baseline scenario, inflation is projected to be slightly below 11 percent in 2017 and ease marginally to 10.2 percent and 9.6 percent in 2018 and 2019, respectively. As a result, continued tight fiscal and monetary policies would be crucial to keep inflation under control.

Similarly, the sharp recovery in the current account surplus in 2016 is unlikely to be sustained beyond 2017. The current account surplus is estimated to have surged to 6.5 percent of GDP in 2016 from 2.7 percent in 2015. While still considerably smaller than the pre-sanctions peak of 10 percent of GDP in 2011, this level is expected to ease to 5.5 percent in 2018 and further to 4.6 percent in 2019. This would be driven by the expected slowdown in oil exports and stagnant non-oil exports, combined with a pick-up in imports.

Improved public finances and structural fiscal reforms would help maintain macroeconomic and fiscal stability. While fiscal balances in the last few years suffered from low oil revenues, in the medium term spending pressures would dominate, given the expected rise in interest payments from securitization of government arears and the continued pressures from the pension system. Improved tax collection and prudent management of spending would help achieve a budget surplus in 2018–19.

There are significant downside risks to this baseline scenario. The major risk in the near future is the political uncertainty around the full implementation of JCPOA and the possibility of new sanctions. This is likely to continue influencing consumer/investor confidence and may lead to

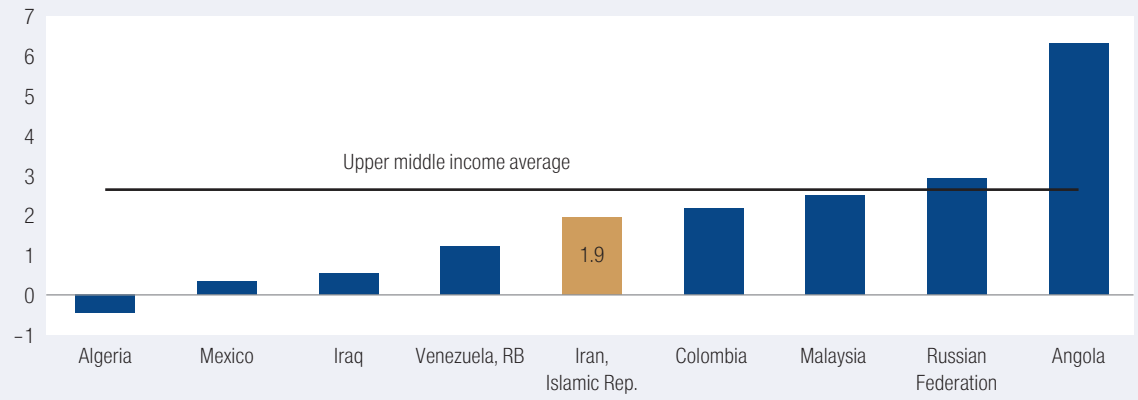
a further weakening in private consumption and investment. Under this scenario, GDP growth would remain below 3 percent. Furthermore, lower than projected oil prices would put pressure on government revenues and undermine growth. Going forward, the main challenge still facing the economy is channeling the 'oil proceeds' towards benefitting the broader population. In order to optimize the returns

BOX 1 • Iran's Long-term Growth Prospects

Iran's growth prospects would increasingly rely on its effective use of resources beyond the oil sector. As the oil production capacity reaches pre-sanctions levels, further sizeable growth dividends are unlikely to be driven by the oil sector. Instead, the country would need to rely more on its other abundant resource, its educated labor force and focus on bringing its productivity levels up.

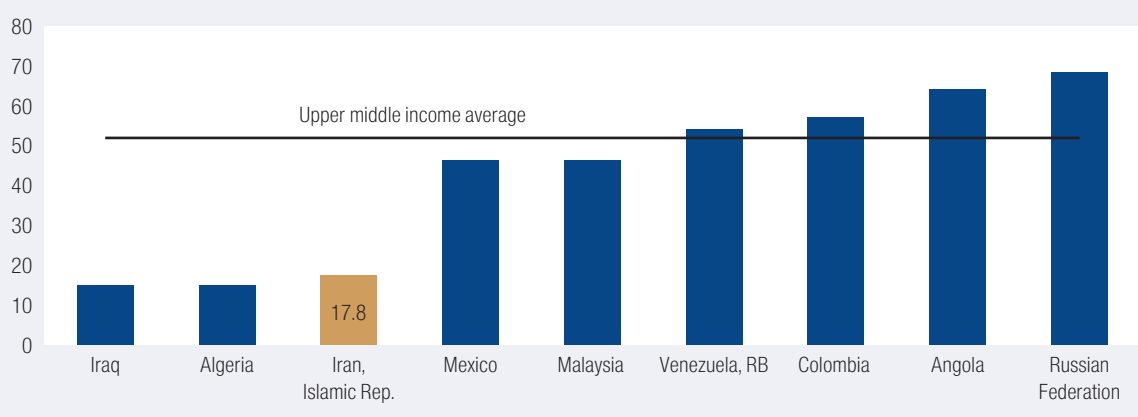
Iran does not compare favorably with its peers in terms of productivity and the use of its labor force. Preliminary analyses for long-term growth simulations benchmarked Iran against a set of comparators in terms of its efficiency of production. The group of benchmark countries are those that are oil exporters, upper middle-income and with a population of over 20 million. As shown in Figure 1.1, the growth rate of Iran's GDP per worker fell short of the upper middle-income countries' average in 2005–15. The more striking difference between Iran and its set of comparators is in the level of female labor force participation. At only 17.8 percent, Iran is among the countries, along with a few of its MENA peers, with the lowest female labor force participation rates (Figure 1.2).

FIGURE 1.1 • Growth Rate of GDP Per Person Employed (constant 2011 PPP Dollars), 2005-15



Source: Find My Friends using WDI.

FIGURE 1.2 • Female Labor Force Participation (% of Female Population Aged 15-64), 2005-15



Source: Find My Friends using WDI.

(continued on next page)

from these oil proceeds, an effective sovereign wealth management architecture would need to ensure fiscal sustainability and address development challenges. Moreover, tackling the structural reform agenda that would boost non-oil sector growth remains a key priority. These reforms would need to be supported by connecting Iranian banking sector with the rest of the world and through improved trade linkages facilitating the much needed job creation especially for the country's young and highly educated population.

BOX 1 • Iran's Long-term Growth Prospects *(continued)*

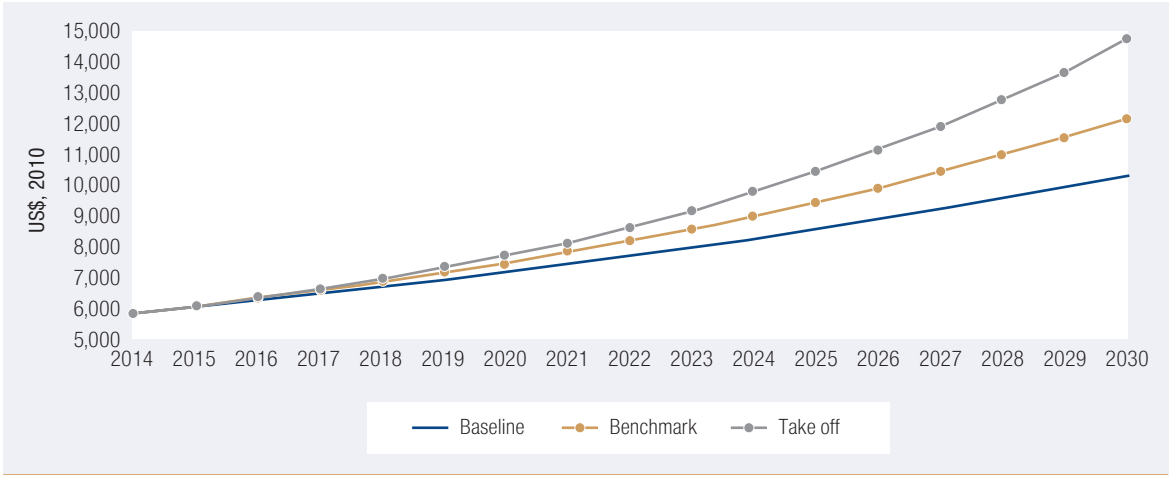
Simulations of Iran's long-term growth path show the abundant potential from moving closer to the frontier. To assess the impact of changes in three key parameters on Iran's per capita GDP by 2030, three scenarios are constructed. The three parameters used are: investment to GDP ratio, total factor productivity growth and female labor force participation. The scenarios include a status quo (baseline), benchmarking to comparators and a take-off scenario. The three variables that are exogenously shocked are selected as those most likely to be affected by reforms in Iran. The status quo scenario assumes all the parameters remain at the same levels as their 2005–14 average (Table 1.1). The benchmark scenario is based on the average outcomes of Iran's selected comparators (Algeria, Angola, Colombia, Iraq, Malaysia, Morocco, Russia, and Venezuela). Take-off scenario assumes very strong improvements on Iran's present condition. Investment rate is assumed to increase from 26 percent to 35 percent of GDP (top 10th percentile in the world), female labor force participation improves from 17 percent to 57 percent and TFP growth of 1.1 percent, highest levels among the comparator set. Finally, two combined scenarios assume all the benchmark assumptions occur simultaneously and all take-off scenarios occur simultaneously.

TABLE 1.1 • Assumptions for Long Term Growth Simulations, Values for 2030

	Status Quo	Benchmark	Take-off
Investment Rate (share of GDP)	26.0%	26.0%	35.0%
Female Labor Force Participation Rate	17.7%	46.9%	57.0%
Total Factor Productivity growth rate	0.3%	0.9%	1.1%

Combined scenarios are illustrative of the potential for Iran's economy to move to a superior growth path (Figure 1.3). Under the assumption that Iran's female labor force participation rate increases to 47 percent and the rate of increase in its TFP increases to 0.9 percent, both averages of its set of comparators for this exercise, the real GDP per capita will be close to two thousand dollars higher than in the baseline in 15 years time. More strikingly if the three parameters used for this simulation reach the highest levels observed in the set of comparators), Iran's real per capita GDP is more than 40 percent higher than its baseline level by 2030.

FIGURE 1.3 • Simulations of Real GDP Per Capita Under Benchmark and Take-Off Scenarios



Source: WB staff calculations using Long-term growth simulation model.

Annex 1

IRAN: SELECTED ECONOMIC INDICATORS (2014-2019)*

	2014 Act.	2015 Est.	2016 Proj.	2017 Proj.	2018 Proj.	2019 Proj.
Real sector	(annual percentage change, unless otherwise specified)					
Real GDP at factor cost	3.0	-1.8	6.4	4.0	4.1	4.2
Total oil production (million barrels/day)	3.1	3.2	3.7	4.2	4.3	4.4
Crude oil, average price (US$)	96.2	50.8	43.0	55.0	60.0	61.5
Money and prices	(annual percentage change, unless otherwise specified)					
CPI Average Inflation (p.a)	15.6	11.9	9.0	11.5	10.9	10.6
Investment & saving	(percent of GDP, unless otherwise specified)					
Gross Capital Formation	26.2	24.6	23.2	24.0	25.2	26.5
Gross National Savings	30.0	27.3	29.7	30.5	30.8	31.1
Government finance	(percent of GDP, unless otherwise specified)					
Total revenues	14.6	15.6	16.3	17.5	18.2	18.8
Tax Revenues	6.4	6.9	6.7	6.6	6.4	6.1
Direct Taxes	3.3	3.7	3.6	3.6	3.5	3.3
Indirect Taxes	3.2	3.1	3.0	3.0	2.9	2.8
Total expenditures	15.8	17.5	17.7	18.1	17.9	17.6
Current	13.0	15.1	15.0	14.9	14.8	14.6
Net lending/borrowing (overall balance)	-1.2	-1.9	-1.5	-0.6	0.2	1.2
External sector	(percent of GDP, unless otherwise specified)					
Current Account	3.8	2.7	6.5	6.5	5.5	4.6
Net Exports	3.5	2.4	6.1	6.0	5.1	4.2
Export of Goods and Services	23.1	19.7	25.0	26.9	27.5	27.9
Import of Goods and Services	19.6	17.3	18.4	20.0	21.5	22.9
Total International Reserves (Billion US$)	126.2	128.4	134.3	147.2	166.1	
as Months of Imports (number of months)	18.5	22.9	21.1	21.2	22.2	
Total Gross External Debt Stock (US$ bln)	5.5	4.5	8.3	10.1	8.5	3.3
Total Gross External Debt Stock (% of GDP)	1.3	1.1	2.0	2.4	2.1	0.8
Memorandum Items:						
Nominal GDP (Billion IRR**)	11,033,666	11,502,510	13,119,439	14,996,331	16,826,804	18,955,294

Sources: Government Data and World Bank Staff Calculation.

* Fiscal year ends March 20. For example, 2015 corresponds to the fiscal year of 2015/2016.

** IRR: Iranian Rial

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SPECIAL FOCUS 1 IRAN'S PENSION SYSTEM: THE NEED FOR REFORM[11]

Introduction

This special focus chapter provides an overview of the Iranian pension system, its main challenges, and preliminary guidance towards a series of policy interventions with the objective to improve its coverage, equity and fairness, incentives, economic and administrative efficiency, as well as its financial sustainability.

The chapter is organized in three parts. Section 2 presents some background of pensions in Iran against general fundamental principles of pension systems based on international best practices, as well as a general overview of the Iranian pension system, including institutional structure, and parametric features. Section 3 presents the main challenges faced by the current pension system in Iran. Section 4 presents some policy considerations, and general discussion on the way forward, by drawing on some fundamental principles and international experiences.

The pension system in Iran is highly fragmented, composed of 18 contributory pension schemes. Based on the latest information, 76 percent of the employed population is registered with one of these schemes. The two largest ones are SSO (Social Security Organization, which covers private sector employees), and CSRF (Civil Servants Retirement Fund). Together both schemes cover around 90 percent of all contributors. While SSO covers 83 percent, CSRF covers only 7.1 percent. With respect to beneficiaries, CSRF is already covering more than 28 percent of all beneficiaries. The Armed Forces Pension Organization, and the Rural Pension Organization are the other two relatively sizeable schemes, covering 6 percent and 3.3 percent of the total number of insured, respectively. Around 50 percent of the elderly population in Iran today is not receiving a pension from any of the contributory schemes and has to rely on other sources of protection, from family, social assistance, or others.

The pension system in Iran is currently facing various challenges. In addition to the ones on coverage, important challenges remain on administrative aspects; particularly the need to improve the management of reserves. Current investment policies are complex, and not necessarily in the best interest of plan members. Appropriate investment regulations are not in place. The pension system in Iran is also currently facing economic inefficiencies due to fragmentation (which

[11] This chapter was prepared by Montserrat Pallares-Miralles, with inputs from Robert Palacios.

represents an obstacle to labor market mobility). The system has also various features that lead to increasing inequities.[12] Also, in spite of the generosity of the system by design, in practice adequacy seems to be another challenge. Pension benefits received by 77 percent of the pensioners from SSO and by 35 percent of those from the CSRF, are below the poverty line. Finally, the pension system in Iran is also under significant fiscal stress. Revenues from contributions do not cover pension expenditures. Investment returns are very low, and reserves are depleting. Deficits of all schemes together represented 425.3 trillion rials in 2014 (around 4 percent of GDP).

The challenges and opportunities of the pension system in Iran are indeed considerable. This chapter presents only a very general overview. All challenges and opportunities would need to be tackled with very careful and in-depth quantitative analysis and policy discussions. Reforming pension models or building new ones that will work for individuals and governments alike is an incredible challenge. Most governments worldwide are currently reforming or in need of reforming their pension systems, and international experience shows clearly that there are no easy solutions for pension reform. A simple model for pension reform cannot be uniformly applied to all countries. However, what is quite clear, and further described in the last part of this chapter, is the fact that a multi-pillar or multi-dimensional pension system is required, in order to meet and balance the multiple and sometimes conflicting objectives of a pension system. Basically, no single pillar or tier can bear all the weight of delivering adequate income with broad coverage in a sustainable, efficient and secure manner. There is no example of a country globally that manages to achieve high levels in each of these outcomes with only one pillar. In addition to parametric reforms, consideration for other pillars (social pensions), as well as the integration of pension schemes, is also recommended.

Pension System in Iran - Overview

The pension system in Iran is composed of 18 pension schemes. The two biggest ones are Civil Servants Retirement Organization and Social Security Organization (which covers private sector employees). Among other sizeable schemes are the following: Folad Co. Pension Organization,[13] Bank's Pension Organization, Oil Industry Pension Organization, Armed Forces Pension Organization and Rural Pension Organization. SSO includes voluntary enrollment for the self-employed (which represents 44 percent of all insured). All the schemes in Iran are designed as contributory, PAYG (Pay-As-You-Go)[14] and DB (Defined Benefit),[15] and are facing the usual challenges of system demographics. The support ratio—number of contributors divided by the number of beneficiaries—is falling significantly in many of these schemes. As indicated in Table 2, except for the insurance fund (scheme) for farmers, villagers and tribes and the lawyers support fund (scheme), which are new and recently established funds, the rest of the schemes are already showing unfavorable system demographics. In the case of SSO, the support ratio is still relatively favorable but decreasing rapidly (less contributors for more beneficiaries).

Table 3 presents the main design characteristics of the two biggest schemes, SSO, and CSRF. Contribution rates in the private sector (SSO) are lower than in the public one (CSRF). Eligibility conditions for retirement are diverse, and generous. Retirement ages basically range between no minimum (females with 20 contribution years in the CSRF, and males and females with 35 contribution years in SSO) and 65 years (males and females in CSRF).

The statutory retirement age in SSO is 60 for men and 55 for women (with 10 years of contributions). The scheme does not provide formal early retirement, however it has implemented generous exceptions to the statutory rule. In the following cases retirement

[12] Various design features lead to some members to contribute the same as others but take out disproportionally more from the system.

[13] This fund is not accepting new entrants.

[14] Financing mechanism where current contributors pay for current beneficiaries (see annex glossary).

[15] Pension is calculated according to a formula (see annex glossary).

TABLE 2 • Pension Schemes in Iran: Active Members, and Retirees, 2014

Organization/Fund	Number of active members	Number of retirees	Support Ratio
Social Security Organization	13,344,498	2,179,572	6.1
Civil Servants Retirement Organization	1,135,000	1,244,000	0.9
Insurance Fund for Farmers, Villagers and Tribes	660,000	22,697	29.1
Armed Forces Social Security Organization	580,000	650,000	0.9
Oil Industry Staff Fund	96,700	–	–
Steel's Staff Support Fund	11,552	74,564	0.2
Ports and Marine Organization Staff Fund	1,304	2,088	0.6
Banks Fund	164,000	103,000	1.6
Lawyers Support Fund	30,000	780	38.5
Ayandesaz Fund	10,920	4,172	2.6
Other Exclusive Funds (8 Funds)	63,060	56,510	1.1
TOTAL FUNDS	16,097,034	4,405,995	3.65

Source: MoCLSW, Ministry of Cooperation, Labor and Social Welfare.

TABLE 3 • Pension Schemes SSO and CSRF Design Features in Iran

DESIGN CHARACTERISTICS	SSO (national scheme)	CSRF (civil servants)
SOCIAL SECURITY CON TRIBUTIONS		
Total contribution rate of employer and employee (as % of covered wage)	18% (7% employees, 11% employers)	22.5% (9% employees, 13.5% employers)
ELIGIBILITY CONDITIONS		
Different Eligibility Conditions (years):		
1. Statutory Retirement Age	60/55 (men/women)	65 (60 at employer's request)
with required length of service of	10	30
2. Any age with 35 years of experience	Yes	No
3. 20 consequent years or 25 years of experience for arduous and hazardous job	Yes	No
4. 50 years old male with 25 years of experience–with employer's permission	No	Yes
5. Female with 20 years of experience–with employer's permission	No	Yes
PENSION BENEFIT CALCULATION		
Benefit formula for old-age pensions:		
Basic Replacement Rate	33.3%	99.9%
Incremental Replacement Rate	3.3%	3.3%
Maximum Replacement Rate	116%	100%
Number of Last Years for Wage Base Calculation	2	2
Post-Pension Indexation	Discretionary	Discretionary

Source: MoCLSW, Ministry of Cooperation, Labor and Social Welfare & WB pensions database.

ages can be lower: i) individuals with at least 35 years of contributions can retire at any age; ii) individuals working in hazardous jobs who have worked at least 20 consequent years or 25 years as a whole, even discontinued, can also retire at any age without penalties.

In the case of CSRF, at various points in time, the scheme provided additional incentives for early retirement as a mechanism to reduce the size of the civil service. In 1988 and 1992, the SSO also implemented two generous early retirement programs. Over the years, there has been a fast increase in the number of beneficiaries, attributed in part to the government's efforts to control wage expenditures by reducing the size of the civil service. Hence, the statutory rules have quite often been overruled.

Today in CSRF men can retire at age 50 if they have contributed for at least 25 years (and with the employer's permission). Female employees who have contributed continuously for 20 years can apply for retirement at any age (with the employer's permission), however, the minimum pension in this case does not apply.

Both benefit formulas (in SSO, and CSRF) use the average of the last two years as the base for pension calculation. In the SSO, with an accrual rate of 3.3 percent per year and only the last two years used to compute the base salary for the pension, statutory replacement rates for full-career workers are equal to 116 percent, while for those who have only contributed for 10 years (the minimum length of service) the replacement rate is 33.3 percent.

In the case of CSRF, the basic replacement rate (for an individual who has contributed the minimum length of service of 30 years) is 99.9 percent. It is also important to note that in CSRF both contributions and pensions are actually computed on a base of 75 percent of total income, hence effective replacement rates for full career workers is 75 percent when considering the entire remuneration (or 100 percent when considering only the pensionable income).

As explained in part 3 below (main challenges), the current design features of the pension system are creating inequities and distortions in the labor supply. In particular, the benefit formulas and eligibility conditions in SSO provide incentives for under-declaration, evasion, and early retirement. In practice, adjustments of pensions in-payment (indexation) are subject to discretion by government officials. Hence, beneficiaries are at risk of their purchase power being eroded due to inflation.

Main Challenges

Financial sustainability and affordability[16]

The pension system in Iran is currently facing the usual challenges of system demographics, with the support ratio considerably decreasing, in addition to the challenges of very generous[17] parameters. The system is also plagued by low returns to investments.[18] As a result, the schemes' deficits have been rapidly increasing. A main concern of the Iranian policy makers at this point is the financial sustainability since the current system heavily relies on the general budget, especially in the case of the Civil Service and Armed Forces schemes. Government contributions to the civil service and military pension schemes represented 2.8 percent of the public budget in 2005 rose to 14 percent in 2014 and is expected to increase to 28 percent in the next 7 years. Total deficits reached 425.3 trillion rials in 2014 (around 4 percent of GDP).

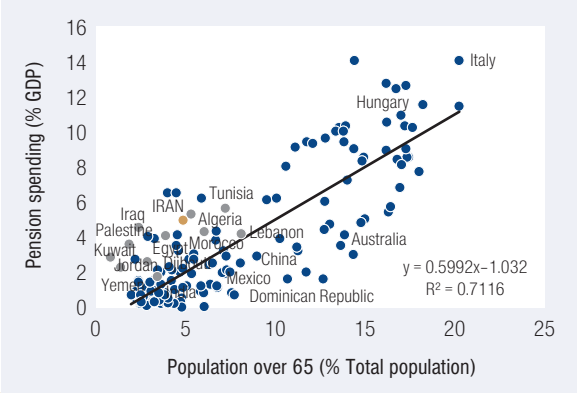
Figure 14 illustrates the high correlation that exists worldwide between pension spending and the percentage of population over 65. Iran is well above the predicted line, it has higher spending when comparing with other countries in the world with similar percentage of elderly population. This fact is due to various reasons, including pensions generosity

[16] While the concept of affordability looks only at the costs of pension benefits, the concept of sustainability compares the retirement benefits with the contributions paid to earn the pension rights. Most contribution rates of the current pension schemes in Iran cannot sustain the promised pensions.

[17] See next paragraphs and Figure 15.

[18] No specific data on investment returns was made available at the moment of writing this chapter, however it was mentioned that the current investment policies are complex, and with low returns.

FIGURE 14 • Pension Spending vs Population Over 65 (as % of Total Population)



Source: WB pensions database.

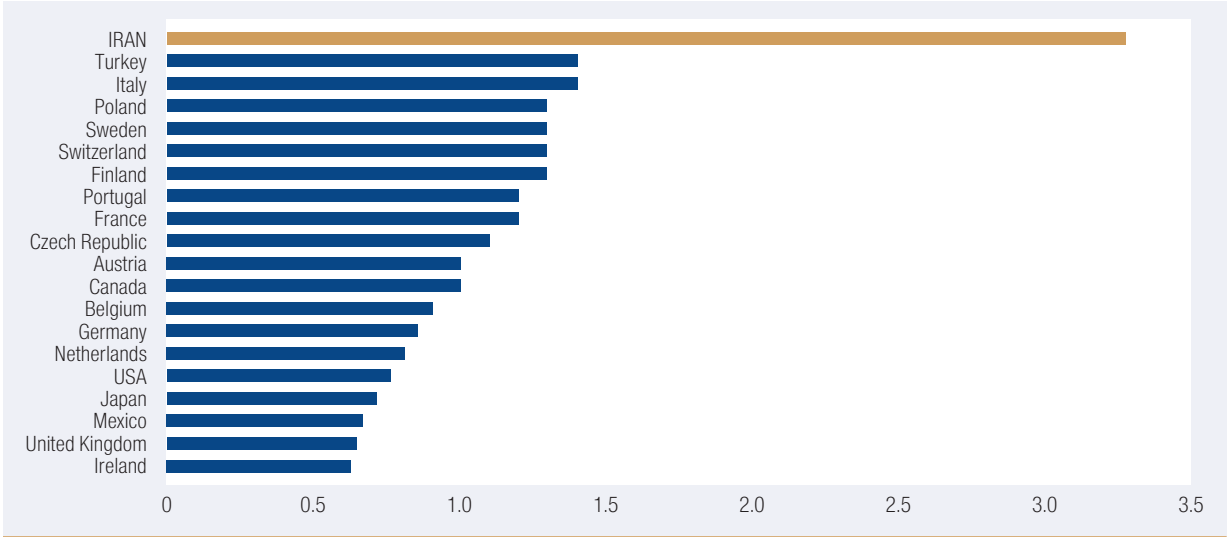
of most of the schemes (particularly civil servants and other special schemes) as well as the widespread early retirement programs and also survivorship pensions.

Benefit promises of the current pension schemes in Iran are not in line with the contribution rates and the retirement ages. While parametric alignment to the overall sustainability objective is neither simple nor univocal, potential reforms to improve the alignment between contributions and pensions[19] include increased retirement ages (to respond to the increase in life expectancy), and revision of benefit formula and eligibility conditions (particularly considering the highly generous provisions for early retirement). Basically, pension schemes in Iran have a fundamental misalignment between the contribution rate and benefits paid at various retirement ages.

A key parameter of the benefits of such schemes is the accrual rate, which is the proportion of earnings paid in pension for each year of contributions. Multiplying the number of years of contributions by the accrual rate gives the gross replacement rate (benefit paid), a standard and important indicator in the analysis of these types of retirement-income provisions. Figures 15 illustrates how generous pension accrual rate is in Iran when compared with European and other OECD member countries. In Iran, the difference between what many individuals contribute into the schemes and how much they take out from such schemes is huge, leading to the challenge of the current unsustainability.

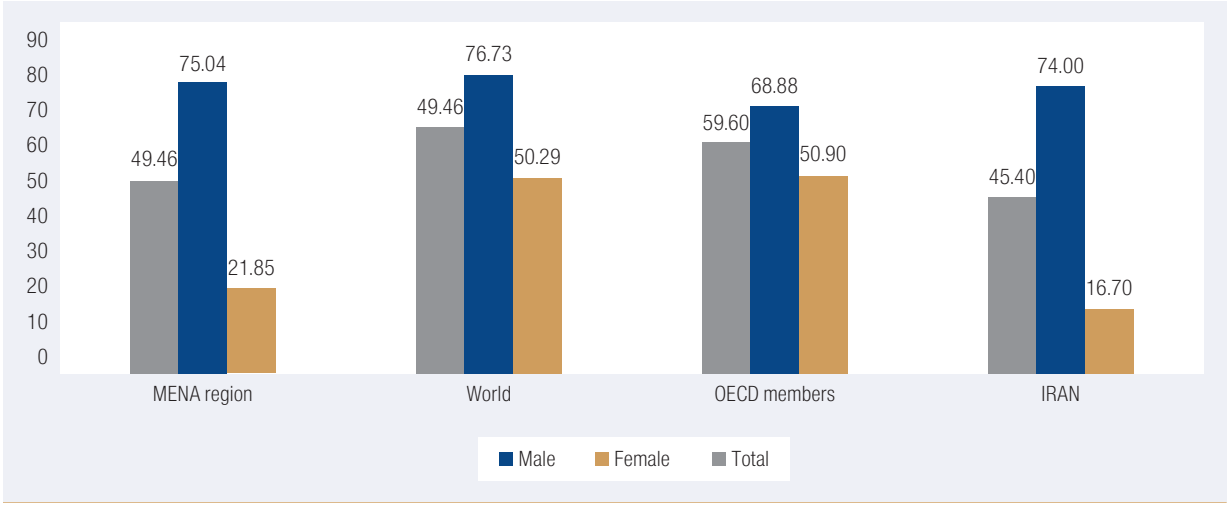
[19] Ideally, and as much as possible, the present value of all contributions of an individual should be equal to the present value of the pension payments to the same individual. High internal rate of returns make the system unsustainable.

FIGURE 15 • Accrual Rate: International Comparisons



Source: WB pensions database.

FIGURE 16 • Labor Force Participation Rate (% Pop 15+), 2014



Source: WDI/ILO.

In addition to problems of financial sustainability as explained in the previous paragraphs, challenges on managing reserves, as well as challenges regarding the accumulation of arrears by the government to the pension schemes for its due contributions and late fees, are also very important to consider. The government arrears to the pension funds has been increasing from 100 billion rials in 2001 to 700 billion rials in 2012. The Government annual debt repayments have been between 0 and less than 250 billion rials in the same period.

Coverage

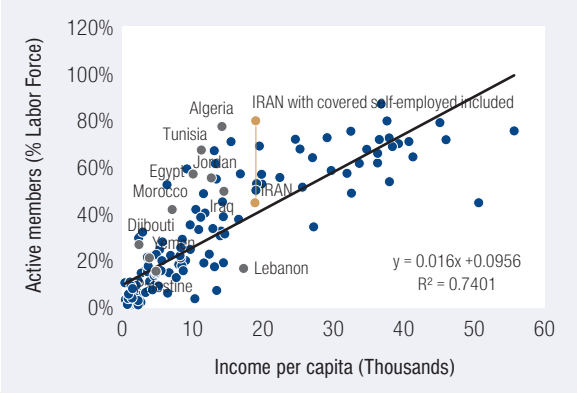
Historically, the coverage of pension schemes in Iran has been increasing. In the mid-1970s only around 29 percent of the total population in the country were covered by pension schemes (including dependents). In 2014, this indicator represented around 69 percent of the total population. When not including dependents, but only contributors as percentage of the number of employed, the coverage ratio is 76 percent. Coverage is high, however, there is still an important coverage gap. One of the main challenges is the lack of appropriate mechanisms to cover the self-employed. Also, voluntary coverage is very irregular (mostly villagers and self-employed do not contribute regularly), despite the fact that some specific programs for self-employed such as drivers or construction workers have instead been recently increasing. Many in the informal sector and/or small business do not contribute at all. More than 6 million employed people in Iran today are not covered by the pension system.

An important consideration of the coverage gap in Iran is the fact that its total labor force participation rate is one of the lowest worldwide, particularly because of the low female participation rate (as indicated in Figure 16). Less than 17 percent of women (aged 15+) are part of the labor force. Also, according to 2014 administrative data, more than 40 percent of contributors are self-employed and more than 20 percent of the employed is informal.[20]

It is not clear that the future expansion of the working age population in Iran will be accompanied by an expansion of employment, particularly in the formal sector and therefore, an expansion of the social insurance and pensions covered population. The informality phenomenon involves the majority of workers in the private sector, particularly in rural

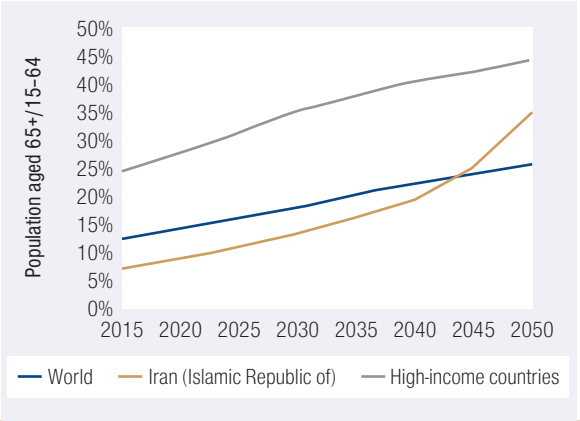
[20] Total labour force in Iran was more than 27 million in 2014. Among them 21.3 million were contributing to pension schemes; of which 11.9 million employed and 9.4 million self-employed.

FIGURE 17 • Pensions Coverage vs Income Per Capita



Source: WB pensions database.

FIGURE 18 • Projected Population Aged 65+/15-64



Source: UN population projections/WDI WB.

sector, self-employed, and female population. Many countries worldwide are also facing the problem of informality, and evidence suggests the need to rethink policy making, especially concerning labor markets and social security reform, because many of the intended beneficiaries operate beyond the reach of legislative reform.

As indicated in Figure 17, there is a high correlation worldwide between income per capita and coverage of social insurance/pension systems. Most countries in the MENA region, including Iran, have higher coverage rates than would be predicted by their income.[21] This indicates that it would be difficult to expect the coverage to expand substantially through conventional mechanisms over the medium term, and particularly since most of the uncovered population are in the private sector (including self-employed, rural, etc).

When looking at the coverage of beneficiaries, more than half of the population above age 60 has to rely on informal care (mostly family) or social assistance. It is important to point out that with falling birth rates, rising life expectancy, changes in urbanization, migration, and family structures, the reach and scope of informal arrangements have also been weakening during the last few years and are going to weaken even further unless some new policies to protect the old are implemented.

Figure 18 indicates that despite the fact that the elderly dependency ratio (population aged 65+ to population aged 15–64) in Iran is still very low, the projected ratio into the future would be higher than the average worldwide. Unless reforms are implemented soon, the ageing population would not only aggravate further the financial problem, but also the inequities, and the labor market structure.

Equity/fairness; predictability/ transparency; adequacy, and economic efficiency

Equity and fairness: Iran's retirement-income regimes treat contributors differently, particularly favoring early retirees who receive benefits for longer, relative to workers who keep going until the normal pension age. The problem of early retirement, however, is not only due to the design of the pension system per-se but mostly because of the wide set of jobs defined as "arduous and hazardous". Early retirement provisions are both inequitable and distortionary. They are leading people to leave the labor force (or at least the formal sector) before they would have otherwise. In addition to the generous early retirement conditions, the required minimum length of service and basing the pension calculation on only the last years of wages encourages evasion and underreporting of wages in SSO.

[21] Source: pensions database, World Bank.

Iran's practice of basing pensions on a limited sub-set of years (the best or final years in the career), used to be a common practice internationally, but this is no longer the case. In Iran the pensions law in this respect has been slightly amended, and pensions are supposed to be based on the last five years, however this measure has not yet been enforced. Some countries have already moved from the final five years, fifteen, or even twenty to lifetime average. This convergence towards lifetime-average salary for pension calculation is a best practice, explained because of the following: the contribution base for pensions is the lifetime salary, because payments are made each year. When the base for calculating pensions differs from this—with a limited set of best or final years—and benefits can be unfair, open to abuse and have perverse incentives on economic behavior. For example, basing pensions on a limited number of best or final years tends to be regressive, because the people with final or best years substantially above their career-average earnings tend to be those that earn the most.

Considering lifetime-average salary for pension calculation is particularly relevant for Iran, given its relatively large informal sector, and self-employment. Final-salary measures give a large incentive to under-report earnings in earlier years and artificially boost pay in the years which are used to calculate benefits. Empirical evidence from many middle-income countries confirms that such gaming of the pension system is widespread. Such behavior is most acute among self-employed workers, where verifying incomes is extremely difficult.

Predictability and transparency: Another policy issue of pensions in Iran is the fact that there is currently no automatic mechanism of indexing pensions in-payment. Adjustments are subject to the discretion of Government officials. This is not good practice as this can lead to erosion of the living standards of retirees by inflation. Price-indexation of pensions in-payment is the most common policy. Indexing pensions in-payment to prices guarantees the purchasing power of pensions during retirement. It makes retirement incomes predictable and transparent.

Adequacy: Also, in spite of the generosity of the system by design, in practice adequacy seems to be another challenge. Pension benefits received by 77 percent of the pensioners from SSO, and by 35 percent of those from the CSRF, are below the poverty line.[22]

Economic efficiency: Another challenge of the current system is fragmentation. Particularly the difference between public and private sectors is also an important policy issue because it impedes the mobility of the labor force within and across sectors, increases administrative costs, and generates an unequal treatment of different categories of workers. An increasing number of countries worldwide are merging its different pension schemes.

Policy Considerations

Looking forward, policymakers in Iran would need to create awareness among the population regarding the problems facing the pension system while generating commitment to reform. This requires framing discussions within a long-term horizon to make explicit the tradeoffs between the potential social and economic costs of today's policies with the future benefits.

When creating a road map towards pension system reform, it is recommended that policy makers in Iran consider the following three points, and ask themselves about the principles based on international best practices:

1. Parametric reforms that mitigate inequities, distortions and financing pressures
2. Consideration of alternatives for redistribution, such as social pensions
3. Consolidation of multiple schemes (merging the current fragmented system)

In addition to these three points directly related to pension design, other aspects related to labor force

[22] Schemes are generous by design, however, given the fact that so many people retire early (with very few years of contribution) many individual pensions are actually low.

structure, rules and definitions would also need to be considered when creating the road map towards a pension system reform. Labor force aspects to be considered would include, among others, female labor force participation, and particularly modifying the process of defining arduous and hazardous jobs. Until recently many type of ordinary jobs have been defined as "arduous and hazardous" for political reasons, in order to allow people to retire early. These easy early provisions have considerably increased the gap between life expectancy and the effective average retirement age.[23]

I. Parametric reforms that mitigate inequities, distortions and financing pressures

As mentioned in the previous section, several of the current practices of the pension system in Iran have put the system on an unsustainable trajectory. In general, people contribute only for short periods of time but get benefits for long periods. Current policies also damage and distort the way the labor market works, it creates inequities, as well as adverse incentives.

Early retirement opportunities create adverse incentives for the labor-market. Such early retirement measures seem reinforced and institutionalized. There are two areas where damaging norms seem to have been established:

- It becomes the norm to contribute for a short period;
- It becomes the norm to retire at the earliest possible opportunity (in the civil service scheme a man can retire at 50 with only 25 years of service if employer decides, and a woman can retire at any age with only 20 years of service, if the employer decides).

It is important to assess and analyze the current system with regards to such damaging norms. It is also crucially important that policy makers subject the current scheme—and any proposals for reform—to detailed actuarial modeling and analysis to properly set the individual parameters of the reformed scheme. The financial modelling will set out a range of pension possibilities, emphasizing the trade-offs between the benefit accrual rate, pension age, and contribution rates. Table 4 present a few examples of current vs desirable policy measures. Policy makers would also need to decide on the pace of reform, from slowest to fastest type of reforms (with their pros- and cons-).

In order to gain support from the public and minimize resistance for pension reform, it would be very important to emphasize other challenges beyond the financial sustainability/affordability ones and communicate them appropriately and effectively to the public. During the pension reform process, policy makers in Iran might want to also consider important lessons learnt on communication aspects from other countries worldwide, and particularly from the OECD. There are relevant good but also bad practices in this respect, and various surveys, and lessons learnt to improve pension information and communication. The goal would be to create awareness among the public, and particularly among all relevant stakeholders (social partners, and others) during the reform process, about the challenges facing the pension system and the options for reform.

II. Consideration for redistribution: social pensions and other potential mechanisms

When talking about redistribution it is actually important to distinguish between redistribution toward the core elderly poor, who are usually (but not always) outside the contributory system, and redistribution within the contributory scheme, ideally from high-income workers to low-income workers.

Redistribution toward the elderly poor involves social assistance programs (and/or non-contributory social pensions when recipients are only elderly population), in-kind or in-cash transfers, that should be financed directly from the central budget. The elderly poor, and those individuals likely to become poor during old age, face liquidity constraints and short-term risks that outweigh the risk of longevity. Noncontributory schemes need to be in place to

[23] In 1988 life expectancy at birth was 60, and effective average retirement age 55, while in 2005 life expectancy increased to 70, but on the other hand the effective average retirement age decreased to 48.

TABLE 4 • Current Policy Parameters and, Desirable Policy Parameters Based on First Principles and Best Practice, Slow and Fast Reforms

Feature of the pension system	Current policy	Desirable policy (from first principles and best practice)	Slowest reform	Fastest reform
Accrual rate structure	Linear: 3.3%	Linear: 2%	2% for future accruals	2% for all retirees, even those who have accrued rights (at the previous 3.3%)
Qualifying period for pension	10 years in private 30 years in public	Longer period (depending on other parameters)		
Earnings measure	last two years for private sector and last month for the public sector	Lifetime average	Lifetime average salary used to calculate benefits only for new entrants. All existing workers remain on current rules	All accrual from the reform point on lifetime average salary, meaning pension in two parts (final salary and average salary) for existing workers
Benefit adjustment: 'indexation'	Discretionary	Inflation-adjustment	Inflation-adjustment for new retirees	Inflation-adjustment for new and existing retirees
Normal pension age	60/55 in most schemes	Increase to reflect longer life expectancy	Start to increase in line with life expectancy	Increase in pension age to 65 (and then link to life expectancy)
Early pension age	Various conditions	Gradual increase to reflect longer life expectancy	Curtail 50–55 retirement window over a 10-year period; increase 55 early pension age with life expectancy	Gradual abolition of early retirement so that early age catches up with the normal age
Benefit adjustments for early retirement	Zero	Actuarially neutral	Phased increase 2–3–4–5–6% over a five-year period	Immediate use of 6% for all new retirees
Contribution rate	18% in private sector, and 22.5% in public sector	Labor-market policy should avoid further increases		

protect these individuals. These programs need to be implemented in a way that does not create negative incentives for working and for joining the contributory system.

Many countries also pursue another form of redistribution, from high- to low-income workers within the contributory system (usually a DB-PAYG scheme, like the ones in Iran). The costs of this redistribution mechanism, however, can outweigh the benefits. Whether redistribution from high- to low income workers in the contributory system is desirable or not is a matter of social preferences. If it is, however, policy makers ought to consider the less-distorting redistribution mechanism. Achieving the redistribution through the pension system involves taxing labor and thus distorting labor markets. An alternative is to finance the transfers (e.g., guarantees on minimum pensions) directly from the central budget. In the case of a DB-PAYG system, transfers can be regressive, meaning that low income individuals receive lower rates of return than high-income individuals; furthermore, future generations usually receive lower rates of return than current generations. In the case of SSO and the CSRF, for instance, a given individual's rate of return from the DB-PAYG system is determined by two main factors: the average growth rate of the real wage; and life expectancy. Individuals whose wages grow faster and who live longer, thus receiving pensions for longer periods of time, have higher rates of return. These individuals are often educated and healthy workers, more likely to belong to middle- and high-income households. In principle, the system could be designed instead so that low-income individuals receive higher rates of

return than high-income individuals (for instance by introducing minimum pensions), but progressivity is not an inherent feature of the DB-PAYG system. Another characteristic of the DB-PAYG system is that the sustainable rate of return that the system can pay decreases over time. The implication is that new generations receive lower rates of return than old generations. Thus, there is an implicit transfer of resources from the young to the old. Even if the system is designed with some degree of progressivity within generations, high income members of the "old" generation can still receive implicit transfers from low-income members of the ''young" generation.

In recent years, a large number of countries worldwide have introduced cash transfers for the elderly population. These programs—sometimes referred to as social pensions—come in a wide variety of shapes and sizes. The appropriate role of these programs within the overall pension and social protection system is an increasingly important policy question that Iran could consider in their policy discussions for pension system reform. While the current contributory pension system is increasingly receiving transfers from the Government, such transfers are only benefitting those who are covered. On the other hand, social pensions could benefit either everybody (above a certain age) or, if well designed, those who need it the most.

There are at least four scenarios that could characterize the situation facing a policymaker considering the role of social pensions (scenarios 2, and 3 might be the most relevant for Iran, but other scenarios might also have relevant lessons learnt):

- *Scenario 1*: the first case of social pensions is one in which there is a well-established social pension scheme that is seen as a major element of the overall social protection system. This is the case in a handful of countries ranging from New Zealand to South Africa. Unlike Iran, both of these countries made a choice early in their history to rely on social pensions rather than mandated contributory pensions. While this path dependence does not preclude a shift towards savings or insurance, it does reduce the need for such a mandate. The challenge for the policymaker in this context is to deal with the tradeoff between sustainability and adequacy as the population ages. In New Zealand for instance, there has been an increase on voluntary retirement savings to reduce the burden of the increasing spending on social pensions, and maintain or increase adequacy.
- *Scenario 2*: The second case is the one of some higher income countries, where social pensions are meant to supplement a contributory pension scheme with high coverage. It is designed to address gaps at the margin—those individuals that have accrued insufficient pensions due to short periods in employment. In contrast to New Zealand's universal coverage for example, only 1 percent of the elderly in the United States receive a social pension.
- *Scenario 3:* The third case and most common scenario is observed in the growing number of developing countries opting for social pensions due to frustration with stagnant coverage in contributory schemes. This is the case in much of Latin America and increasingly in Africa and Asia where between 10 and 70 percent of the labor force (and even smaller share of the working age population) contribute to a pension scheme.
- *Scenario 4:* Finally, a new group of countries in the Europe and Central Asia (ECA) region may be heading towards a greater role for social pensions. In these countries, the shift to a market economy means that for the first time in decades, cohorts will soon be reaching old age with little or no contributory pension income. Moreover, their pay-as-you-go financing models are collapsing in the face of the dual challenge of aging and informality. As a result, most pensioners receive the minimum pension while large deficits must be covered by the budget. When Georgia, for instance, faced this situation in 2008, it decided to give up the fiction of a contribution-based pension system and became the first country to convert a social insurance program to a social pension.

The appropriate advice on the role of social pensions must take into account these varied starting points. In the case of Iran, when deciding whether to introduce a social pension program, the following questions should be asked:

- What are the tradeoffs? Given limited fiscal space, will other social protection programs receive less funding if budget is allocated to social pensions?
- Are poverty rates higher among the elderly population than other groups?
- To what extent do other safety net programs already address the problem of poverty among the elderly, especially if there is evidence that the poor elderly co-reside?
- Could the social pension lead people to save less for old age including fewer contributions to mandated schemes?
- Could social pensions lead to higher informality?
- What is the counterfactual for the overall pension system? For example, would a social pension allow Iran to have a smaller contributory scheme and therefore, lower payroll taxes?

Another important suggestion on the topic of redistribution would be to conduct appropriate surveys to estimate the coverage gap and its causes. The objective of this activity would be to identify the specifics of the population groups that are not covered by the system, including their geographic and socioeconomic characteristics. At the end, only on the basis of this information it is possible to define specific activities to expand contributory and noncontributory schemes.

It would also be a key activity to conduct a review of the current social assistance programs for the elderly-including estimates of costs, benefits provided, number of beneficiaries, and their socioeconomic characteristics. The review would assess management, targeting, and monitoring mechanisms and would present recommendations in terms of the need to expand, eliminate, and or design additional programs. The review would be recommended to include detailed estimates of financing needs. This could also include conducting a viability study for the implementation of social pensions in Iran.

III. Consolidation of multiple schemes: towards integration of the pension system

Finally, another important policy consideration on pension reform in Iran should be the integration of current schemes. Around twenty countries worldwide are currently in the process of considering the integration of separate schemes. Particularly regarding separate schemes for civil servants, and private sector employees. These countries can be found in all regions, and include such countries as Mexico, Cape Verde, Djibouti, Bahrain, and Brazil. Others such as Morocco are planning to merge separated schemes for civil servants and employees of SOEs (state owned enterprises).

Given the growing fiscal burden of many civil service pension schemes and the degree to which they discourage labor mobility, compelling arguments exist for having a single national scheme for both the public and private sectors. Moreover, there is no compelling public policy rationale for mandating different levels of consumption smoothing over an individual's life cycle or for establishing different retirement ages for public and private sector workers. Consequently, a number of countries have introduced reforms to integrate their civil service and national pension schemes. Arguments for eliminating separate pension schemes include:

- Dualism discourages labor mobility and exacerbates unjustified differentials in compensation between the public and private sectors, and
- Dualism adds administrative costs because it typically results in the duplication of services already performed by the administrators of national pension schemes.

If not complete integration, at a minimum, it would be important for policy makers to create mechanisms that provide easy portability of benefit entitlements across the various schemes in Iran so that workers are not penalized when moving between

different sectors, particularly between the public and private sectors.

Portability can be provided by establishing procedures to value the accrued rights of workers who elect to move between the public and private sectors for instance, and to recognize and respect those rights in their new pension scheme. Conceptually, the process would involve the computation of the present value of rights earned in one scheme as a result of qualifying contributory service and then giving credit for this service in the other scheme.

However, full integration is more often recommended than portability of rights. Many countries that have integrated pension schemes (particularly for public and private sectors) have generally chosen to exclude all current workers from the reform (leaving them covered by the rules of the legacy pension scheme), other countries have included all current workers in the reform (sometimes with provisions to partially or fully recognize their accrued rights), and a few countries have given current workers a choice of being included or excluded.

To conclude this chapter, international experience shows clearly that there are no easy solutions for public pension reform. A simple model for pension reform should not be uniformly applied to all countries. However, there are the mentioned principles, based on international best practices that can provide useful guidance to policy makers in Iran as they struggle with crafting solutions which are appropriate in light of the country's culture, political system, economy, and labor force structure. Together, these principles should be carefully considered. The fiscal, financial, welfare and behavioral implications of potential reform options should also be carefully considered, and quantified.

Annex 1. Pensions Glossary

This glossary provides practical definitions for key terms used in the diagnostic assessment of pension systems. It is based on the work of both the World Bank and the OECD.

Accrual rate. The rate at which pension entitlement is built up relative to earnings per year of service in a defined-benefit scheme. For example, one percent of the reference salary per year of applicable service.

Accrued pension (benefit). The value of the pension to a member at any point prior to or at retirement.

Active member. A pension plan member who is making contributions (and/or on behalf of whom contributions are being made) and is accumulating assets or rights to a future pension.

Actuarial assumptions. Various estimates that an actuary makes in formulating an actuarial valuation. May include assumptions related to changes in longevity, wage, inflation, returns on assets, etc.

Annuity. A specified income stream payable at stated intervals for a fixed or a contingent period, often for the recipient's life, in consideration of a stipulated premium paid either in prior installment payments or in a single payment. Within the category, there are *period certain annuities* (payable for a specified period that is fixed in advance of the start of the annuity) and *life annuities* (annuities which are contingent upon the survival of one or more lives). Within life annuities, there is a further distinction between single life annuities, joint life annuities, last survivor annuities and various combinations of types of annuities.

Annuity factor. The net present value of a stream of pension or annuity benefits.

Beneficiary. An individual who is entitled to a benefit (including plan members and dependents).

Benefit. Payment made to a pension fund member (or dependents) after satisfaction of qualifying conditions.

Commutation. A payout option given to a pension plan member to replace future payments by an immediate lump sum.

Commutation factors. Mathematical factors used to determine the amount a pension needs to be reduced in order to provide an associated lump sum benefit.

Contribution base. The reference salary used to calculate the contribution.

Contributory pension plan (scheme). A pension plan where the employer or the members have to pay into the scheme to receive pension benefits.

Contribution ceiling. A limit on the amount of earnings subject to contributions.

Commutation. Exchange of part of the annuity component of a pension for an immediate lump sum payment generally calculated using actuarial methods.

Defined benefit plan (scheme). A pension plan with a guarantee by the sponsor, insurer or pension agency that a benefit based on a prescribed formula will be paid.

Defined contribution plan (scheme). A pension plan in which the periodic contribution is prescribed and the benefit depends on the contribution plus a return. Such a return may be the investment return on the individual's accumulated schemes, a declared rate of interest or a rate tied to a defined index.

Demographic transition. Historical process of a major change in the demographic structure of the population of a country due to changing mortality and fertility rates or immigration/emigration patterns. Can include a transition for any reason, for example the transition as fertility and mortality rates decline, resulting in an increasing ratio of older to younger persons.

Dependent. An individual who is financially dependent on a member of a pension plan. Dependent is often a legally defined term, typically including spouse, children and other relatives which may or may not be financially dependent on a plan member.

Disability benefit. A benefit payable to a plan member who meets the qualifying conditions, typically which are certification of an inability to work for medical reasons.

Discretionary increase. An increase in a pension benefit not specified by the pension scheme rules.

Early leaver. A person who leaves an occupational pension scheme without receiving an immediate benefit though is entitled to a benefit at a future date.

Early retirement. Retirement before reaching the pensionable age for receipt of full benefits often with eligibility for an immediate pension, on a reduced or unreduced basis.

Final salary scheme. A type of defined benefit formula that uses the final salary at retirement to calculate the pension benefit

Gratuity. A term used in some jurisdictions to mean a benefit payable based on meeting some qualifying conditions. Examples include old-age and survivorship benefits for members who have not satisfied vesting requirements in contributory schemes.

Implicit pension debt (net). The value of outstanding pension liabilities after subtracting pension reserves.

Indexation (benefit indexation). Increases in benefits by reference to an index (typically prices, wages or some combination of both).

Old-age dependency ratio. The ratio of older persons to working-age individuals. For example, the number of persons over 60 divided by the number of persons aged 15–59.

Pay-as-you-go. In its strictest sense, a method of financing whereby current outlays on pension benefits are paid out of current revenues from an earmarked tax, often a payroll tax.

Pay-as-you-go assets. The present value of future contributions minus pension rights accruing to these contributions.

Pension coverage rate (active phase). The number of workers actively contributing to a publicly mandated contributory or retirement scheme during a particular period, divided by the estimated potential number of workers that could or are mandated to contribute, e.g., the labor force or the working-age population. The same term can be applied to coverage under occupational plans as well.

Pension coverage rate (beneficiary phase). The number of beneficiaries in receipt of old age pension beneficiaries divided by the estimated potential number of individuals above the eligibility age.

Pension liabilities. Balance of the obligations of a pension scheme accrued to current workers and retirees at a point in time based on past service and contributions.

Pension lump sum. A cash withdrawal from a pension plan generally with all or part of the benefits paid out in one payment.

Pension spending. Total spending on pension benefits at the national level. Usually defined as spending on old-age retirement, survivor, death, and invalidity-disability benefits including both contribution based and non-contributory pension schemes.

Pensionable earnings. The portion of remuneration on which pension benefits and contributions are calculated.

Portability. The ability to transfer accrued pension rights between pension plans.

Public sector pension scheme. An occupational pension scheme for employees of a central or local Government, statutory and other semi-state bodies.

Reference wage or earnings measure. The fund member's earnings that are used to calculate the pension benefit in a defined benefit plan. This is typically the earnings of the last few years prior to retirement.

Replacement rate. The value of a pension as a proportion of a worker's wage during a base period, such as the last year or two before retirement or the entire lifetime average wage. Can be used to describe this relationship for an individual or the scheme membership.

Support ratio. The number of workers required to support each pension beneficiary.

Survivorship benefit. Benefit provided to select surviving beneficiaries associated with a member who passes away during his or her working life or retirement.

System dependency ratio. The ratio of persons receiving pensions from a certain pension scheme divided by the number of workers contributing to the same scheme in the same period.

System maturation. The process by which a pension system moves from being immature, with young

workers contributing to the system, but with few benefits being paid out since the initial elderly have not contributed and thus are not eligible for benefits, to being mature, with the proportion of elderly receiving pensions relatively equivalent to their proportion of the population.

Target replacement rate. The targeted level of wage replacement at retirement for an average wage worker.

Valorization of earnings. A method of revaluing past earnings during the reference period for benefit determination under a defined-benefit scheme. Reference earnings are adjusted using a factor such as average covered wage growth in order to compensate for changes in earnings over the reference period.

Vesting period. The minimum amount of time required to qualify for full and irrevocable ownership of pension benefits.

Vested rights. Full and irrevocable pension rights.

SPECIAL FOCUS 2 TOWARDS WATER SECURITY IN IRAN: CHALLENGES AND OPPORTUNITIES[24]

In the world's most water stressed[25] region, Iran stands out as one of the most water-vulnerable countries. In absolute terms, Iran has more people and more economic production located in areas with high water withdrawals to availability ratios than any country in the Middle East and North Africa. Over 90% of Iran's population and GDP is located in areas where water withdrawals are approaching or have surpassed sustainable utilization and therefore where actions are needed to ensure that water availability and competition do not become a constraint to future well-being and growth. Despite this situation, water productivity in Iran is low. The great majority of water use is in agriculture, and economic returns on agricultural water in Iran are among the lowest in the region. Urban water prices in Iran are among the lowest in the world—failing to signal the value of water and the need for water conservation, undermining the strength and sustainability of water service providers, and forcing the government to pay large subsidies for service coverage, operations and maintenance costs. As water becomes ever scarcer, the environment tends to suffer most. Iran's iconic lakes and wetlands are a bellwether of this growing scarcity as each year they are further diminished. Water crises, if left unmanaged, can have significant economic as well as socio-political costs. Despite Iran's long and successful history of managing water resources, old challenges are becoming more urgent and new challenges are arising. Addressing water challenges in Iran would require building on ongoing policy reforms as well as on national as well as sub-national analyses to develop and prioritize context-specific interventions.

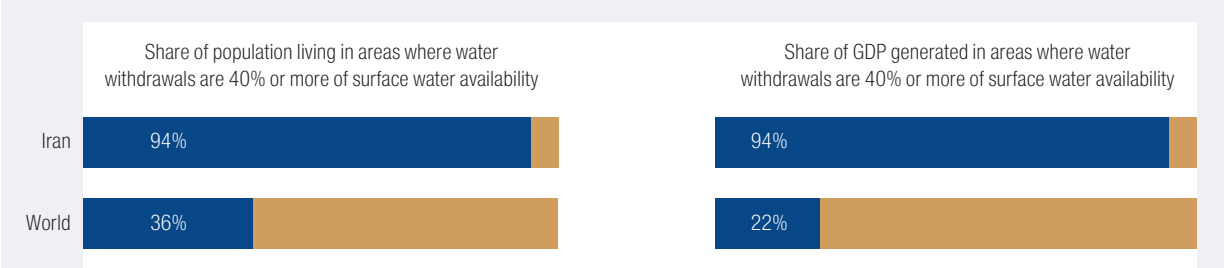
Iran's Long Tradition in Water Resource Management

Iran has a strong tradition of water resource management, and has been historically successful in managing the resource under a

[24] This note was prepared by Claudia Sadoff, Edoardo Borgomeo and Irene Rehberger Bescos based on secondary data analysis. Figures on exposure to water stress were provided by the World Resources Institute.

[25] Water stress arises when water withdrawals for human, agricultural, and industrial uses are relatively high compared to the level of renewable water resources—that is, a high water-withdrawal-to-availability ratio.

FIGURE 19 • Share of GDP Produced and Population Living in Areas Where Water Withdrawals are Approaching or Have Surpassed Sustainable Resource Use



Source: Estimates for Iran estimated by the World Bank. World averages were taken from Veolia Water and IFPRI 2011.
Note: High or very high water stress imply that water withdrawals are 40 percent or more of surface water resources availability.

highly variable and arid climate. More than 2500 years ago Persians developed *qanats*, a unique groundwater management system used in desert regions to abstract water from mother wells and transfer it long distances to irrigate fields or supply towns (Hassan, 2010). Technical innovations were not limited to *qanats*. Persians built aqueducts centuries before the Romans, and developed canals, dams, flood control and water transfer infrastructures before most other nations. They also had a robust water governance system with strong regulation, monitoring and market mechanisms (Madani, 2014 & Madani, et al. 2016). However, current symptoms of extreme scarcity coupled with increasing demand, unsustainable water use, and low water productivity among other factors, are exacerbating Iran's water challenges. The government has recognized the need to address these issues and has positioned water as a priority sector in the 6th Five Year Development Plan (2016–2021).

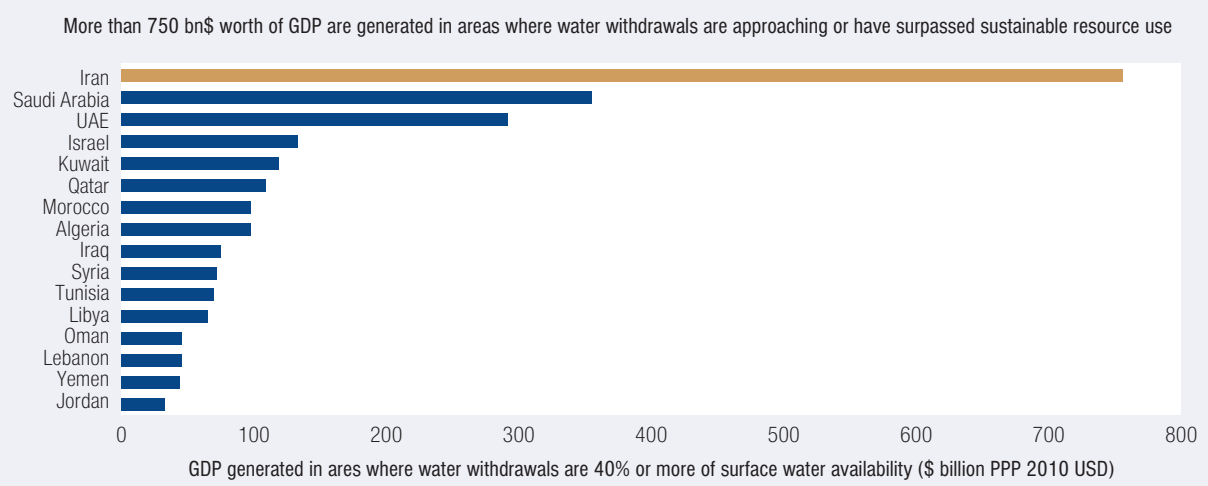
Symptoms of Extreme Water Scarcity

Iran's exposure to water stress is much higher than world averages. Over 90% of Iran's population and GDP is located in areas where water withdrawals are approaching or have surpassed sustainable utilization and therefore where actions are needed to ensure that water availability does not become a constraint to future well-being and growth. In absolute terms, Iran has the highest levels of economic production located in areas with high water withdrawal to availability ratios in the Middle East and North Africa. These estimates are based on spatial analysis which only compares data on location of GDP production with data on water withdrawals and surface water availability. This only provides an assessment of exposure to water stress, without quantifying the direct impact of water stress on economic activities and people. More work is needed to evaluate the impact of water availability, variability, and quality on economic and social processes throughout Iran.

The environmental symptoms of Iran's water crisis range from drying lakes, rivers and wetlands to land subsidence and water contamination. In the west of the country, Lake Urmia—the largest lake in the Middle East and one of the world's largest hypersaline lakes—has shrunk by about 88% its size in the 1970s as a result of frequent droughts and upstream water use, diversion, and storage (Fathian et al., 2014). In the East, Lake Hamun is also shrinking (Madani & Hipel, 2011). In the center of the country, the Zayandeh-Rud River dries up in the dry season, putting pressure on aquatic ecosystems and the Gavkhouni Wetland (Gohari et al,, 2014). This trend is replicated in several other water bodies throughout the country, like the Parishan and the Shadegan lakes and wetlands, despite the commitment to protect them under the Ramsar Convention of 1971.[26] Land

[26] The Convention on Wetlands of International Importance, called the Ramsar Convention, is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources.

FIGURE 20 • GDP Produced in Areas Where Water Withdrawals are 40% or More of Surface Water Resources Availability, by Country and Economy, Middle East and North Africa, 2010

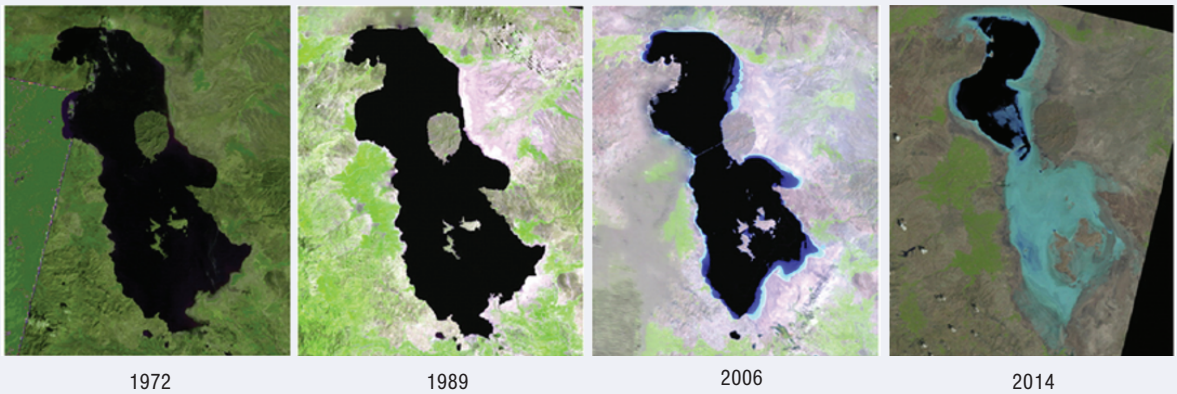


Source: World Bank.
Note: These numbers are estimated using spatial analysis comparing location of GDP with water withdrawals to freshwater availability ratio. GDP is measured in terms of purchasing power parity (PPP) and is in constant 2010 U.S. dollars.

subsidence and sinkholes affecting large swaths of the country are other symptoms of unsustainable groundwater withdrawals. All these factors also lead to frequent water shortages for agricultural, industrial, and domestic users (Madani, 2014).

Climate extremes still pose significant threats to populations and the economy. Iran's agricultural industry is extremely sensitive to hydro-climatic extremes, especially drought. Estimates suggest that even small deviations of 1 mm below the historical rainfall average can cause around $90 million in economic losses (Madani et al., 2016). Despite food security being one of the country's priorities, during drought periods large amounts

FIGURE 21 • Reduction in the Area of Lake Urmia (88% in the Last Three Decades) Over the Past Three Decades as a Result of Intensive Upstream Abstraction



Source: Agha Kouchak et al., (2015).

of food needs to be imported. For instance, during the 1999–2001 drought, Iran imported close to 80% of its domestic wheat supply, becoming one of the world largest wheat importers at the time (Faramarzi, 2009). Unmanaged impacts of droughts can also compromise livelihoods in rural areas, leading to rural-urban migration and ensuing social development issues in urban centres (Sadoff et al., 2017). At the other end of the hydrological spectrum, Iran is also very vulnerable to floods. On average, floods have killed more than 130 people per year while affecting about 11 million people in the last two decades of the twentieth century (Madani et al., 2016). The annual estimated economic impact of floods due to property damage alone is about 0.5% of GDP (World Bank, 2017). This does not include the indirect economic damage inflicted by floods such as supply chain interruptions. High spatial variability of climatic conditions also means that water-related challenges vary across the country, adding a layer of complexity to water resources planning and management.

Drivers of a Potential Water Crisis

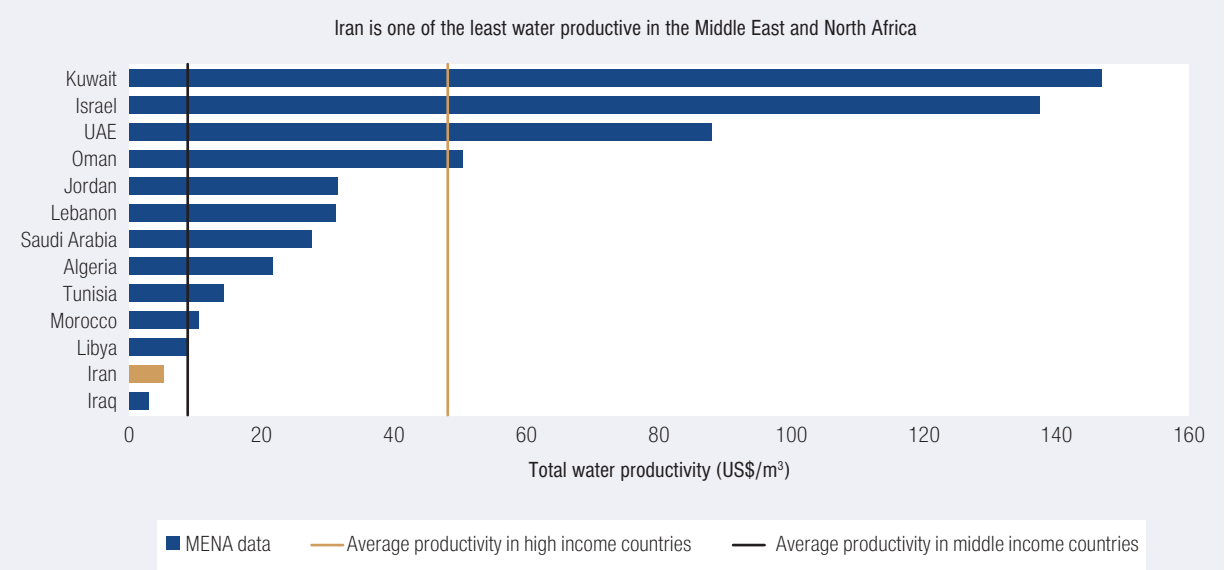
In the last fifty years the population of Iran has increased fourfold, adding pressure over the water resources. The population of Iran has increased from below 10 million at the start of the nineteenth century to 79 million people in 2015 (Seyf, 2009; World Bank, 2015). Similarly, urban population has increased from 7.3 million to 58 million over the same time period. Nowadays, 73.5% of Iran's population lives in urban areas (World Bank, 2015). Eight Iranian cities have a population greater than 1 million people (Madani, 2014). This translates into an increasing demand for potable water and water for food.

Unsustainable water use is one of the key drivers of a potential water crisis. Over 25% of water use in Iran is unsustainable. This means that 25% of the total water that is withdrawn from aquifers, rivers and lakes exceeds the amount that can be replenished by the hydrological cycle. Iran is currently among the countries with highest groundwater depletion rates in the world (Döll et al., 2014). It is estimated that groundwater supplies 55% of the total water demand (Madani et al., 2016). This situation is leading to groundwater depletion and irreversible damage to aquatic ecosystems and surface water bodies—for instance, the desiccation of Lake Urmia. Aggressive groundwater withdrawals have also resulted in groundwater table declines, land subsidence and water quality degradation.

Despite this impending water crisis, total water productivity in Iran is among the lowest in the region. Total water productivity is defined as the economic output (GDP) per unit volume (m^3) of water withdrawn. The great majority of water use is in agriculture, and economic returns on agricultural water in Iran are extremely low relative to others in the region. Increasing total water productivity is challenging and requires carefully designed policies including water conservation, switches to crop that consume less water, and reallocation to more economically productive sectors. Actual decisions on improving water productivity would have to be based on basin-scale water accounting and considerations of the social, economic, and environmental value of water, and associated distributional impacts on communities and households within the basin.

In an effort to diversify the economy and improve national food security, the government has supported the agricultural sector through water and energy subsidies. Although this policy was deemed necessary during the Iran-Iraq war, the agricultural sector consumes 92.8% of the total water use, while providing only 23% of the jobs, and contributing 13% to Iran's GDP (Madani, 2014). Low irrigation efficiency (less than 32%) partly due to water and energy subsidies, cropping patterns respondent to traditional farming rather than to water availability, and guaranteed crop purchase prices make the agricultural sector one of the biggest contributors to Iran's water crisis. Large subsidies for energy consumption in the agricultural sector make deep groundwater pumping and relocation of wells economically possible, contributing to large scale groundwater depletion. Although some measures, such as raising energy prices and expanding the groundwater monitoring network to control abstractions have been established, agriculture water use trends remain unchanged (Madani, 2014).

FIGURE 22 • Total Water Productivity, Selected Middle Eastern and North African Countries and Economies, 2010



Source: Data estimated as the ratio of constant 2010 $ GDP (from World Bank GDP estimates) over cubic meter of total water withdrawals (from FAO AQUASTAT).
Note: Water withdrawals also include water withdrawn from nonconventional supply sources such as desalination and wastewater reuse. Given the different economic structure of each country, these indicators should be used carefully, taking into account a country's sectorial activities and natural resource endowments.

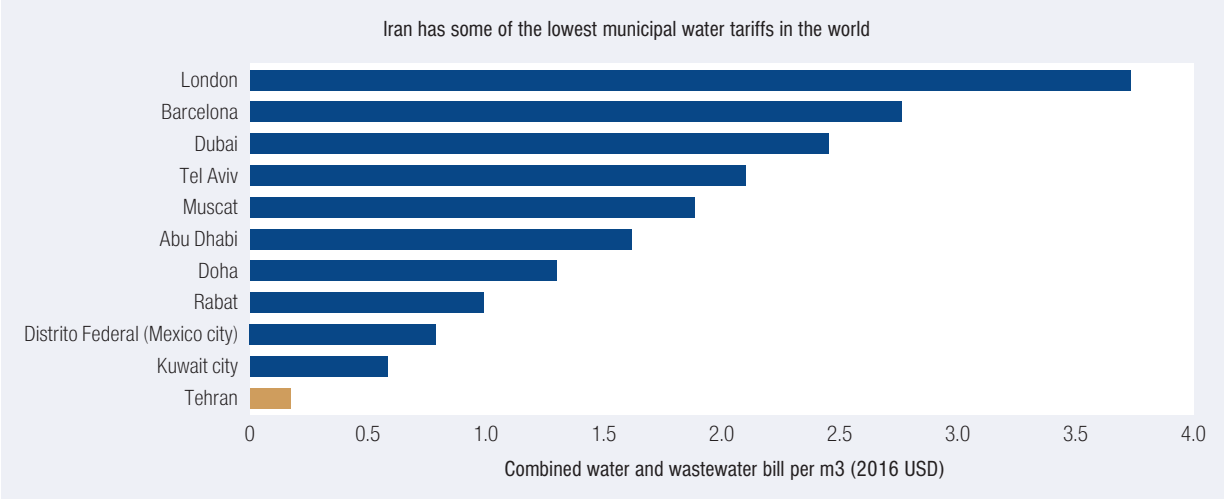
Iran also has some of the lowest municipal water tariffs in the Middle East region and in the world. Water bills in Tehran are ten times lower than in Abu Dhabi and twenty times lower than in London. Failure to properly price water services promotes excessive water use and undermines the financial sustainability of the water sector. Cost recovery is essential to ensure long-term sustainability of water services and appropriate levels of investment in the operation and maintenance of water distribution systems, not just in infrastructure but also in training of staff. Lack of financial sustainability of water services can also severely undermine utilities' capacity to treat wastewater, leading to deteriorating water quality and degradation of freshwater ecosystems.

Although most Iranians have access to water supply and sanitation, quality of access and levels of service vary within the country. Over ninety six percent of Iranians have access to improved drinking water sources, and ninety percent have access to improved sanitation, which is in line with other countries in the region (WHO/UNICEF, 2015). However, non-point pollution sources, mainly from the agricultural sector, lead to high levels of nitrate that deteriorates tap water quality. Moreover, lack of treatment and appropriate sewerage networks mean that freshwater quality is low (Madani, 2014).

Institutional fragmentation undermines efforts to coordinate and innovate. The lack of a robust legal framework, weak enforcement, and inadequate institutional coordination all inhibit efforts towards integrated water resources management and slow the adoption of recent innovations such as wastewater treatment and reuse technologies that could help the country meet its increasing water demands. Weak water governance, for instance in the form of poorly defined and enforced property rights over land and water, makes it difficult to regulate water use. In the case of agricultural water management, fragmented and financially constrained institutions make it more challenging to improve the productivity of the irrigated agriculture sector.

The water sector's operations are highly constrained by government policy. Maintaining low regulated water rates for social purposes has adverse

FIGURE 23 • Combined Water and Wastewater Bill per Cubic Meter, Selected Cities in the World



Source: Global Water Intelligence Global Water Tariff Survey 2016.

impacts on the financial performance of urban water and wastewater companies. Indirect subsidies in the form of capital investment and of periodic government write-offs of unpaid accounts receivable further distort management decisions and lead water service providers further away from self-sufficiency.

In Iran's large and growing urban centers over half of the population is not connected to sewerage systems, and only 25 percent of Iran's wastewater is treated. More than 70% of Iran's population is urban and the increased migration to urban centers means that this number is set to increase. This poses significant challenges for water and wastewater distribution systems. Despite recent improvements, less than half of Iran's urban population is connected to a municipal wastewater collection system, and not all of the water that is collected is then treated. This means that increasing volumes of wastewater are being generated and 75% of this wastewater is being returned untreated into the environment. This creates health hazards for people and ecosystems, and also wastes a significant potential water resource that could be treated, recycled and reused for urban landscapes, industry or groundwater recharge.

Iran's geographical position, at the crossroads of a number of shared, freshwater bodies, gives it a critical role in regional water security and broader ecosystem sustainability. Iran shares eleven major aquifers and eight major river basins with neighboring countries, all of whom face water resource management challenges. Cooperative management of these transboundary water resources would therefore be essential, as recognized in the General Decrees on the Environment. Current efforts to develop win-win approaches amongst neighboring countries would need to be strengthened, including mechanisms for information sharing, resource monitoring and management of water quality and quantity.

Looking Forward

Iran's long tradition of water management and the recent General Decrees on the Environment provide a platform to address Iran's current and future water challenges. The General Decrees' focus on monitoring water pollution and climatic changes, paired with management of ongoing climatic variability provides a clear line of sight to promote source protection and adaptation to environmental change. The strong emphasis on protecting groundwater quantity and quality is also a clear indication of the importance of this resource

for the country's long-term development and well-being. The promotion of environmental diplomacy in the Decree provides an encouraging sign of Iran's willingness to manage its transboundary water resources in a cooperative way. A range of actions that could contribute to mitigate Iran's water challenges are briefly discussed in the following paragraphs. More work needs to be carried out to prioritize these actions and tailor them to Iran's highly heterogeneous water reality.

Modernizing irrigation systems to reduce losses could lead to an estimated $3 billion welfare gains annually without increasing the total irrigated area. If all the available water allocated to agriculture in Iran could be stored and delivered efficiently to irrigated agriculture, agricultural production would increase and variability in production of some commodities would decrease. Under this scenario, total irrigated area is fixed and groundwater withdrawals are limited to control depletion. What changes is the water storage and delivery capacity of the irrigation systems. This could lead to an estimated $3 billion welfare gains annually.[27] These gains come from standard measures of producer's surplus (improved water services and availability) and consumers' surplus (reduced food prices). In addition, half the gains would be in the form of spillover effects to the nonagricultural sectors. Recent investments in storage infrastructure in the Ilam and Khuzestan provinces have shown the benefits of improved infrastructure on irrigation system performance.

Strengthening incentives and continuing subsidy reforms can significantly curb unsustainable water use by consumers. Iran's 2010 energy subsidy reform shows that removing subsidies is possible and that well-designed policies can shape consumers' behavior. This and other experiences show that effective pricing and subsidies removal policies share common features such as well-designed tariff structures which balance cost recovery and economic efficiency needs with equity and affordability. Well-designed pricing and subsidy removal policies also include accurate targeting of price changes, for instance by targeting higher consumption users, and public campaigns explaining the reason for pricing changes and the availability of compensatory mechanisms. Incentives can be targeted to local development needs and situations to ensure that policies are tailored to specific realities, as demonstrated by recent government policies to support rice production in the Northern provinces of Gilan and Mazandaran or to promote conjunctive use of surface and groundwater resources to halt groundwater depletion.

Enhancing transboundary and inter-provincial coordination, cooperation, and exchange. Given the very large share of Iran's waters that are transboundary, more coordinated management of these resources would be important—particularly as climate change makes water availability less predictable. Similarly, inter provincial coordination is also key to achieve robust and sound integrated water resource management within the country.

Establishing effective water balances and models which integrate socio-economic considerations at the basin and municipal levels to manage trade-offs and enhance investment efficiency. As a country with both overall, but also highly variable water stress, facing increasing challenges from economic and population growth and the impacts of climate change, important trade-offs would need to be made in terms of inter-sectoral priorities and allocations. These decisions have major implications for the sectors concerned, as well as the development of policies which align incentives and major investments in infrastructure such as inter-basin transfer facilities, desalination and water recycling. The implications and partial irreversibility of these measures highlights the need to support water sector decision making for major basins as well as for cities, with integrated water resource and socio-economic assessments and modeling.

Improving the collection, processing and reporting of water-related information to guide water policies and investments. Information provides the foundation for sound decision-making for water planning and management. This information is gathered from multiple sources including long-term continuous observations of hydrological variables, local knowledge, and commissioned studies. Information is

[27] Estimated using the International Food Policy Research Institute IMPACT model (World Bank, 2017).

a shared asset that underpins any credible reform or infrastructure project in the water sector. Information systems are also a crucial element to forecast and respond in time to water-related disasters, such as floods and droughts. For information to be of relevance to decision-making, it needs to be embedded within appropriate institutions responsible for the collection, organization, and processing of information.

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