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[1] The IMF provides technical services to the West Bank and Gaza, including policy advice in the macroeconomic, fiscal, and financial areas, as well as technical assistance, with a focus on tax administration, public financial management, public expenditure management, banking supervision and regulation, and statistics. See www.imf.org/wbg for previous reports.

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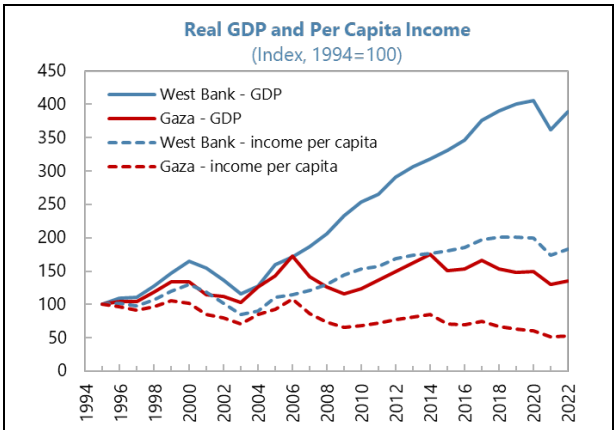
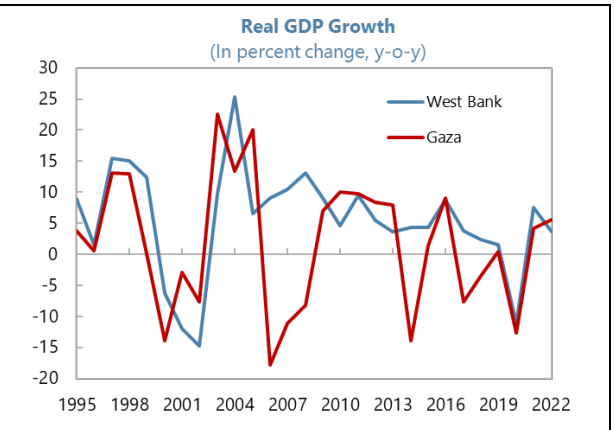
ECONOMIC DIVERGENCE[2]

Years of isolation and continuous conflicts have left Gaza's economic development far behind that of the West Bank. In 2022, per capita income in Gaza was only a quarter of that in the West Bank, and unemployment and poverty rates were much higher. This reflects much lower employment and investment rates as well as considerably lower productivity growth. While Israeli-imposed restrictions on access and movement of labor and goods severely hinder trade outcomes and productive capacity in both West Bank and Gaza, restrictions are far more severe for Gaza. As a result of this Gaza blockade and repeated wars with Israel since 2008, the capital stock is stagnant, and infrastructure is derelict (especially electricity). Analytical work suggests sizeable economic gains from boosting Gaza's electricity infrastructure. Prospects for declining donor aid risk worsening Gaza's humanitarian crisis. Under these conditions, Gaza is unlikely to meet the U.N. 2030 Sustainable Development Goals. A major easing of the blockade and financing constraints is necessary to improve prospects, provided the security situation can be assured in parallel.

A. Economic Developments and Structure



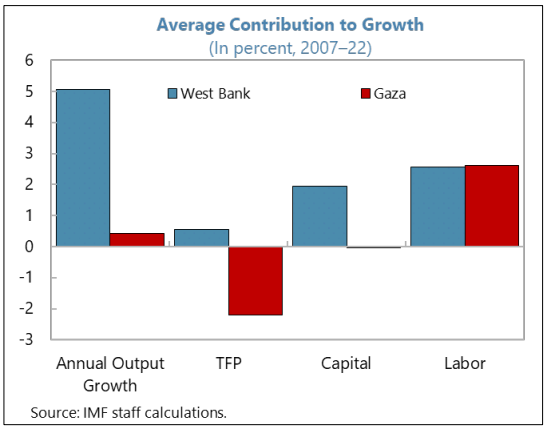


1. Economic development in Gaza has fallen far behind that of the West Bank over the past 15 years due to prolonged isolation and conflict. During 2007–22, real GDP growth in Gaza averaged just 0.4 percent, with real GDP per capita declining at an annual average rate of 2.5 percent amidst rapid population growth. In contrast, the West Bank recorded average annual real GDP growth and per capita growth of 5.1 and 2.8 percent respectively over the same period. By 2022, per capita income in the West Bank was four times higher than in Gaza. This largely reflects the Israeli blockade of Gaza following the political take-over by Hamas in 2007 and recurring wars

[2] Prepared by Thomas Laursen and Hania Qassis.

between the two sides since then.[3] In parallel, donor financing shifted toward the Palestinian Authority (PA), which controls the West Bank.[4] Under these conditions, unemployment in Gaza reached 45 percent in 2022 and the percentage of the population living below the national poverty line stood at 53 percent, compared to 13 and 14 percent, respectively, in the West Bank.[5]

2. Gaza's anemic economic growth during 2007–22 has relied exclusively on the increased use of labor, while growth in the West Bank has been more broad-based.[6] Growth in both territories benefitted almost equally from labor's contribution at an average of 2.6 percentage points per year. However, there was virtually no contribution of capital to growth in Gaza, while it averaged more than 2 percentage points per year in the West Bank. Moreover, the growth of Gaza's total factor productivity (TFP) remained negative with an average contribution to growth of -2.2 percentage points per year, reflecting low levels of physical and human capital, a deterioration of institutions, and lack of productive innovation, whereas the West Bank saw a modest positive contribution to growth from TFP.



3. Looking at demand and supply, the drivers of economic growth over the past 15 years differed markedly across the two Palestinian Territories:

- ***From the demand side, growth came mostly from government consumption in Gaza and private consumption in the West Bank.*** Public and private consumption contributed an average of 0.8 and 0.3 percentage points to growth in Gaza, respectively, compared to 0.4 and 5.2 percentage points, respectively, in the West Bank. With trade severely constrained in Gaza from the blockade and myriad trade restrictions imposed (¶14), net exports were not a drag on growth in Gaza, whereas in the West Bank it subtracted an average of 2.4 percentage points.

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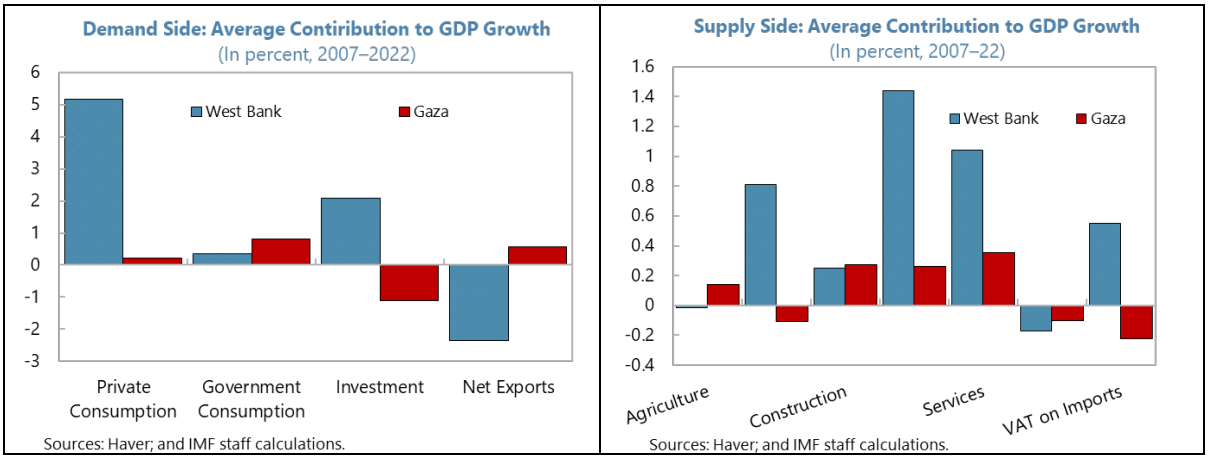
[3] Since 2007, Israel has imposed a land, sea, and air blockade on Gaza, severely limiting the movement of people and goods in and out of the Strip. Further restrictions have also been imposed intermittently by Egypt at the Rafah border crossing. Wars erupted between Gaza and Israel in 2008–09, 2012, 2014 and 2021. In addition, in the West Bank, Israel has imposed severe restrictions on movement of goods, people, as well as access, including in Area C.

[4] Information on the split of donor financing between the West Bank and Gaza is not available, but most donors shifted their support toward the PA with aid for Gaza mostly limited to humanitarian purposes. Between 2014–22, budget support to the PA has also been declining rapidly from 8.8 to 1.9 percent of GDP.

[5] Poverty data is based on PCBS's *Expenditure, Consumption and Poverty Survey*, 2017.

[6] This is based on the standard growth accounting model, in which annual output is a function of capital and labor, $Y_t = A_t K_t^{\alpha} L_t^{(1-\alpha)}$, where Y_t is annual output, A_t total factor productivity, L_t employment (the product of the labor force in million, labor force participation rate, and employment rate), and K_t the capital stock. α represents the output share of capital, set at 0.3 in line with typical estimates. The perpetual inventory method was used to estimate West Bank and Gaza's initial capital stock (1994) at a capital-output ratio of 3 percent for both. The annual depreciation rate was set at 3 percent plus additional depreciation during years of conflict (5 percent for Gaza and 2 percent for the West Bank). For further details, see IMF staff's *May 2022 Report to the AHLC*.

- ***From the supply side, growth remained modest across sectors in Gaza while trade, services, and industry were key drivers in the West Bank.*** The blockade stifled Gaza's industrial sector, which remained stagnant throughout the period, whereas it expanded in the West Bank. In Gaza, the only dynamic sectors were services, (re)construction, trade, and agriculture,[7] with average annual growth in the construction sector reaching 20 percent (2007–22) compared to only 8 percent in the West Bank. Over the same period, annual average growth in the agricultural sector reached 2.1 percent against 0.2 percent in the West Bank, with annual growth in agricultural exports averaging 13.5 percent over the period 2015–21.[8]



4. A decline in aid would further worsen Gaza's socio-economic conditions and the U.N. Sustainable Development Goals (SDGs) seem out of reach. In 2020, 77 percent of households in Gaza received aid (compared to 10 percent in the West Bank), the majority of which came from UNRWA[9] and was concentrated on food and cash assistance (78 and 57 percent, respectively).[10] The prevalence of food insecurity in Gaza reached 65.9 percent compared to only 16.6 percent in the West Bank and the incidence of multi-dimensional poverty was higher in Gaza

[7] In 2014, the total cost of recovery and reconstruction activities in Gaza were estimated at US$3.9 billion. See *Detailed Needs Assessment (DNA) and recovery Framework for Gaza Reconstruction*, 2015. In 2021, the immediate and short-term recovery and reconstruction needs were estimated at US$345–485 million. See *Gaza Rapid Needs Assessment, June 2021*.

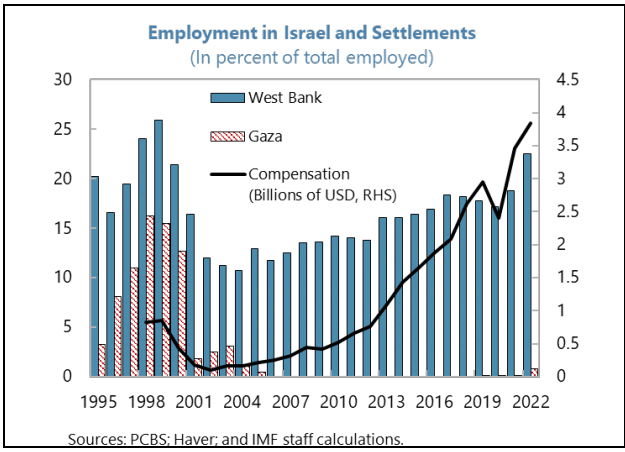
[8] Most of the agriculture produce is in high-value products such as tomatoes, strawberries, cut flowers, eggplant, and potatoes. In 2022, around 1,200 truckloads carrying food and agricultural materials were exported from Gaza, an increase from only 29 truckloads in 2009. This in addition to an increase in truckloads carrying food and agricultural produce to the West Bank from 86 truckloads in 2014 to 3,093 in 2022.

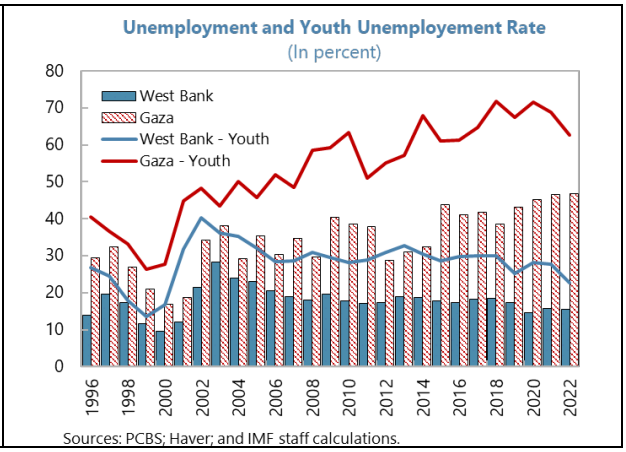
[9] Only 10.7 percent of households in the West Bank receive aid from UNRWA compared to 79 percent in Gaza. This is due to the number of registered refugees in Gaza around 1.5 million (or 70 percent of the population) compared to 0.9 million or less than 30 percent of West Bank's population. See PCBS *Socio-economic conditions survey*, 2020. UNRWA provides other major services including in education and health.

[10] Compared to 52 percent on food and 39 percent on cash assistance in the West Bank.

(45 percent compared to 11 percent in West Bank).[11,12] With no social security system in place, continuation of payments under the National Cash Transfer Program (NCTP) to the most vulnerable households in Gaza is of particular importance. Any decrease in aid would further worsen the humanitarian crisis.[13]

B. Labor Markets





5. Compared to Gaza, the West Bank experienced significantly higher labor demand, benefitting from improved access to employment in Israel and the settlements. Workers from Gaza have been granted very limited access to employment in Israel, in addition to their inability to travel to the West Bank for work.[14] In contrast, West Bank workers have had continued access to work in Israel and the settlements, constituting 22.5 percent of the total number of employed persons in 2022 (versus only 0.8 percent for Gaza), earning around US$3.8 billion or 24 percent of GDP. Moreover, the highest annual *domestic* employment growth in the West Bank and Gaza's governorates was recorded in those with more than 10 percent of their labor force working in Israel and the settlements, suggesting job creation is boosted by higher incomes and demand for goods and services from Palestinian workers in Israel and the settlements.[15] The disparity between Gaza and the West Bank is also reflected in unemployment rates, which over the period 2007–22 have been persistently higher in Gaza at an average of 39 percent, compared to 17 percent in the West Bank. This even as labor force participation rates have remained below 50 percent since the mid-1990s in both Gaza and the West Bank. The situation is particularly pronounced for youth and

[11] See PCBS *Multi-Dimensional Poverty Profile in Palestine*, 2017.

[12] Based on the Food Insecurity Experience Scale (FIES), SDG 2 aims to end hunger and all forms of malnutrition by 2030. see *United Nations Sustainable Development Cooperation Framework; 2023–2025.*

[13] Challenges in Gaza are even more severe in meeting the remaining SDGs (see ¶¶s 10, 14, and 16). For further details see *United Nations Sustainable Development Cooperation Framework; 2023–2025.*

[14] Accessibility of employment in Israel for Palestinian workers in Gaza came to a complete halt in 2005 and remained so until 2019. In 2020, Israel allowed limited numbers of Palestinians from Gaza to work in Israel. The blockade significantly restricted linkages with the West Bank and limited the number of people and goods passing through the Israeli controlled crossings.

[15] For more details see IMF Selected Issues Paper *Palestinian Labor Market Outcomes, Dynamics, and Policies*, 2023.

females in Gaza, where over two-thirds are unemployed, compared to less than a quarter in the West Bank.

6. Labor productivity was slightly higher in the West Bank than in Gaza, but the difference varied considerably by sector.[16] Between 2000–21, the West Bank's average labor productivity per working hour reached US$6 (in 2015 US$), compared to US$5 (in 2015 US$) in Gaza. Sectoral productivity was much higher in West Bank than in Gaza, except in two sectors. First, in the agricultural sector, Gaza's average labor productivity was double that of the West Bank at an average of US$12 (in US$2015) compared to US$6 (in US$2015), during 2000–21.[17] Second, in the construction sector, where average labor productivity in Gaza outpaced that of the West Bank with an average of US$9 (in US$ 2015) compared to US$4.5 (in US$2015) between 2010–21 despite being heavily impacted by war.[18]

7. The wage differential between the two Palestinian Territories is large and has steadily increased over the past two decades, especially in the private sector. Since 2000, wages in Gaza have stagnated, while they have grown in the West Bank at an annual rate of 3.3 percent. In 2021, the average daily wage in Gaza amounted to only NIS 61.4 compared to NIS 108.5 in the West Bank. The difference is particularly evident in private sector wages, which account for two thirds of total employment. In 2021, daily private sector wages in Gaza averaged just NIS 42.5 compared to NIS 122 in the West Bank. As a result, almost 90 percent of private sector employees in Gaza earned less than the minimum wage, compared to below 20 percent in the West Bank.[19]

C. Investment and Financial Intermediation

8. Investment levels have remained consistently low in Gaza. Investment has been less than US$500 million per year since 2007 and amounted to less than 11 percent of GDP in 2022.[20] The low level of investment, coupled with the recurrent wars, has severely impacted Gaza's capital stock, which is now barely at its level of 15 years ago. Investment has been concentrated in the construction sector in the context of reconstruction efforts. In contrast, investment reached nearly US$5 billion in the West Bank (almost 30 percent of GDP) in 2022, roughly doubling the capital stock since 2007.

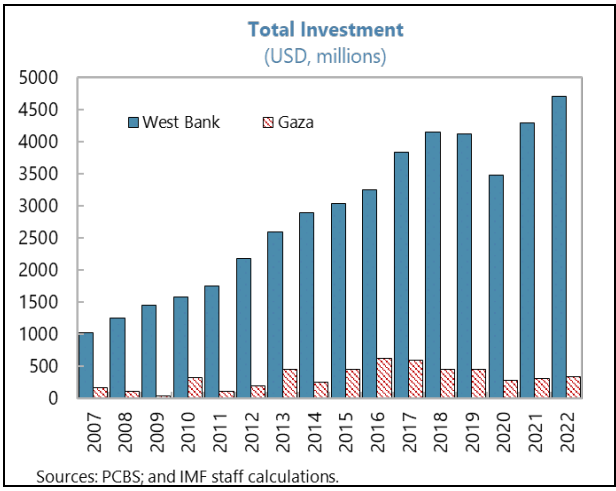
[16] Labor productivity excludes data for Palestinian workers in Israel. For further details, see IMF Selected Issues Paper; *Palestinian Labor Market Outcomes, Dynamics, and Policies*, 2023.

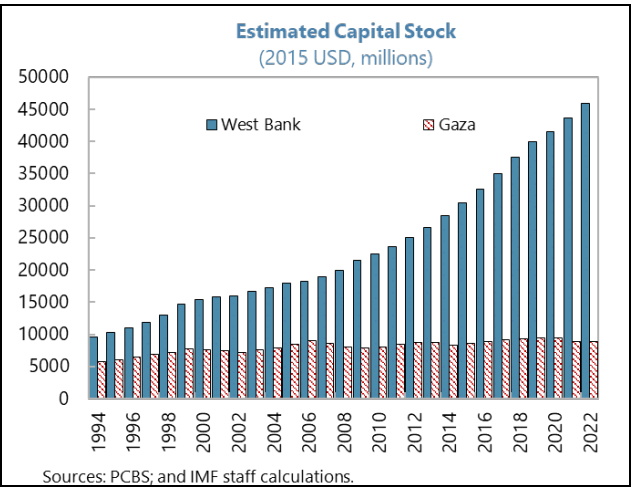
[17] In particular, the Strip's fishing and agricultural industry labor productivity increased significantly with the intermittent relaxation of Israeli restrictions, including expansion of the permitted fishing zone to 15 nautical miles since 2006 and the increase in permitted exports of agricultural goods from Gaza.

[18] This reflects the severe Israeli imposed restrcitions on buiding materials and denial of construction permits in the West Bank.

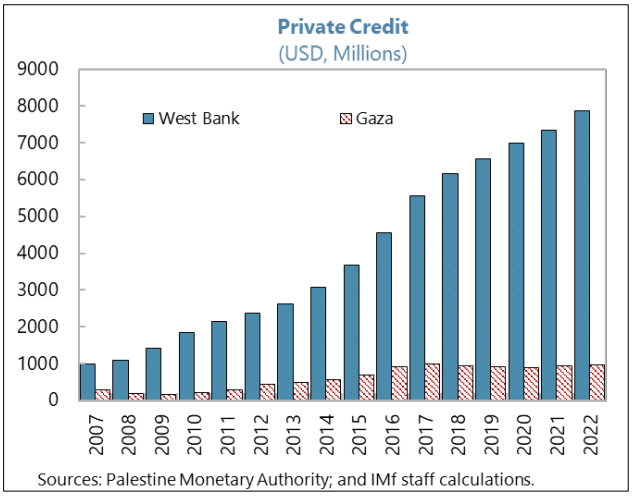
[19] The minimum wage stands at NIS 1,880 per month. See PCBS, LFS 2022.

[20] Except for 2016 and 2017 when investment increased slightly to above US$600 million.





9. This is partly due to much lower financial intermediation in Gaza than in the West Bank. In Gaza, private sector deposits and credit averaged only 40 and 22 percent of GDP during 2007–22, respectively, relative to 77 and 33 percent of GDP, respectively, in the West Bank. The low level of savings in Gaza reflects both the low level of wages that are barely sufficient to cover essential living needs and the underdeveloped financial system.[21] In the absence of significant foreign financing, low savings translate directly into low investment levels.

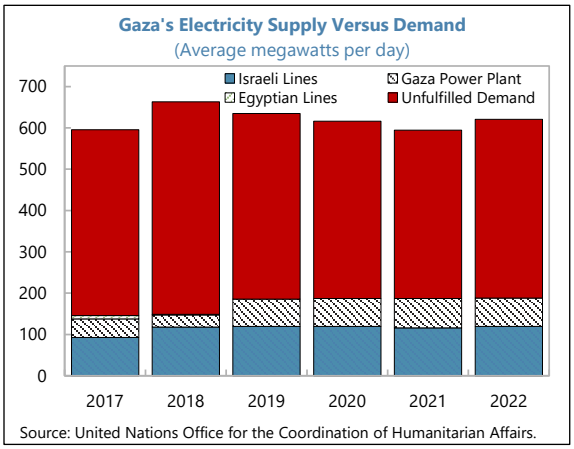


10. The lack of investment in Gaza has severely impeded its infrastructure services, in particular electricity provision. Electricity demand in Gaza is around three times the electricity supplied, resulting in long blackouts (12 hours on/12 hours off).[22] Electricity in Gaza is provided through: (i) the Israeli Electric Corporation (supplying two-thirds of Gaza's electricity); (ii) the diesel-fired Gaza Power Plant (GPP); and (iii) until 2018, imports from Egypt (Egyptian medium- voltage lines to Gaza were disconnected in February 2018). The Palestinian Authority (PA) pays for the electricity provided by IEC through Israeli deductions from clearance revenues, while for the past five years, Qatar has been paying for the fuel supply to the GPP. Households and many

[21] See *Financial Inclusion Diagnostic Study 2022*, according to which 76 percent of Gazans saved money at home, (versus 56 percent in West Bank). The study also found that Palestinians in the West Bank are four times as likely to own a savings account as those in Gaza. Moreover, two thirds of the Gazan respondents preferred to borrow from family and friends. The reasons cited were mostly their inability to fulfill financial obligations or meet borrowing terms, insufficient guarantees, high borrowing costs, and religious reasons.

[22] Between 2017–22, average demand was 450 Mega Watts (MW), while average supply was only around 180 MW; in 2017–18, Gaza had only 8 hours of electricity per day. Source United Nations Office for the Coordination of Humanitarian Affairs.

businesses in Gaza deal with the electricity outages by relying on private electricity generators, despite their high cost.[23] In contrast, the West Bank receives 24-hour power supply (except for peak demands during summer and winter times), 90 percent of which is provided through the IEC.[24] Other infrastructure projects in Gaza are also impacted by electricity shortfalls (such as water and wastewater treatment plants and the Gaza central desalination plant).



11. Boosting Gaza's electricity sector infrastructure promises sizable economic gains, as would investments in manufacturing, mining and quarrying, and health services. This follows from an Input-Output (I-O) analysis,[25] which shows the highest output multiplier across all sectors is for Gaza's electricity sector. At 1.8, the output multiplier suggests that an increase in electricity sector output by US$1 million alone could translate into an increase in Gaza's total output of US$1.8 million. The manufacturing sector had the second highest output multiplier of 1.74, closely followed by mining and quarrying and human health services sectors at 1.72 and 1.71, respectively, and finally the construction sector at 1.63.[26] An increase in economic output of US$1 million in each of these five sectors would hence generate additional economic output in Gaza of around US$8.6 million. For the West Bank, investment in the electricity, agricultural, and public administration sectors would be most beneficial (output multipliers of 1.52), followed by the manufacturing sector and human health services at 1.51 and 1.46, respectively.

D. Trade Developments and Restrictions

12. The economies of both the West Bank and Gaza are heavily dependent on imports from and through Israel. In 2022, total imports reached 70 percent of GDP for the West Bank and 54 percent of GDP for Gaza. Meanwhile, total exports have remained much lower, amounting to 21 percent of GDP for the West Bank and 6.5 percent of GDP for Gaza, respectively. Israel has remained the main trading partner for both territories, with more than half of imported goods into

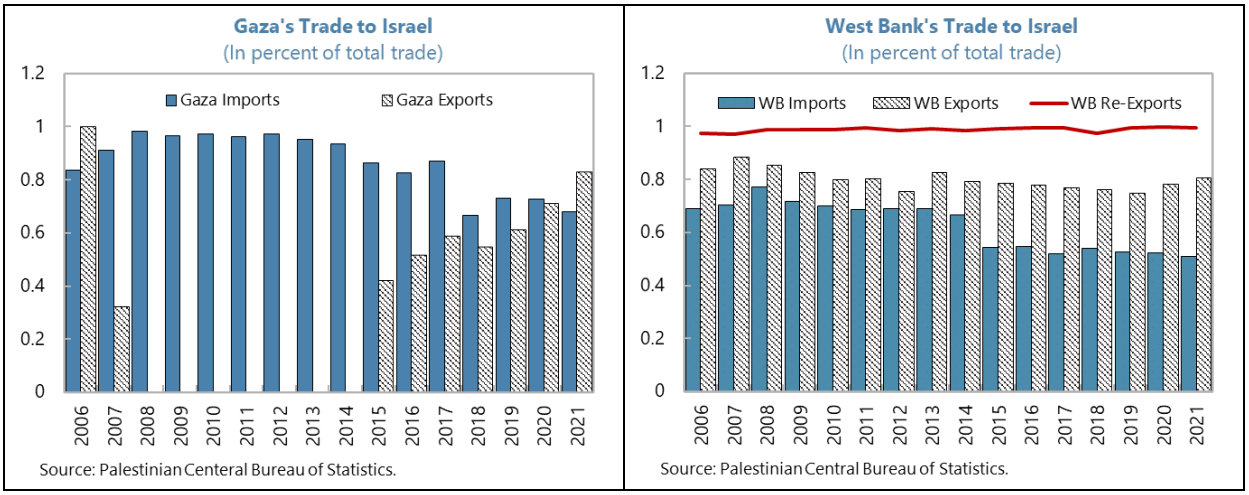
[23] Around 20 percent of households in Gaza reported owning generators in 2013, compared to less than 1 percent in the West Bank. See World Bank Report *Securing Energy for Development in West Bank and Gaza*, 2017.

[24] Recently, electricity imports from Jordan increased from 40 MW to 80 MW. Demand in the West Bank is forecast to increase from 1,360 MW currently to over 2,000 MW by 2040. See *OQ Report to the AHLC, May 2023.*

[25] The Leontief Inverse Matrix $(I - A)^{-1}$ was used to analyze the Input-Output Tables (IOT). For further details on the analysis see Annex I. PCBS produced the IOT for West Bank and Gaza separately in 2020, with TA from the IMF. The PCBS has not produced any IOTs since.

[26] The health sector suffers from poor availability of drugs (55 percent compared to 90 percent in the West Bank according to Ministry of Health staff met during a visit by the Resident Representative July 31–August 2, 2023), including for cancer treatment. Cancer treatment is further impeded by prohibition of radiology equipment imports (see Section D below) and reported difficulties leaving Gaza for outside treatment.

the West Bank and more than two-thirds of imports into Gaza coming from Israel. That said, import dependence on Israel has been slowly declining since 2008 for both Palestinian Territories. Similarly, most exported goods from both territories are directed to Israel (83 percent for Gaza and 81 percent for the West Bank).[27]



13. Restrictions on access and movement of goods severely hinder trade outcomes and productive capacity in both the West Bank and Gaza. Israel exercises control over all trade into the West Bank passing through its seaports, airport, and over the Allenby-King Hussein bridge connecting the West Bank to Jordan. This control results in significant delays and additional costs (including lengthy security delays, customs, and security inspection).[28] Coupled with the outdated A1, A2 and B lists, which impose restrictions on the quantity of imported goods from specific countries,[29] Israeli control not only limits trade opportunities, but also contributes to the challenges faced by both the West Bank and Gaza in expanding their trade networks. Moreover, restrictions on access to key production inputs and equipment listed in Israel's Dual Use Goods (DUG) list further impede trade and productivity. This has particularly affected the agricultural sector, as fertilizers are heavily restricted under the DUG list. Similarly, the production of steel and pharmaceuticals and the development of the ICT sector are negatively impacted by import limitations on equipment.

[27] Israel completely halted exports from Gaza to Israel from 2008-2014. At the same time though, Gaza continued to export to EU countries, though in small quantities (mainly vegetable products). Israel later relaxed its restrictions on Gaza's exports to Israel.

[28] This could increase costs by an average of US$538 per shipment. Costs of exporting and importing a container is 2–3 times higher, and the delay between 2–4 times higher for a Palestinian than an Israeli firm. See World Bank report *Unlocking the trade potential of the Palestinian economy*, 2017.

[29] The list was based on the Paris Protocol, which was foreseen as granting the PA some autonomy to determine its trade policy (tariffs and standards for A1/A2 and tariffs for list B) over specific products originating from Jordan, Egypt, and other states.

According to the World Bank, rationalizing the DUG list alone would have a significant positive effect on economic growth.[30]

14. Trade restrictions are more severe for Gaza. Israel not only controls the movement of trade and people in and out of Gaza,[31] but also severely restricts linkages and economic integration with the West Bank. Israel imposes an additional detailed DUG list for Gaza, leading to further complications and delays in the back-to-back trade procedure.[32] While the door-to-door trade facilitation project is accessible only for the West Bank but not for Gaza. Additionally, more stringent security is applied for goods exiting Gaza, resulting in further delays and damaged goods. The construction sector in Gaza is heavily impacted by restrictions on imports of construction materials including cement, wood, and steel. These materials are only allowed into Gaza via the Gaza Reconstruction Mechanism (GRM), further delaying reconstruction efforts and the completion of essential infrastructure projects.[33]

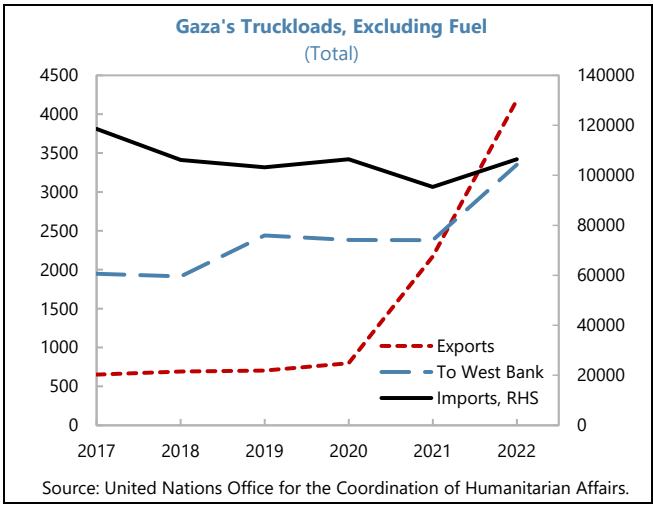
15. Meanwhile, Gaza's trade with Egypt has increased. The border crossings with Egypt are controlled by the Egyptian government and the de-facto government of Hamas. The PA receives no import duties on trade through Egypt. The number of truckloads entering Gaza through the Rafah crossing has continuously increased from 4 truckloads in 2008 to 30,208 truckloads in 2022. Imports comprise mainly construction materials (such as cement and aggregates) as well as food products and livestock. Exports through the Rafah crossing have recently started, with 1,696 truckloads in 2022, carrying mainly iron scrap and scrap batteries. More recently, Egypt opened the Salah Addin crossing mainly to facilitate fuel imports into Gaza. The number of imported truckloads from the Salah Addin crossing increased from 207 in 2018 to 5,649 in 2022, mainly carrying diesel, petrol, and cooking gas.

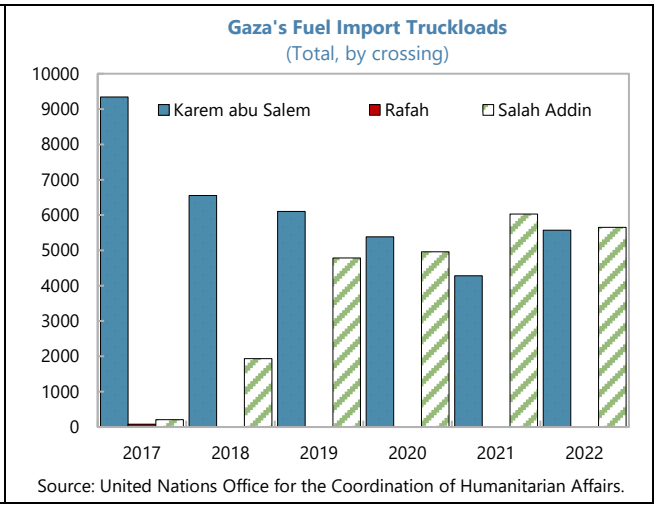
[30] The DUG list includes items that are seen to pose a security risk in that they could potentially also be used to make weapons etc. though in many cases this seems far from obvious. Israel regularly adds more material, machinery, and equipment to the list. One of the criticisms of this list is the broad definition of restricted inputs. For further details, see World Bank report *Unlocking the trade potential of the Palestinian economy*, 2017.

[31] Gaza currently has four operational crossings: two Israeli and two Egyptian. Israel dedicates Karem abu Salem for commercial crossings and Beit Hanon/Erez for pedestrian crossings. Egypt controls the Rafah crossing, used for both commercial trade and movement of people, and the more recently opened Salah Addin crossing used mainly for fuel and some construction materials. The PA only receives the import duties and VAT from the Israeli controlled Karem abu Salem crossing (except for Gaza truckloads directed to the West Bank for which no VAT is imposed).

[32] The back-to-back (B2B) process requires the offloading of all goods into one truck and reloading those same goods, after security inspection, on a different truck. For Gaza, the B2B is even more complicated, as it involves a third "sterile" truck that acts as a go between the two trucks from both sides. The procedure is costly and results in delays and damages to goods. For further details, see World Bank report *Unlocking the trade potential of the Palestinian economy*, 2017.

[33] The GRM is a temporary mechanism, facilitated by UNOPS, to allow the entry of large amounts of materials considered dual use for reconstruction purposes. see GRM website.





16. Ongoing and planned infrastructure projects in Gaza require relaxation of Israeli restrictions and additional funding. In the energy sector, planned projects such as te extension of the 161 KV line from Israel to Gaza and the Gas for Gaza (G4G) project both require essential cooperation from Israel and finalization of commercial agreements.[34] More funding is also still needed for Gaza's power plant.[35] While Israel is considering wireless telecommunication spectrum allocations upgrade in the West Bank to 4/5G, Gaza is excluded and only outdated 2G is available. Further, the imposed dual-use restrictions are delaying the entry of some parts for the Northern Gaza Emergency Sewage Treatment project (NGEST).[36]

E. Conclusion

17. The divergence of Gaza's economic path from that of the West Bank has been long in the making. Over the past fifteen years, Gaza's social indicators have persistently deteriorated, its anemic growth has relied mainly on government consumption, and its productive capacity has remained impeded by the blockade and the myriad restrictions that come with it. In addition, investment levels, financial intermediation, and wages have consistently trailed those in the West Bank. This has resulted in a lack of financing for vital infrastructure services, especially electricity.

[34] For G4G, the Gas Sales and Purchase Agreement (GSPA) needs to be concluded and Israel needs to finalize the design requirements of the crossing point into Gaza to enable the completion of the detailed design in Israel. The PA needs to approve the hydrocarbon law and establish the National Gas company. See *Office of the Quarter Report to the AHLC, May 2023.*

[35] Further funding is needed for phase two of the Gaza Power Plant electricity infrastructure improvement which will include several substations, feeders, a national control station, and related infrastructure. See *Office of the Quarter Report to the AHLC, May 2023.*

[36] Similarly, investments in renewable and green energy, water, and wastewater projects in Area C in the West Bank also hinge on the GoI's approval. The PA identified over 200 MW of solar PV sites and is awaiting GoI's approval to proceed. The GoI had previously approved two locations in the West Bank in Bani Naim (Area A) and Aqbat Jabr (Area C) for solar PV. See *Office of the Quarter Report to the AHLC, May 2023*.

18. For Gaza to forge a new economic development path and restart economic convergence with the West Bank, lifting of the blockade and easing of the Israeli imposed restrictions are essential. Restrictions on access and movement of people and goods severely hinder economic outcomes and productive capacity in both the West Bank and Gaza. However, restrictions are more severe in Gaza, further distorting its weak labor market, impacting its productive sectors, and limiting access to materials for its infrastructure projects. Gaza's years of isolation and continuous conflicts have depleted its stock of capital, and progress on ongoing and planned infrastructure projects necessitates the cooperation of Israel and major easing of its restrictions.

19. Gaza's economic development could further benefit from political reconciliation between the Palestinian territories. The political division between Gaza and the West Bank poses an additional layer of obstacles, as it impedes policy coordination and implementation, creating two separate governance structures. Political reconciliation or unification could improve Gaza's basic public services, raise inward investment flows, strengthen its governance through a unified regulatory environment and the ability of the PA to enhance revenue generation through re-deployment of its tax administration, and ultimately boost investment into its much-needed infrastructure projects (primarily electricity and water).[37]

[37] Based on staff estimates, a reunification scenario could increase growth to 8 percent in Gaza and more than 5 percent thereafter. It will also increase fiscal costs and necessitate PA reforms to curtail the fiscal costs. For further details on the scenario see *IMF Staff Report March 2018.*

Annex I. Illustration of the I-O Analysis Using the Leontief Inverse Matrix[1]

The use of an input-output (IO) model permits the estimation of the indirect and induced effects of demand shocks**.** An Input-Output Table (IOT) shows inter-industry transactions (i.e., purchases of establishments in one industry from establishments in all other industries), and purchases by a final demand category from all other industries. The Palestinian IOT uses the fixed product sales structure assumption.

The Leontief Inverse Matrix was used to analyze the IOT. The inverse matrix is fundamental to input-output analysis as it shows the direct and indirect requirements generated by one unit of output, in other words, the impact on the output levels of all industries of a single unit increase in net final demand.[2]

In matrix form, the Leontief model is defined as $X = AX + F$, where X is the output vector, A the Input-Output (IO) coefficient matrix and F the net final demand vector.

$$\begin{pmatrix} X_1 \\ X_2 \\ X_3 \end{pmatrix} = \begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix} \bullet \begin{pmatrix} X_1 \\ X_2 \\ X_3 \end{pmatrix} + \begin{pmatrix} F_1 \\ F_2 \\ F_3 \end{pmatrix}$$

In matrix terms, it is defined as:

$X = AX + F$
$X - AX = F$
$(I - A)\, X = F$
$(I - A)^{-1}(I - A)\, X = (I - A)^{-1}\, F$

The solution of this linear equation is $X = (I - A)^{-1}F$, with A representing the IO coefficient matrix, I the created identity matrix (*nxn* square matrix where diagonal=1 and non-diagonal = 0), and $(I - A)$ the Leontief matrix, and $(I - A)^{-1}$ the Leontief Inverse matrix.

[1] For further details on the Leontief Inverse Matrix see UN Handbook on Supply, Use and Input-Output Tables. Sources *IMF, 2020, The National Accounts Compilation Issues: Supply, Use, and Input-Output Tables; IMF Middle East Center for Economics and Finance (CEF), Kuwait* and IMF, Technical Assistance Report, West Bank and Gaza, Compilation of Input-Output Tables, IMF, September 2020.

[2] It is assumed that all industries' production functions are linear Leontief production functions. All inputs (Intermediate consumption, capital, labor, land) are used in fixed proportions in relation to output. It is assumed that a substitution of inputs is impossible. Therefore, changing prices have no influence on the technical coefficients.

The column sum of the inverse can be interpreted as the output multiplier, i.e., the cumulative output of the economy, which is induced by one additional unit of final uses of a certain product.

To illustrate, below is an IOT for three industries,

	Use						
	Industry inputs			Total industry inputs	Final uses	Total final use	Total output
	Industry 1	Industry 2	Industry 3		Net Final Demand		
Industry 1	0	20	45	**65**	35	**35**	**100**
Industry 2	30	0	30	**60**	140	**140**	**200**
Industry 3	0	80	0	**80**	70	**70**	**150**
Total	**30**	**100**	**75**	**205**	245	**245**	**450**
GVA	**70**	**100**	**75**	**245**			
Total Inputs	**100**	**200**	**150**	**450**			

	Use						
	Industry inputs			Total industry inputs	Final uses	Total final use	Total output
	Industry 1	Industry 2	Industry 3		Net Final Demand		
Industry 1							
Industry 2		U			F		**X**
Industry 3							
Total							
GVA	**W**						
Total Inputs	**X**						

$X_1 = U_{11} + U_{12} + U_{13} + F_1$ *(100 = 0 + 20 + 45 + 35)*
$X_2 = U_{21} + U_{22} + U_{23} + F_2$ *(200 = 30 + 0 + 30 + 140)*
$X_3 = U_{31} + U_{32} + U_{33} + F_3$ *(150 = 0 + 80 + 0 + 70)*

the next step is to calculate the IO coefficient matrix (*A*), which can be interpreted as the market shares of products in total output. They are calculated by dividing each entry of the IOTs by the corresponding row total. Using the IOT above, the Leontief Inverse matrix can then be derived as:

Step 1
A = I-O coefficient matrix

	Ind 1	**Ind 2**	**Ind 3**
Ind 1	0.0000	0.1000	0.3000
Ind 2	0.3000	0.0000	0.2000
Ind 3	0.0000	0.4000	0.0000

Step 2
I = Identity Matrix

1	0	0
0	1	0
0	0	1

Step 3
I-A (Leontief Matrix)

1.0000	-0.1000	-0.3000
-0.3000	1.0000	-0.2000
0.0000	-0.4000	1.0000

Step 4
(I – A)-1

	1.077283	0.257611	0.374707
	0.351288	1.17096	0.339578
	0.140515	0.468384	1.135831
Output Multiplier	**1.56909**	**1.89696**	**1.85012**

PUBLIC PENSION SYSTEM: FEATURES AND REFORM OPTIONS[1]

The defined-benefit scheme II of the Palestinian public pension system offers generous old-age benefits, supplemented by personal and family allowances. As currently operated, the contributory pre-funded scheme is unsustainable since the Ministry of Finance has not been transferring to the Pension Agency the amount of contributions mandated by the law. The scheme's assets are hence far insufficient to meet future obligations. Notwithstanding, so far pensions outlays have been regularly paid by de-facto operating the scheme as a pay-as-you-go (PAYGo) system. A reform package—including the alignment of the de-jure and de-facto schemes in the direction of a DB contributory PAYGo scheme without a pre-funding element as well as a set of well-designed parametric adjustments—could enhance fiscal transparency and predictability, and reduce the impact of pension outlays on public finances, while still ensuring income security for the retirees.

A. Overview of the Current System

Main Features

1. West Bank and Gaza's public pension system is multifaceted. Pension Law No 7 of 2005 introduced a new scheme (called scheme II) to cover all public sector workers (civil servants and security personnel) under the age of 45 by September 1, 2006, as well as those newly hired after that date. Older workers—covered by schemes I (for Gaza civil servants, inherited from Egypt), III (for security personnel), and IV (for the West Bank civil servants, inherited from Jordan)—were exempted from transitioning and remained in their original schemes. As schemes I, III, and IV have since been closed to new entrants and all their participants have now retired leaving virtually no active contributors (Table 1), this paper will focus mainly on scheme II, even though retirees from legacy schemes and their survivors will remain entitled to receive benefits (paid from public finances) for many years to come.

2. Scheme II comprises a defined-benefit (DB) and a defined-contribution (DC) component, but the latter has not been properly implemented.[2] This SIP will therefore concentrate on the DB component which is de jure a contributory pre-funded scheme, with a 16 percent contribution rate (7 and 9 percent, respectively, for the employees and for the Palestinian Authority (PA); see Table 2 for

[1] Prepared by Antonio Bassanetti and Yazan Ajamieh. The authors would like to thank Boele Bonthuis (FAD) for very helpful guidance, suggestions, and discussions throughout the preparation of the paper.

[2] While employees' contributions to the DC component are deducted from pay, the Ministry of Finance (MoF) does not transfer them to the Palestinian Pension Agency (PPA), which thus maintains individual DC accounts merely on an accrual basis. No interest is accrued on those accounts, and, upon retirement, employees are simply paid back the total amount of contributions deducted over time with resources provided by the MoF. For more details on the DC component and possible reform options, see the forthcoming World Bank 2023 note *The Palestinian Pension System: A Roadmap for an Unfinished Reform*; also in the forthcoming World Bank 2024 *Public Expenditure Review of the Palestinian Authority*.

key parameters of the scheme).[3] Financial responsibility for the benefits of civil servants under scheme II lies with the Palestinian Pension Agency (PPA), whereas the Ministry of Finance (MoF) retains financial responsibility for the security personnel.[4] The Pension Law provides that Non-Governmental Organizations (NGOs) and civil society organizations (CSOs) may also participate in scheme II.

Table 1. West Bank and Gaza: Contributors and Beneficiaries
(As of 2021)

	Scheme I	Scheme II		Scheme III	Scheme IV
		Civil Servants	Security Personnel		
Number of contributors	84	82069	52479	24	N.A.
Beneficiaries	16031	6450	20170	8088	N.A.
of which:					
Old-age and early retirement	10821	3536	18057	5271	16714
Invalidity	286	1277	25	0	N.A.
Survivorship	4924	1637	2088	2817	9179

Source: Palestinian Pension Agency (PPA).

Table 2. West Bank and Gaza: Key Parameters of Scheme II Defined-Benefit Component

Persons covered	Civil servants and security forces who were less than 45 years old on September 1, 2006, and those hired after that date regardless their age.
Retirement age	Mandatory retirement at age 60 with at least 15 years of contributions. Alternatives for full old-age pension: - Male civil servants: age 55 with at least 20 years of service. Or, age 50 with at least 25 years of service. - Female civil servants: age 55 with at least 15 years of service. Or, age 50 with at least 20 years of service. - Security forces: age 50 with at least 20 years of service. Early retirement: civil servants age 55 with at least 15 years of service, with 5 percent pension reduction until age 60.
Contribution rates	16 percent
of which:	
from employee	7 percent
from empolyer	9 percent
Benefits	- 2 percent per year of service, multiplied by average salary of the last 3 years - in case of early retirement, 4 percent reduction per year before age 60 - if not eligible to old-age pension, retirement lump sum equal to employee's contributions paid over time.
Basic replacement rate	30 percent
Incremental replacement rate (accrual rate)	2 percent
Maximum replacement rate	80 percent
Pension indexation	Based on wage increases of active contributors.

Sources: Palestinian Pension Agency; IMF staff research.

[3] Schemes I, III, and IV are also defined-benefit systems.

[4] Furthermore, financial responsibility for pension rights accrued under scheme I lies with the PPA, whereas the MoF has full financial responsibilities for schemes III and IV.

3. Reflecting its relatively recent start, scheme II's dependency ratio is still low. As of 2021, scheme II included about 134,000 public sector contributors—82,000 civil servants and 52,000 security personnel (Table 1)—corresponding to 9.6 percent of the Palestinian labor force. Beneficiaries were around 26,000—6,000 civil servants and 20,000 security personnel (see Table 1 for disaggregation between old-age pensions, survivorship, and disability programs).[5] The scheme's dependency ratio—defined as the ratio of old-age and early retirement beneficiaries to contributors—is only 4.3 percent for civil servants, whilst for security personnel—who have the option to retire at a much younger age with a full pension—it is 34.4 percent.[6] The coverage of the schemes is narrow. Even including legacy schemes, current pension beneficiaries represent only 1.5 percent of the Palestinian population.

4. Scheme II offers generous old-age pension benefits.[7] The mandatory retirement age for male civil servants is 60 with at least 15 years of service. However, they can retire with a full old-age pension also at the age of 55 if they have accumulated 20 years of service, or at age 50 with 25 years of service. For female civil servants, at each retirement age, the required period of service for eligibility to a full old-age pension is lower by 5 years compared to men (though the 15 years minimum contributory period still applies; i.e., they can retire at age 55 with 15 years of service, or age 50 with 20 years of service). The Pension Law also provides that, with the approval of the PPA, male civil servants have the option of early retirement at 55 conditional on having at least 15 years of contributory service and subject to a 5 percent benefit reduction per year until reaching the mandatory retirement age of 60. However, Cabinet decrees have so far been regularly issued to exempt early retirees from being subject to this reduction.[8] According to the Pension Law, conditions for a full old-age pension are even more favorable for security personnel who

Figure 1. Scheme II Old-Age Benefits by Career Length

Source: IMF staff calculations.

[5] As of 2021, scheme II also included 13,000 contributors and 400 beneficiaries associated with NGOs and CSOs.

[6] The dependency ratios for civil servants and security personnel would increase to 7.9 and 38.4 percent, respectively, if invalidity pensioners and survivors are included.

[7] Also the legacy schemes offered generous benefits, featuring a higher incremental accrual rate (2.5 percent) than scheme II but also—at least for schemes I and III—higher contribution rates (22.5 percent, as the sum of 10 percent for the employee and 12.5 percent for the PA). At 70 percent, the maximum replacement rate for the legacy schemes was slightly less generous than for scheme II, whereas the mandatory retirement age and the minimum years of service to be eligible to an old-age pension were similar. For a more detailed description of the legacy schemes, see the Chapter on the Palestinian Public Pension System of the *World Bank 2016 Public Expenditure Review of the Palestinian Authority*.

[8] More precisely, the Pension Law provides that the Council of Ministers may decide to retire any public servant (civil and security service employees) prior to the mandatory retirement age of 60 if the employee has completed 15 years of service eligible for retirement without any deduction from the employee's pension rights.

can retire at the age of 50 with at least 20 years of contributions.[9] Also in their case, however, a Cabinet decree can allow retirement at any age with only 15 years of service without being subject to any benefit reduction. Scheme II's incremental annual accrual rate is 2 percent, with a maximum replacement rate of 80 percent of the average salary over the last three years of service (Figure 1). As of 2021, the average replacement rate for scheme II—calculated as the ratio between average pension and average insured wage—was around 57 percent for civil servants and 76 percent for security personnel.

5. Benefits are supplemented by a personal and family allowance, and a basic pension is provided to those who have not accrued pension rights. All pensioners are entitled to a monthly personal allowance of NIS 300 and a monthly family allowance of NIS 60 for the spouse and NIS 20 for each child, regardless of the amount of their pension or other sources of income.[10] The Pension Law also provides that a public sector employee who ceases to work without having accumulated the minimum contributory years (15) to be entitled to an old-age pension will receive a lump-sum benefit corresponding to the contributions paid over time (only the employee's share)[11] as well as—when he/she turns 60—a means-tested basic pension currently amounting to NIS 700 per month (roughly equivalent to a 25-percent replacement rate of the 2021 average wage).[12] While both the personal and family allowances are paid by the PPA, the basic pensions are paid by the MoF.

6. Substantial survivorship and disability programs are also part of the scheme. Dependent survivors entitled to a share of the benefits of a deceased pensioner include the widow, the widower if unfit to support himself, children and brothers under the age of 21 (or 26 if they are still pursuing university or higher education),[13] unmarried/divorced/widowed daughters and sisters,[14] as well as parents.[15] While not the focus of this paper, it is worth noting that the scheme also envisages that, conditional on the approval of a medical committee, persons under the age of 60 affected by disabilities

[9] The same conditions valid for security personnel apply also to employees in the following sectors: laboratories and radiology, prospecting for oil and gas, and mining.

[10] The personal and family allowances apply to pensioners of both scheme II and the legacy schemes. These allowances are not indexed to either inflation or wages.

[11] The lump sum repayment of contributions can be at any age the employee ceases to work, not necessarily at the mandatory retirement age of 60. If the individual later decides to rejoin public employment, the counting of the contribution years for the purpose of obtaining an old-age pension will start all over again, leading to a less-than-ideal fragmentation of benefits.

[12] Employees that did not accumulate the minimum contributory years to be entitled to an old-age pension also have the option of paying contributions for the missing years to reach 15 years of contributions, as long as they have accumulated more than 9 years of working service. Employees who do not choose this option are offered the basic pension if they do not have any other sources of income; if they have one, they shall be paid the difference between the basic pension and that income. Individuals who receive the basic pension are not entitled to the personal and family allowances. Like the personal and family allowance, the basic pension is not indexed to either inflation or wages, but can be adjusted through a Cabinet decision. The last adjustment occurred in 2005.

[13] The eligibility of children and brothers becomes permanent if they are unable to provide for themselves due to physical conditions.

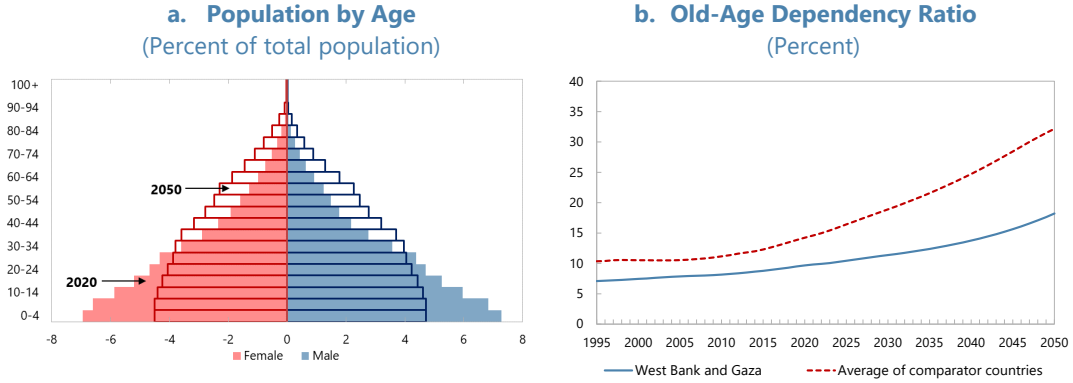
[14] The widow's and unmarried sisters/daughters' survivorship rights apply as long as they are not (re)married.

[15] While survivorship rights apply also to the NIS 300 personal allowance, they do not apply either to the family allowances (spouse, children) or to the NIS 700 basic pension.

are entitled to receive benefits. Further, beneficiaries may also be entitled to receive substantial lump-sum insurance benefits in the event of death or permanent disability caused by occupational accidents.[16]

7. Despite a relatively low coverage ratio, the overall outlays of the public pension system are sizeable. While pensioners represent only 1.5 percent of the population, in 2021 public pension expenditure amounted to around NIS 2.3 billion or around 4 percent of GDP (around NIS 600 million for the schemes under the financial responsibility of the PPA—scheme I and the civil servants' component of scheme II—and NIS 1.6 billion for those under the financial responsibility of the MoF).

Figure 2. Demographics



Source: UN World Population Prospects 2022.

8. In the long run, higher old-age dependency ratios in the Palestinian population will likely be reflected in the public sector, with an impact on pension outlays. In 2020, only around 5 percent of the Palestinian population was over the age of 60; by 2050 the share is projected to rise to 11 percent reflecting increasing life expectancy and decreasing fertility rates (Figure 2a). The gradual aging will translate into an increase in the Palestinian old-age dependency ratio—defined as the share of population aged 60+ over the working age population (aged 15–59)—from 9.6 to 18.2 percent (Figure 2b).[17] It is possible that the increasing trend of the old-age dependency ratio will extend to the public sector and its pension system, with an increase in the number of beneficiaries relative to active contributors and in pension outlays.[18]

[16] For more details on the eligibility criteria for the survivorship and disability programs, see the Pension Law No 7 of 2005.

[17] In any case, the Palestinian population is and will remain much younger than that of comparator countries (Algeria, Egypt, Iraq, Jordan, Lebanon, Morocco, and Tunisia), where on average the share of population over 60 years of age was 9 percent in 2020 and is expected to be 20 percent by 2050. Over the same period, the average old-age dependency ratio in comparator countries would increase from 14.2 to 32.2 percent.

[18] For the conditions under which this possibility can materialize, see forthcoming the World Bank 2023 note *The Palestinian Pension System: A Roadmap for and Unfinished Reform* (also in the forthcoming World Bank 2024 *Public Expenditure Review of the Palestinian Authority*).

B. Analysis of the Current System

Internal Rates of Return (IRRs)

9. The natural rate of return of West Bank and Gaza's pension system has been rather low. The natural rate of return of a pension system can be approximated by the contribution base growth, which reflects wage growth and formal employment growth. In the case of West Bank and Gaza, public employment grew at an average annual rate of 0.1 percent over 2011–21, whereas public employee salaries increased by an annual average of around 2 percent in nominal terms.[19] As a result, the natural rate of return of the Palestinian pension system has been in the order of just over 2 percent in nominal terms, or around 1.1 percent in real terms.[20] In what follows, this paper will compare the natural rate of return with scheme II's actual IRRs, which reflect the benefits offered by the scheme. In addition, one should take account of the average annual yield of the scheme's assets, which over 2012–22 has been about 6.7 percent in nominal terms on the stock of assets invested by the PPA and zero on the stock of contribution arrears accumulated by the MoF (see paragraph 13).[21] The resulting weighted average is about 0.5 percent, corresponding to a negative yield in real terms given the 1.2 percent average CPI inflation over the same period.[22]

10. The actual IRRs for scheme II are higher than the natural rate of return of the pension system, reflecting the generosity of benefits.[23] For a male civil servant with no family retiring under scheme II at the age of 60 after achieving the minimum number of contributory years (15), the IRR in real terms is rather high at about 3.3 percent and declines very slowly for longer careers (Figure 3a).[24] The decline is more pronounced after 40 years of service, once the maximum accrual rate

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[19] See the World Bank 2022 *Wage Bill and Employment Diagnostic: Key Drivers and Policy Recommendations*. For both public employment and nominal salaries, the annual rates of growth have been very volatile throughout the period, also reflecting frequent changes in policies aimed at containing the wage bill.

[20] During 2011–21, the CPI-based inflation was on average about 1 percent per year.

[21] The information on the nominal yield of the scheme's invested assets is published by the PPA.

[22] According to the Pension Law, late contribution transfers are subject to penalties and interest payments based on the LIBOR (plus 1 percent) for delays exceeding one month and for the first year. Even accounting for the LIBOR (plus 1 percent) on the stock of contribution arrears—instead of a zero yield—the resulting weighted average yield in real terms would be around 1 percent at most.

[23] The internal rate of return of an investment is the discount rate that makes the net present value (NPV) of the associated cash flows—in this case, the present value of the inflow of pension benefits minus the present value of the outflow of social contributions—equal zero. Intuitively, it can be thought of as the compounded rate of return on the investment represented by the contributions paid to the pension scheme over the course of the employee's career.

[24] For career lengths equal to or greater than the years of service required to be entitled to an old-age benefits, the calculated IRRs reflect: (i) the contributions paid by both the employee and the employer throughout the employee's career on the basis of the average wage (either civil servants' or security personnel'); the average wage has been obtained starting from the 2021 average insured wage—as provided by the PPA—extended throughout the career

(continued)

of 80 percent has been hit.[25] Even in these cases, however, IRRs remain higher than the real natural rate of return.[26] IRRs are even more favorable for male civil servants retiring at younger ages reflecting—other things being equal—the prolonged future flow of pension benefits: it is around 4.0 percent in real terms for those who retire at 55 with at least 20 years of service and 4.6 percent for employees retiring at 50 with 25 years of contributions. In comparison, real IRRs rise even further for female civil servants, to 4.4 and 4.9 percent—respectively—for those retiring at 55 with careers of at least 15 years and at 50 with 20 contributory years (Figure 4). High IRRs—in the order of 4.7 percent—also characterize security personnel who end their careers at age 50 with 20 years of service (Figure 3a). Lastly, for employees who reach retirement age without the minimum years of service, the possibility of receiving the NIS 700 basic pension regardless of the number of years worked translates into extremely high IRRs for short careers, declining steeply as the number of years worked rises.

11. Family allowances push IRRs higher still. The outcome reflects not only the larger pension outlay against the same contributions paid, but—above all—a more prolonged flow of pension payments due to the survivorship rights of the employee's spouse and children. For instance, based on estimates of life expectancy from the UN World Population Prospects, in the case of a male civil servant retiring at 60 with at least 15 years of service who will eventually be survived by his wife, the real IRR increases by around 0.3 percentage points compared to an unmarried employee, and by 0.8 percentage point if the same civil servant is survived also by an unmarried daughter (Figure 3b).[27]

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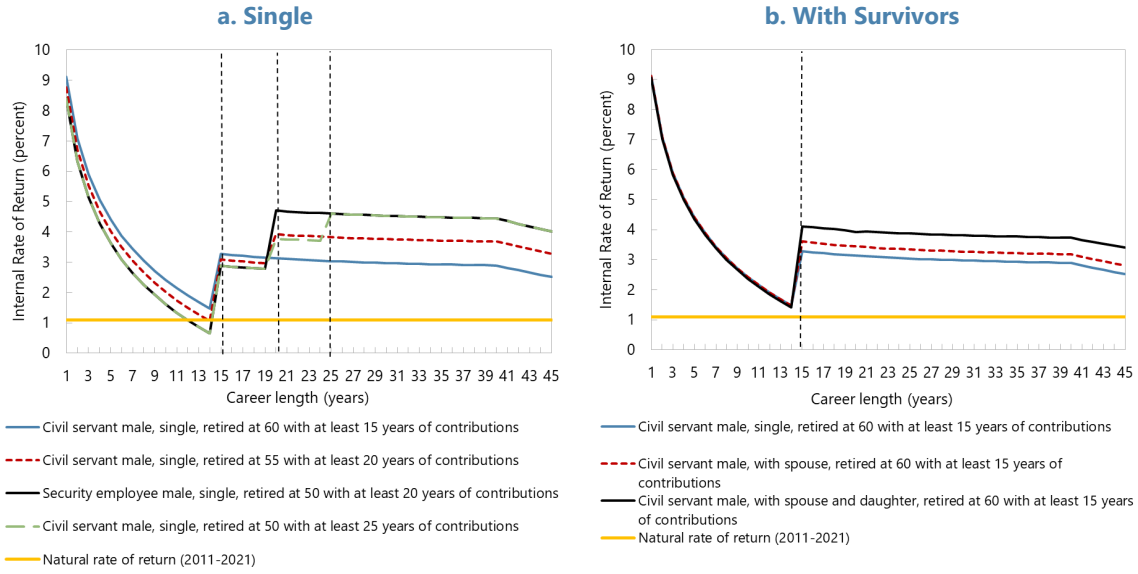
length using the 2011–21 nominal average wage growth of 2.0 percent; (ii) pension outlays calculated on the basis of the accrual rate corresponding to the career length, indexed to the nominal average wage growth of 2.0 percent, and including the personal allowance of NIS 300 per month; (iii) life expectancy at retirement based on the UN World Population Prospects 2022. In order to obtain the IRRs in real terms, the nominal IRRs have been deflated using the 2.0 percent CPI inflation projected for the medium term. For career lengths insufficient to be entitled to an old-age benefits, the calculated IRRs reflect: (i) the contribution paid by both the employee and the employer for the limited career length; (ii) the NIS 700 monthly basic pension paid to the employee after the age of 60 (not indexed), as well as the lump sum paid back to the employee and corresponding to the amount of employee's contributions paid into the system during the career length; (iii) life expectancy based on the UN World Population Prospects 2022. In the charts, the step increases of the IRRs in correspondence of the minimum years of service required for old-age benefits reflect the larger accrual-based pensions compared to the basic pension of NIS 700 per month.

[25] Since scheme II was introduced in 2006, no one retiring in 2023 can have more than 17 years of service in such a scheme. Hence, the purpose of these calculations is only to illustrate the potential IRRs allowed by scheme II. In reality, for those who retire having spent part of their career under the legacy schemes, the old-age pension will reflect the parameters of the relevant legacy scheme for the due period and those of scheme II for the career years after 2006.

[26] The discrepancy between the actual IRRs and the natural rate of return would have been even greater if, in order to obtain the former, this paper had used the 2011–21 average CPI inflation (1 percent)—used to calculate the latter—instead of the 2 percent CPI inflation projected for the medium term. The choice of using the CPI inflation projected for the medium term to calculate the IRR reflects the future nature of pension outlays.

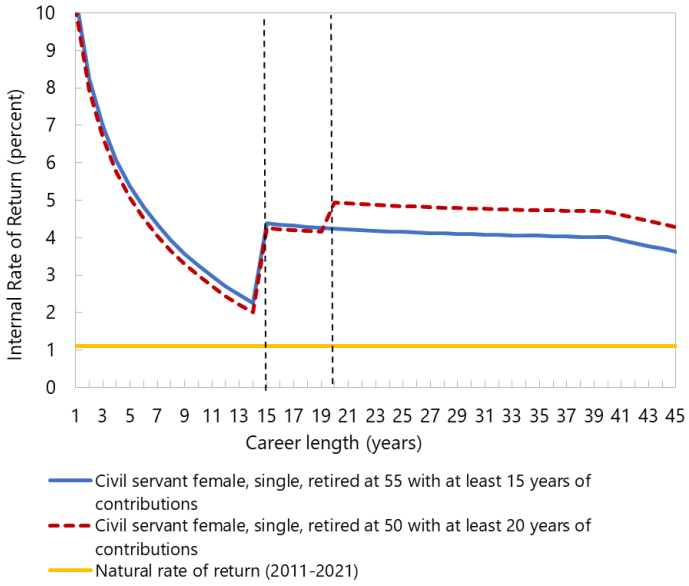
[27] Based on the Pension Law No 7 of 2005, the surviving wife and only child of a civil servant are entitled to, respectively, ½ and ⅓ of the deceased retiree's pensions. If the child is an unmarried daughter, she will have the right to receive her share for life or until she gets married. Also, the widow's pension share will cease in case of new marriage. For the IRRs calculations, it has been assumed that: (i) the surviving spouse is of the same age as the retiree and will not re-marry after the retiree's death; and (ii) the daughter was born when her parents were 25 years old and will not get married. As for the retiree, life expectancies for both the spouse and the daughter are based on the UN World Population Prospects 2022.

Figure 3. Internal Rate of Return by Career Length, Males



Source: IMF staff calculations.

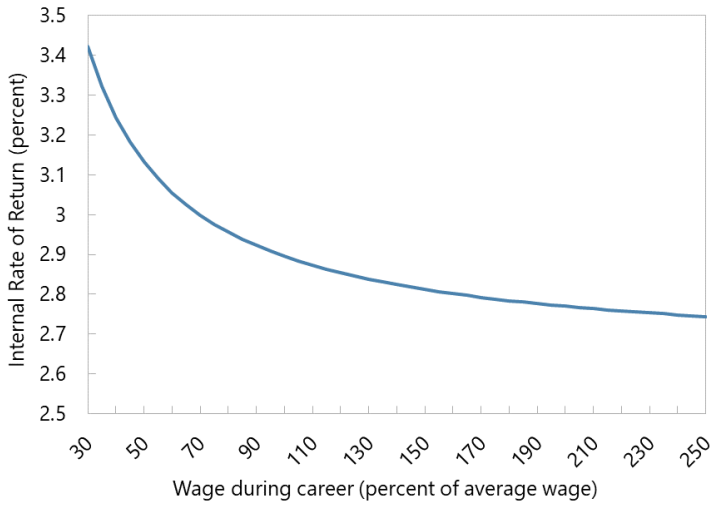
Figure 4. Internal Rate of Return by Career Length, Females



Source: IMF staff calculations.

12. Based on the current parametric setting, IRRs are slightly higher for employees earning lower wages. Declining IRRs by wage levels are common in many pension systems reflecting the need to provide an adequate retirement income also to the less well-off. In the case of scheme II, for a civil servant retiring at 60 after a full career—i.e., with 40 years of service which allow to obtain the 80 percent maximum replacement rate—and earning the average wage, the pension's real IRR would be in the order of 2.9 percent (Figure 5).[28] It would rise to above 3.1 if during his/her career the employee earned 50 percent or less of the average wage, whereas it would hover around 2.8 percent for civil servants earning 140 percent or more of the average wage. The situation for the security personnel is broadly similar.[29]

Figure 5. Internal Rate of Return by Wage Level



Source: IMF staff calculations.

Actuarial Unsustainability

13. While scheme II DB component is de jure a contributory pre-funded scheme, the MoF has not been able to regularly pay contributions to the PPA, accruing large arrears and rendering scheme II unsustainable.[30] Reflecting fiscal challenges, the MoF's transfers of monthly

[28] Calculations underlying Figure 5 are just exemplificatory of the declining IRRs by wage levels. The choice of 40 years of service is done to base the example on the full replacement rate (80 percent). With shorter career lengths, the IRRs would be higher and their declining shape by wage levels would be preserved.

[29] Based on the civil service pay scale, salaries may range from 32 to 172 percent of the 2021 average insured monthly wage that was used as a reference for the calculations. For security personnel, the range inferable from the relevant pay scale and average insured monthly wage goes from 37 to 214 percent. For pay scales, see the World Bank 2022 *Wage Bill and Employment Diagnostic: Key Drivers and Policy Recommendations*.

[30] MoF's arrears to the PPA under scheme II refer to civil servants, for whom the latter has financial responsibility. As noted earlier, the MoF has accumulated sizeable arrears to the PPA also in relation to the contributions of the DC component of the scheme.

contributions to the PPA have consistently been well below what is mandated by the Pension Law.[31] This practice has translated into the accrual of a sizeable stock of arrears of the MoF to the PPA, estimated at 14 percent of GDP in 2023. In turn, this has led to an accumulation of invested pension fund assets at the PPA that is far insufficient to meet future obligations, rendering scheme II as it is currently operated unsustainable. The stock of scheme II assets is in the order of 1.5 percent of GDP, more than half of which is associated with participants from NGOs and CSOs.[32] Analysis show that even if the MoF clears all its arrears and remains current on the payment of future contributions to the PPA, in the long run, the Palestinian pension system will likely require support from the public budget to remain sustainable, due to projected increases in life expectancy and thus in the old-age dependency ratio.[33]

14. Notwithstanding the unsustainability of the current setup, pension outlays have so far been regularly paid by de facto operating scheme II as a pay-as-you-go (PAYGo) DB system.[34] On a monthly basis, the MoF transfers from the budget to the PPA just the amounts needed to pay the current pension outlays, including for both scheme II and the legacy schemes. This means that, de facto, scheme II is operated as a PAYGo system without pre-funded component, introducing a discrepancy with the legal framework and opaque crossclaims between the MoF and the PPA. Also, these operating modalities expose the PPA to significant risks. One such situation occurred in 2021, when the MoF transferred insufficient amounts to match the pension outlays inducing the PPA to liquidate part of scheme II invested assets to make up for the shortfall, thereby further worsening the financial position of the scheme.[35]

C. Options for Reform

Aligning the De-Jure and the De-Facto DB Schemes

15. Aligning the de-jure and de-facto schemes in the direction of a DB contributory PAYGo scheme without any pre-funding element would offer important advantages. It would enhance fiscal management, predictability, and transparency. The set-up could provide for the financial responsibility of the scheme to rest entirely with the MoF, with the PPA acting solely as the administrative and executing agency. Transitioning to such a set-up would eliminate complex crossclaims between the MoF and the PPA. It would also stop any further accumulation of MoF contribution arrears to the PPA, while the existing stock of contribution arrears would transform into

[31] For the causes underlying the MoF fiscal challenges—including the role played by the Israeli-imposed movement, access, and investment restrictions on Palestinian economic growth—see the IMF staff's *September 2023 Report to the AHLC*.

[32] The PPA also manages assets amounting to around 0.5 percent of GDP associated to legacy schemes.

[33] See the forthcoming World Bank 2023 note *The Palestinian Pension System: A Roadmap for an Unfinished Reform*; also in the forthcoming World Bank 2024 *Public Expenditure Review of the Palestinian Authority*.

[34] Due to the MoF's increasingly binding cash constraints, since November 2021 and like public sector wages, pensions have been paid at 80 percent creating arrears to pensioners.

[35] According to the PPA, the assets liquidated in 2021 amounted to around NIS 490 million, or 0.8 percent of GDP.

equivalent—in net present value—future budgetary obligations associated with the pension outlays that it was supposed to finance. These future expenditures add to the importance of putting public finances on a sound footing through ambitious fiscal reforms to be pursued hand-in-hand with the pension system reform. For the same reasons, in the case of transition to a PAYGo set up without any pre-funding element, the stock of assets accumulated thus far at the PPA—albeit a limited amount—should not be used for other purposes than the payment of future pension outlays.

Need for Parametric Reforms

16. A well-design parametric reform package could reduce the long-run impact of scheme II's DB component on public finances, while still ensuring income security for retirees. Reform options that could be taken into consideration include: (i) gradually increasing mandatory and early retirement ages and indexing them to future increases in life expectancy; (ii) revising the accrual rate; and (iii) modestly increasing the contribution rates.[36] Other reform options that might be considered, albeit not simulated in the analysis below, comprise: (i) reducing early retirement benefits, including by increasing the annual benefit reduction rate envisaged until the mandatory retirement age is reached, and applying it consistently (i.e., terminating the current exempting practice); (ii) limiting the various options of retiring with a full pension at ages younger than the mandatory one only to cases of particularly long careers (i.e., longer than currently envisaged); and (iii) revise the basic pension for those who did not reach the minimum number of contributory years, making it commensurate to the years of service.

17. While more in-depth analysis is necessary to evaluate the detailed impact of any parametric reform package and ensure the right balance between fiscal and social considerations, the IRRs can offer a first glimpse of the effects of parametric adjustments. For illustrative purposes, this paper takes the benchmark case of a male civil servant retiring under the current parametric set-up at the mandatory age with at least the minimum number of service years to be eligible to an old-age pension. The paper then considers the impact on the IRRs of three possible parametric revisions:

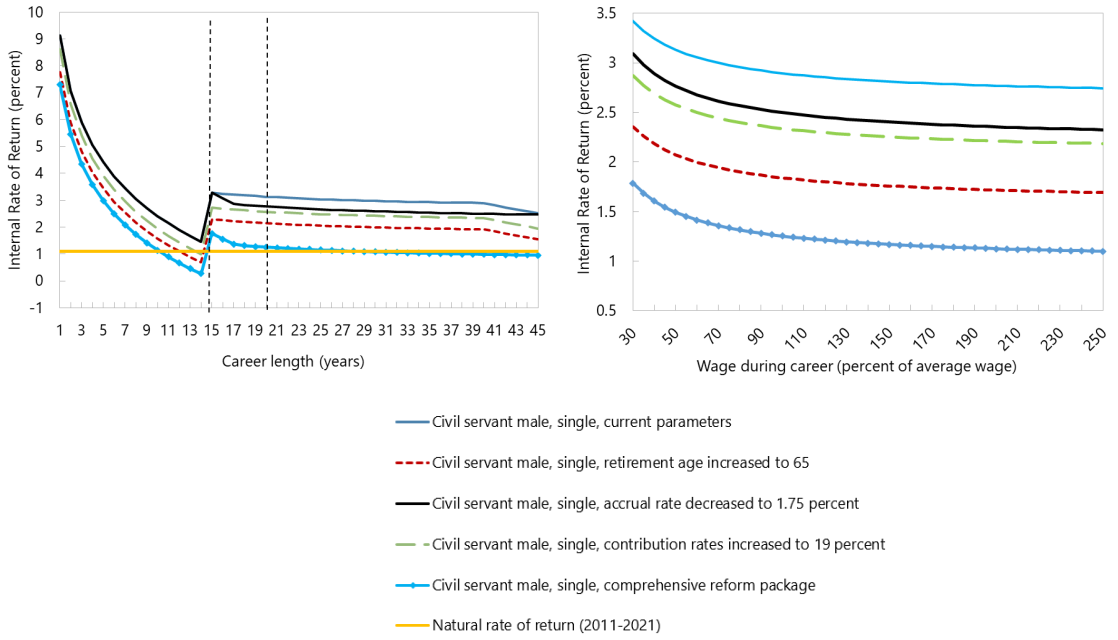
(i) Increasing the mandatory retirement age from 60 to 65 would provide for the largest decrease of the IRRs, by around 1.0 percentage points across all career lengths (Figure 6a), reflecting the shortened retirement years for a given life expectancy.

(ii) Lowering the incremental annual accrual rate to 1.75 from 2 percent would reduce the IRR by around 0.4 percentage points across all career lengths (Figure 6a). It would also imply that the IRR would only start to decline after 45 years of service, when the 80 percent maximum replacement rate is reached.

[36] These parametric reform options are broadly in line with those considered in the World Bank's 2016 *Public Expenditure Review of the Palestinian Authority* as well as in the forthcoming World Bank 2023 note *The Palestinian Pension System: A Roadmap for and Unfinished Reform* (also in the forthcoming World Bank 2024 *Public Expenditure Review of the Palestinian Authority*).

(iii) ***Increasing the overall contribution rate*** (i.e., the employer's plus the employee's) by 3 percentage points—to 19 percent—would also lead to a significant decrease of the IRR—by around 0.6 percentage points across all career lengths (Figure 6a).

Figure 6. Internal Rates of Return—Reform Options



Source: IMF staff calculations.

As a result, a reform package including all three parametric revisions illustrated above would lead to a reduction in the IRRs by around 1.9 percentage points in real terms, bringing the IRRs in proximity the 2011–21 natural rate of return of the scheme (Figure 6a).[37] The IRRs reduction would be similar across wage levels, preserving slightly higher returns for employees earning lower wages (Figure 6b).

D. Summary and Conclusion

18. As currently operated, the Palestinian pension system is unsustainable, though the PA has remained current on its pensions obligations. While scheme II DB component is de jure a contributory pre-funded scheme, the MoF has not been able to regularly pay contributions to the PPA, accruing large arrears and rendering scheme II unsustainable. Notwithstanding, pension outlays have so far been regularly paid by de facto operating scheme II as a pay-as-you-go (PAYGo) DB scheme, with the MoF transferring from the budget to the PPA the amounts needed to pay the

[37] The 2011–21 average CPI inflation (1 percent) used to calculate the natural rate of return is lower than the CPI inflation projected over the medium term (2 percent) and used to deflate the IRRs, given the future nature of pension outlays. Had this paper used the same inflation rates for both calculations, the IRRs resulting from the illustrated reform package would remain slightly above the 2011–21 natural rate.

current pension outlays (for both scheme II and the legacy schemes). Analysis shows that even if the MoF clears all its arrears and remains current on the payment of future contributions to the PPA, in the long run the system will likely require support from the public budget, due to projected increases in life expectancy and thus in the old-age dependency ratio. The long-run unsustainability of scheme II also reflects the generosity of its benefits as highlighted by the calculated IRRs, which are significantly higher than the natural rate of return of the scheme.

19. A carefully calibrated reform package could enhance fiscal transparency and predictability and reduce the impact of pension outlays on public finances, while still ensuring income security for the retirees. The package should include the alignment of the de jure and de facto schemes in the direction of a DB contributory PAYGo scheme (i.e., without any pre-funding element) as well as a set of well-calibrated parametric adjustments that would reduce the impact of pension outlays on public finances. While a more in-depth actuarial analysis is necessary to evaluate the detailed impact of any parametric reform package and ensure the right balance between fiscal and social considerations, reform options that should be taken into consideration include: (i) gradually increasing mandatory and early retirement ages and indexing them to future increases in life expectancy; (ii) revising the accrual rate; and (iii) modestly increasing the contribution rates. Other reform options that might be considered comprise: (i) reducing early retirement benefits, including by increasing the annual benefit reduction rate envisaged until the mandatory retirement age is reached, and applying it consistently; (ii) limiting the various options of retiring with a full pension at ages younger than the mandatory one only to cases of particularly long careers; and (iii) revising the basic pension for those who did not reach the minimum number of contributory years, making it commensurate to the years of service.