

## Standard Disclaimer:

This volume is a product of the staff of the International Bank for Reconstruction and Development/ The World Bank. The findings, interpretations, and conclusions expressed in this paper do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

## Copyright Statement:

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development/ The World Bank encourages the dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA, telephone 978-7508400, fax 978-750-44-70 http://www.copyright.com

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org

## Photo Credits:

Cover: Shades

## Acknowledgments

The Egypt Public Expenditure Review for the Human Development Sectors was prepared by a team led by Hoda Youssef (Senior Economist and Task Team Leader). Mark Ahern (Lead Country economist) has provided overall support and strategic guidance. The analysis of the macroeconomic and fiscal context was undertaken by Hoda Youssef, Fatma Elashmawy (Consultant) and Jala Youssef (Consultant). The technical analysis of the Human Development sectors was undertaken by Juul Pinxten (Economist), Nahla Zeitoun (Senior Social Protection Specialist), Nistha Sinha (Senior Economist), Frederic Aubery (E.T. Consultant), Mohamed Yehia (Senior Financial Management Specialist), Hosam Diaa (Senior Financial Management Specialist), Fatma Elashmawy, Souraya El Assiouty (Social Protection Specialist), and Nazly Ismail (Consultant) for the Social Assistance chapter; Mohamed Audah (Economist), Amira Kazem (Senior Operations Officer), Farah Kaddah (Consultant) and Fadila Caillaud (Lead Economist) for the Education Chapter; Mahmoud Elsayed (Economist) for the Higher Education Chapter; Di Dong (Senior Economist), Amr Elshawarby (Operations Officer), Amr Elshalakani (Senior Health Specialist) and Iryna Postolovska (Senior Economist) for the Health chapter, Oleksiy Sluchynskyy (Senior Social Protection Specialists), Montserrat Pallares-Miralles (Senior Social Protection Specialists), and Souraya El Assiouty for the Pensions Chapter. Administrative support was provided by Enas Shaaban. The team acknowledges the in-depth knowledge and analysis provided by Heba El Leithy (Consultant).

The team is grateful for the valuable comments provided by the peer reviewers at the different stages of this work: Gustavo Demarco (Lead Economist), Cristian Alonso (Economist, IMF), Evgenij Najdov (Senior Economist), Ruslan G. Yemtsov (Program leader), Ashley Taylor (Economic Adviser), Loic Chiquier (Senior Adviser); Harun Onder (Senior Economist), Cristian Herrera (Senior Health Specialist), Pedro Cerdan-Infantes (Senior Economist) and Piers Merrick (Senior Operations Officer). The team has also benefited from the early contributions of Maria Laura Sanchez Puerta (Lead Economist), comments received from Sara Alnashar (Senior Economist), Yosra Bedair (Consultant), Laila Abdelkader, Alia Eldidi, Aun Rahman (Financial Sector Specialists), Simon Christopher Walley (Lead Financial Sector Specialist) and Marja Hoek-Smit (Wharton School, University of Pennsylvania).

The team gratefully acknowledges the support and guidance received from Kevin Carey (Adviser), Eric Le Borgne, Andreas Blom, Anush Bezhanyan and Rekha Menon (Practice Managers), and the strategic guidance provided by Marina Wes (Country Director), Keiko Miwa (Regional Director) and Nadir Mohamed (Regional Director).

This work was carried out at the request of and in close collaboration with the Economic Justice Unit (EJU) of the Ministry of Finance. The request comes as part of the IMF program under the Stand-By Arrangement (SBA) of 2020 to support the authorities' efforts to preserve the macroeconomic gains of the economic reforms program and strengthen the public finances framework. It is also motivated by the Government of Egypt's ambition to strengthen its social programs and enhance the efficiency of public services in health and education, while continuing its efforts to consolidate public finances. The analysis in this PER has benefitted from an excellent exchange with the EJU at the Ministry of Finance, and with several counterparts in the Government of Egypt, including the Ministry of Social Solidarity, Ministry of Supply and Internal Trade, Ministry of Education and Technical Education, Ministry of Higher Education, Ministry of Health and Population, the National Organization for Social Insurance (NOSI), the Social Housing and Mortgage Financing Fund (SHMFF) and the New Urban Communities Authority (NUCA).

## Contents

Acknowledgments ..... 4
CHAPTER 4. EDUCATION: A ROADMAP FOR IMPROVED SECTOR PLANNING ..... 14
A. Overview of the Egyptian Education Sector ..... 14
B. Education Budget Process and Adequacy of Resources ..... 17

1. Budget Process and Execution ..... 17
2. Adequacy of non-financial resources ..... 18
3. Adequacy of financial resources ..... 21
C. Equity of Education Spending. ..... 23
D. Summary of Key Findings and the Way Forward ..... 26
CHAPTER 5. HIGHER EDUCATION: MEETING A GROWING DEMAND AND CAPTURING OPPORTUNITIES ..... 37
A. Overview of the Higher Education Sector ..... 37
4. An increasing demand for higher education. ..... 37
5. What type of institutions do Egyptian students attend? ..... 40
B. The Quality of Higher Education. ..... 41
6. Graduates' skills and labor market outcomes ..... 42
7. Research Output. ..... 45
8. University rankings ..... 46
C. The Adequacy, Efficiency, And Equity of Resource Allocation ..... 47
9. Government spending on higher education ..... 47
10. Recent trends in government spending ..... 49
11. Efficiency of tertiary spending. ..... 51
12. Equity of tertiary spending ..... 57
D. Public Financial Management Considerations. ..... 59
E. Key Findings and The Way Forward ..... 60
Annex 5. 1. Examples of Funding Mechanisms in Higher Education ..... 63
CHAPTER 6. A REVIEW OF HEALTH SPENDING: RESOURCES, OUTCOMES AND THE ROAD AHEAD ..... 66
A. Overview of the Health System Outcomes ..... 66
B. The Healthcare System: Structure, Access and Utilization. ..... 74
13. The health system structure ..... 74
14. What role for the private sector? ..... 76
15. Availability of the healthcare services - efficiency and equity challenges ..... 77
16. Utilization of healthcare services, efficiency and equity challenges ..... 84
C. Health Expenditures: Evolution, Adequacy and Efficiency of Spending. ..... 87
17. Overall health spending in Egypt and funding sources ..... 87
18. Adequacy of public spending on health ..... 90
19. Efficiency of public spending on health ..... 95
D. The Universal Health Insurance System ..... 99
E. COVID-19 and Impact on Health Financing ..... 107
F. Summary of Key findings and The Way Forward ..... 108
Annex 6. 1. Scenarios for Declining Fertility Rate and implications for per capita economic growth ..... 115
Annex 6. 2. Indicators of maternal and child health care in primary care units by governorate in 2019... 116

## List of Figures

Figure 4. 1. Distribution of Students and Teachers by Education Levels and Provider, 2021 .......................... 15
Figure 4. 2. NER and Growth Rate of Schools across Levels, 2017-2021........................................................ 15
Figure 4. 3. Percentage of Students Reaching the Low TIMSS Benchmark, 2019.......................................... 16
Figure 4. 4. MOF Budget Process for Education, 2021 .................................................................................... 18
Figure 4. 5. STR and SCR Box Plots across Governorates and Education Levels, 2021 ................................. 19
Figure 4. 6. Public and Private Primary STR and SCR Growth, 2017-2021 .................................................... 20
Figure 4. 7. Scenario Simulation of Classrooms and Teachers, 2022-2026..................................................... 20
Figure 4. 8. Actual Education Spending and Cumulative Spending Gap, 2016-2020 ...................................... 21
Figure 4. 9. Benchmarking Education Spending (\% of GDP), 2020 or Latest ................................................. 22
Figure 4. 10. Composition of Education Spending and Global Benchmarking, 2021 ...................................... 22
Figure 4. 11. Total Teacher and Staff Salaries per Student by Education Level, 2021 ...................................... 23
Figure 4. 12. Net Enrollment Rate and Basic Education Completion by Level and SES, 2018........................ 24
Figure 4. 13. Share of Enrollment by Provider Type and SES (\%), 2018 ........................................................ 25
Figure 4. 14. Utilization and Average Expenditure on Supplemental Education by SES, 2018........................ 25
Figure 4. 15. Secondary Education Dropout Reasons and Returns to Education, 2018................................... 26
Figure 4. 16. Summary of the Journey............................................................................................................. 27
Figure 4. 17. Summary of Public Expenditure Review Policy Recommendations............................................. 28
Figure 5. 1. Tertiary Gross Enrollment Ratio by Gender in Egypt (1971-2018) ............................................... 37
Figure 5. 2. Tertiary Gross Enrollment Ratio ................................................................................................. 37
Figure 5. 3. Tertiary Gross Enrollment Ratio by gender in 2018..................................................................... 38
Figure 5. 4. Tertiary enrollment by field of study ............................................................................................ 39
Figure 5. 5. Enrollment by field of study and gender .................................................................................... 39
Figure 5. 6. Total inbound internationally mobile students in 2020 or most recent data .................................... 39
Figure 5. 7. Inbound mobility rate in 2020 or most recent year...................................................................... 39
Figure 5. 8. Total enrollment in tertiary education........................................................................................... 41
Figure 5. 9. Share of total tertiary enrollment by sector (\%)........................................................................... 41
Figure 5. 10. Share of enrollment by sector and institution type in 2019-20 .................................................... 41
Figure 5. 11. Private enrollment share in tertiary education in 2020 ............................................................... 41
Figure 5. 12. Labor force participation rate by education group in 2019 (prime working age) ......................... 42
Figure 5. 13. Unemployment rate by education level in 2019 (prime working age).......................................... 43
Figure 5. 14. unemployment tate by graduation year....................................................................................... 43
Figure 5. 15. Share of total graduates by field of study, 2018-19 ..................................................................... 44
Figure 5. 16. Employment by occupation type among tertiary graduates in 2019 (prime working age) ............ 44
Figure 5. 17. Employment by field of study and type of occupations in 2019 ................................................. 45
Figure 5. 18. Number of research documents and citable documents in Egypt (2010-2020) ............................ 45
Figure 5. 19. Number of citable documents per million population in 2020 ...................................................... 46
Figure 5. 20. Expenditure on research and development (\% of GDP) ........................................................... 46
Figure 5. 21. Number of universities ranks in the top 1000 in the ARWU ranking in 2020-21 ........................ 46
Figure 5. 22. Share of expenditure on tertiary education................................................................................ 47
Figure 5. 23. Expenditure on tertiary education ..... 47
Figure 5. 24. Expenditure on tertiary education ..... 47
Figure 5. 25. Total spending per student in Egypt ..... 48
Figure 5. 26. Per student tertiary expenditure as \% of GDP per capita in 2019 (or most recent year) ..... 48
Figure 5. 27. Funding sources by University in FY2020 ..... 49
Figure 5. 28. Real government expenditure on tertiary education, Economic classification, in Billion EGP . ..... 50
Figure 5. 29. Expenditure on tertiary education, Economic classification, in \% of GDP ..... 50
Figure 5. 30. Tertiary spending by university - the economic classification ..... 51
Figure 5. 31. Economic classification of tertiary spending, by institution ..... 51
Figure 5. 32. Student-teacher ratio by university in 2019-20 ..... 52
Figure 5. 33. Student teacher ratio and share of total enrollment ..... 53
Figure 5. 34. Share of enrollment and teaching staff by university ..... 53
Figure 5. 35. Student-teacher ratio ..... 53
Figure 5. 36. Student-teacher ratio by field of study ..... 53
Figure 5. 37. government spending per student across public universities ..... 54
Figure 5. 38. Total recurrent spending per student ..... 54
Figure 5. 39. Share of enrollment, staff, and spending by spending quintile in 2019-20 ..... 55
Figure 5. 40. Recurrent spending per student and total enrollment in 2019-20 ..... 55
Figure 5. 41. Education efficiency frontiers ..... 56
Figure 5. 42. Efficiency scores and STR ..... 56
Figure 5. 43. Efficiency score unit cost ..... 56
Figure 5. 44. Share of tertiary spending out of total household expenditure, by consumption quintile ..... 57
Figure 5. 45. Share of tertiary spending out of all education expenditure, by consumption quintile ..... 57
Figure 5. 46. Net Enrollment Rate by education level and consumption quintile ..... 58
Figure 5. 47. Tertiary enrollment by wealth quintile and type of institution (public vs. private) ..... 59
Figure 5. 48. Tertiary enrollment by wealth quintile and type of institution (university vs. institute) ..... 59
Figure 5. 49. Share of public spending by education level and consumption quintile ..... 59
Figure 5. 50. Budget execution by resource category ..... 60
Figure 6. 1. Egypt's population (in millions and growth rates), actual and projections for 2021-2050 ..... 67
Figure 6. 2. Fertility Rates (1990-2019) ..... 67
Figure 6. 3. Egypt's population pyramid, 2020, 2030 (projection), 2050 (projection) ..... 67
Figure 6. 4. Life expectancy at birth (2002-2019) ..... 69
Figure 6. 5. Under-5 mortality rate per 1,000 live births (1996-2019) ..... 69
Figure 6. 6. Maternal mortality ratio per 100,000 live births (2000-2017) ..... 70
Figure 6. 7. Trends in malnutrition of children under age 5 (2000-2014) ..... 70
Figure 6. 8. Life expectancy at birth by gender, Egypt ..... 71
Figure 6. 9. Neonatal, infant and under-five mortality rates (per 1000 live births) by region, 2019 ..... 71
Figure 6. 10. Percentage of deaths attributable to NCDs (\% of total deaths), 2019 ..... 72
Figure 6. 11. Probability of dying between the ages of 30 and 70 from one of the four main NCDs ..... 72
Figure 6. 12. Premature deaths due to noncommunicable diseases (NCD), proportion of all NCD deaths ..... 72
Figure 6. 13. Hep C Infection Rate per 100,000 ..... 73
Figure 6. 14. Smoking prevalence, 2018 ..... 73
Figure 6. 15. Organization of Egypt's Health System ..... 75
Figure 6. 16. Distribution of secondary and tertiary healthcare facilities and beds by affiliation, 2019 ..... 76
Figure 6. 17. Number of primary, secondary and tertiary healthcare facilities, 2010-2019 ..... 77
Figure 6. 18. Number of hospital beds, 2010-2019 ..... 77
Figure 6. 19. Hospital beds (per 1,000 people) across peers, MRV* ..... 78
Figure 6. 20. Bed occupancy rate in MoHP hospitals, (\%) 2010-2019 ..... 78
Figure 6. 21. Physicians (per 1,000 people) across peers, MRV* ..... 80
Figure 6. 22. Nurse-to-physician ratio by sector ..... 80
Figure 6. 23. Physicians (per 1000 people) by sector ..... 80
Figure 6. 24. Pharmacists and dentists (per 1000 people) ..... 80
Figure 6. 25. Share of public hospitals beds and population across governorates, 2019 (percent) ..... 82
Figure 6. 26. Share of MOHP physicians and population across governorates, 2019 (percent) ..... 82
Figure 6. 27. Number of primary health care units per 100,000 population (2019) ..... 82
Figure 6. 28. Proportion of PHC units in rural vs urban areas (by governorate) in 2019 ..... 82
Figure 6. 29. Proportion of patients using each type of care for chronic conditions and acute condition (\%) 85
Figure 6. 30. Linkage to care and treatment success rate of patients with a diagnosis of hypertension ordiabetes85
Figure 6. 31. Proportion of Pregnant Women using Maternal Health Care, by Women's Income Level and Residence ..... 86
Figure 6. 32. Indicators of maternal and child health care in primary care units from 2013 to 2019 ..... 86
Figure 6. 33. Regional variations in utilization of care and poverty ..... 86
Figure 6. 34. Government health spending as a share of total government spending and GDP ..... 87
Figure 6. 35. Global comparison of Egypt's total current health expenditure ..... 87
Figure 6. 36. Per capita spending on Health (2018) ..... 88
Figure 6. 37. Egypt's current health spending by funding sources (2000-2019) ..... 88
Figure 6. 38. Government spending on health by economic classifications ..... 89
Figure 6. 39. Government spending on health by functions ..... 89
Figure 6. 40. Government subsidy to the health sector (in LE million) ..... 90
Figure 6. 41. Government spending under functional classification of health (in nominal and real terms) ..... 91
Figure 6. 42. Time trend of government spending per capita (in real terms 2010 EGP) ..... 91
Figure 6. 43. Government health spending (under functional classification of health only) ..... 91
Figure 6. 44. OOP as a share of current health expenditure ..... 91
Figure 6. 45. Proportion of Households with Catastrophic Health Expenditure ..... 92
Figure 6.46. Catastrophic health expenditure by governorates ..... 92
Figure 6.47. Catastrophic health expenditure ..... 92
Figure 6. 48. Concentration curve of OOP ..... 92
Figure 6. 49. Reasons for not seeking care for the non-poor and poor population ..... 93
Figure 6. 50. Distribution of citizens according to their status of insurance, 2017 ..... 94
Figure 6. 51. Life expectancy vs current health spending per capita (US\$) global comparison ..... 98
Figure 6. 52. Infant mortality vs current health spending per capita (US\$) global comparison ..... 98
Figure 6. 53. Government spending on health by level of administration ..... 99
Figure 6. 54. Government spending on health per capita (excluding centrally administered programs) ..... 99
Figure 6. 55. Distribution of current health spending by functions ..... 99
Figure 6. 56. UHIS implementation arrangements by four entities ..... 101
Figure 6. 57. Egypt Health System SWOT Analysis ..... 109
List of Tables
Table 4. 1. Suggested Salary Data to be Collected and Integrated into EMIS ..... 29
Table 6. 1. Presidential Initiatives in the health sector ..... 83
Table 6. 2. Household OOP on health vs income and consumption expenditure (2017) ..... 91
Table 6. 3. Share of population (\%) covered by public and private health insurance (2017) ..... 94
Table 6. 4. Household head enrollment into health insurance schemes vs. average annual per capita OOP on health. ..... 95
Table 6. 5. Health financing of UHIS ..... 102
Table 6. 6. Analysis of anticipated UHIS implementation challenges and recommendations ..... 105
Table 6. 7. Government spending for COVID-19, EGP Billion. ..... 108
Table 6. 8. Spending on COVID-19 control and vaccination ..... 108
List of Boxes
Box 4. 1. Lessons from Argentina's selective decentralization ..... 31
Box 4. 2. Per Capita Financing of General Education in Armenia. ..... 32
Box 4. 3. Development Impact Bonds for ECE expansion ..... 34
Box 6. 1. National Family Development Program in Egypt. ..... 67
Box 6.2. Key areas of nutrition policies and global practices. ..... 70
Box 6. 3. The "100 Million Healthy Lives" Campaign has high return to investment. ..... 74
Box 6. 4. Global examples on performance-based incentives for health workforce ..... 79
Box 6. 5. The Brain Drain Challenge in Egypt's Healthcare System ..... 81
Box 6.6. Definition of government health spending ..... 88
Box 6. 7. Government health insurance schemes before UHIS ..... 94
Box 6. 8. Transition from Line-item budget to global budget as a feasible option for Egypt health system ..... 97
Box 6. 9. UHIS addresses the inefficiencies of HIO to improve UHC ..... 100
Box 6. 10. Fees and Taxation to raise revenue for UHIS ..... 102
Box 6.11. Enrolling the informal sector beneficiaries-experiences from selected countries ..... 103
Box 6. 12. Taxing Sugar-Sweetened Beverages ..... 110
Box 6.13. Egypt's recent initiatives to improve medical staff compensation and way forward. ..... 114

| Abbreviations and Acronyms |  |
| :---: | :---: |
| ALOS | Average Length of Stay |
| ARWU | Academic Ranking of World Universities |
| BCG | Bacillus Calmette-Guérin |
| BMI | Body Mass Index |
| CAPMAS | Central Agency for Public Mobilization and Statistics |
| CCIMD | Curriculum and Instructional Materials Development |
| CCO | Curative Care Organization |
| CHE | Current Health Expenditure |
| COVID-19 | Corona Virus Disease 2019 |
| CPI | Consumer Price Index |
| CS | Community School |
| DEA | Data Envelopment Analysis |
| DHS | Demographic Health Surveys |
| DIB | Development Impact Bonds |
| DPT | Diphtheria-tetanus-pertussis |
| DRG | Diagnosis-related group |
| ECE | Early Childhood Education |
| EDHS | Egypt Demographic and Health Survey |
| EGP | Egyptian Pound |
| E-JUST | Egypt-Japan University of Science and Technology |
| ELMPS | Egyptian Labor Market and Panel Survey |
| EMIS | Education Management Information System |
| ENPS | Egypt National Population Strategy |
| EPIP | Egypt First Five-Year Population Implementation Plan |
| ERF | Economic Research Forum |
| FIRE | Forum for International Research in Education |
| FTSA | Federal-Tax Sharing Agreement |
| FY | Fiscal Year |
| GAEB | General Authority for Education Buildings |
| GAH | General Authority for Healthcare |
| GAHAR | General Authority for Healthcare Accreditation and Regulation |
| GAHC | General Authority for Health Care |
| GDP | Gross Domestic Product |
| GER | Gross Enrollment Ratio |
| GHED | Global Health Expenditure Database |
| GOE | Government of Egypt |
| HIECS | Household Income, Expenditure and Consumption Survey |
| HIO | Health Insurance Organization |
| HR | Human resources |
| HRH | Human Resources for Health |
| HTA | Health technology assessment |
| IHME | Global Burden of Disease |


| IMF | International Monetary Fund |
| :---: | :---: |
| ISCED | International Standard Classification of Education |
| IT | Information Technology |
| KG | Kindergarten |
| LBW | Low Birth Weight |
| LFP | Labor Force Participation |
| LFS | Labor Force Survey |
| LMIC | Lower Middle-Income Countries |
| MENA | Middle East and North Africa |
| MOES | Ministry of Education and Science |
| MOETE | Ministry of Education and Technical Education |
| MOF | Ministry of Finance |
| MOHESR | Ministry of Higher Education \& Scientific Research |
| MOHP | Ministry of Health and Population |
| MRV | Most Recent Value |
| NCD | Non-communicable Diseases |
| NCEEE | National Center for Examinations and Educational Evaluation |
| NER | Net Enrollment Rate |
| NHA | National Health Account |
| OECD | Organization for Economic Cooperation and Development |
| OOP | Out-of-pocket |
| PAT | Professional Academy for Teachers |
| PCF | Per-Capita Financing |
| PER | Public Expenditure Review |
| PFM | Public Financial Management |
| PHC | Primary Health Care |
| POL-3 | Polio |
| PPP | Public-private partnership |
| PTES | Program for Treatment at the Expense of the State |
| QS | Quacquarelli Symonds |
| RFI | Request for Information |
| SBM | School Based Management |
| SCR | Students-classroom Ratio |
| SDG | Sustainable Development Goal |
| SES | Socioeconomic Status |
| SFP | School Feeding Programs |
| SHA | System of Health Accounts |
| SHIP | Student Health Insurance Program |
| STEM | Science, Technology, Engineering and Math |
| STEPS | STEPwise Approach to NCD Risk Factor Surveillance |
| STR | Student-teacher Ratio |
| SWOT | Strengths, Weaknesses, Opportunities and Threats |
| TFR | Total Fertility Rate |
| THE | Times Higher Education |


| THIO | Teaching Hospitals and Institutes Organization |
| :--- | :--- |
| TIMSS | Trends in International Mathematics and Science |
| TV | Television |
| UHIA | Universal Health Insurance Agency |
| UHC | Universal Health Coverage |
| UHIL | Universal Health Insurance Law |
| UHIS | Universal Health Insurance System |
| UK | United Kingdom |
| UN | United Nations |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UPA | Unified Procurement Agency |
| US | United States |
| WB | World Bank |
| WDI | World Development Indicators |
| WHO | World Health Organization |

## CHAPTER 4. EDUCATION: A ROADMAP FOR IMPROVED SECTOR PLANNING

## A. Overview of the Egyptian Education Sector

The challenges of the education system are manifested in poor learning outcomes. Despite progress, nearly one in two students reach the low international benchmark in Mathematics and Science, and about a quarter reach the intermediate level.

1. The Government of Egypt emphasizes education as a national priority. The 2014 Constitution commits to universalizing 12 years of schooling starting with primary education, supported by stipulating that pre-tertiary and tertiary spending should account for 4 and 2 percent of Gross Domestic Product (GDP) ${ }^{1}$, respectively (Egypt State Information Service 2014). ${ }^{2}$ The Constitution complements MOETE's focus on the quality of learning through Education 2.0, a 2017 strategic plan to transform education by 2030. The strategy seeks to modernize the curricula, pedagogical methods and assessment systems for all levels of education and integrate digital technology into classroom learning (Zaki Ewiss, Abdelgawad, and Elgendy 2019). Since then, MOETE has made notable achievements in enhancing the quality of education, including: (1) Developing a new Kindergarten (KG) curriculum; the rollout of a new primary curriculum is additionally underway; (2) Designing a revised national assessment for the grade 12 school exit exam that seeks to transition education away from rote learning towards higher-order critical thinking; and (3) Developing a digital learning platform and online resources in response to the COVID-19 Pandemic, with added TV education channels to accommodate students with limited access to the internet or digital devices. ${ }^{3}$
2. By number of students, Egypt has the largest education system in the MENA region. There are currently over 24 million students enrolled in pre-tertiary education, of which nearly 90 percent are in public schools. ${ }^{45}$ Nearly half of the student population in the system is enrolled in primary education, 60 percent and 70 percent more than students at the preparatory and secondary levels, respectively (Figure 4.1 a). ${ }^{6}$ This pattern is replicated in the number of teachers (Figure 4. 1b). The education sector employs just under 1 million teachers, of whom more than 40 percent are at the primary level. Non-teaching staff, which includes school management, supervisors and maintenance crews, add a further 500 thousand employees to the system.
3. Access to education is near universal at the primary and preparatory levels, but a significant share of children does not enroll in pre-primary or secondary education. The overall Net Enrollment Rate (NER) is 75 percent, an outcome of progressive policies towards universalizing education in Egypt (Figure 4. 2a). Nearly the entire primary age population is enrolled, in addition to 91 percent of preparatory-aged children. At the tail ends of the system, however, enrollment is more subdued. The pre-primary NER of 21 percent is one of the lowest in MENA (World Bank, 2021). Similarly, there is a 31percentage point drop off in NER after

[^0]the preparatory level to reach 60 percent in secondary education. ${ }^{7}$ As shown in Figure 4. 2b, the private sector is rapidly increasing provision to cover this gap, demonstrated by the annual average growth of 9 and 19 percent in private general secondary and technical schools, respectively. At the current rate, the number of technical secondary schools will double in size by 2026, highlighting the importance of ensuring that this track presents viable opportunities for students in the labor market.

Figure 4. 1. Distribution of Students and Teachers by Education Levels and Provider, 2021


Source: WB staff calculations based on MOETE EMIS
Figure 4. 2. NER and Growth Rate of Schools across Levels, 2017-2021

Panel a: NER by level of education (\%)


Source: WB staff calculations based on MOETE EMIS

[^1]4. The challenges of the education system are manifested in poor learning outcomes. The Learning Poverty report estimates that 70 percent of students are not able to read and understand an age-appropriate text at age 10. (World Bank 2019). In addition, Figure 4. 3 compares Egypt to other nations enrolled in the Trends in International Mathematics and Science (TIMSS), a nationally representative international assessment for 4th and 8th graders in mathematics and science. ${ }^{8}$ Egypt ranks in the bottom decile of countries based on the percentage of students reaching the low international benchmark for achievement in the TIMSS scoring scale. ${ }^{9}$ Nearly one in two students reach the low international benchmark in Mathematics and Science, and about a quarter reach the intermediate level. Despite this, there is a 7 percentage point increase for both 8 th grade math and science from the 2015 edition in reaching the low benchmark, and a similar improvement in reaching the intermediate benchmark.

Figure 4. 3. Percentage of Students Reaching the Low TIMSS Benchmark, 2019


Source: Trends in International Mathematics and Science Study (2019)
5. The GOE embarked on major education reform in September 2018. The reform aims at transitioning the education system away from traditional emphasis on rote learning towards acquiring higher-order critical thinking, creativity, communication, and digital skills. The reform targets 25 million students, 1.3 million teachers and non-teaching staff, and 50,000 public schools (and 10,000 private schools). The reform agenda, also known as EDU 2.0, promotes the foundations of learning starting in early grades, introduces a modernized curriculum driven by alternative television and digital learning resources, and adopts a new student assessment

[^2]system Over the last three years, MOETE has made considerable progress in implementing its reform agenda, including: (a) rolling-out the new curriculum and teacher training for Kindergarten (KG) and grades 1-4; (b) conducting a KG Diagnostic Study to identify strengths and opportunities to further strengthen KG teaching practices in the classroom; (c) developing digital and educational TV learning resources for grades 4-12; (d) developing the grade 4 national assessment framework that guided the baseline administration in December 2021, and (e) designing and administering a secondary education examinations in grades 10-12 focusing on higher order thinking skills.

## B. Education Budget Process and Adequacy of Resources

Understanding how education budgets are formulated is imperative to understanding their impact on resource use and distribution. The analysis of spending against national education priorities informs the assessment on whether resources are adequate and well spent to maximize learning outcomes.

## 1. Budget Process and Execution

6. The education budget process involves numerous national and subnational entities. The education sector has 35 budget entities for pre-tertiary education, in addition to a special entity for the Al-Azhar education track (Krafchik 2014). ${ }^{10}$ The 35 entities are subdivided into the central administration of the MOETE, 27 education directorates and 7 education service authorities. ${ }^{11}$ This section focuses on four key elements that characterize the education budget process (Figure 4. 4).
7. The process excludes defined learning and school input metrics for allocating funds. Annual budgets are strongly influenced by actual spending over the previous three years and thus result in historical allocations that are primarily determined by staff numbers in directorates. This leaves the financing of the sector highly susceptible to inefficiency and inequity, as the number of students, learning outcomes and the advancement of specific education strategies are weakly factored into how much financing schools ultimately receive.
8. The budget process is highly centralized. Limited school autonomy and the aforementioned historical approach to budgeting contribute to the deteriorating environment in public schools (Egypt Today 2018). Principals often suffer from slow responses to their maintenance requests as well as a lack of funds on the central level. Large-scale maintenance is the responsibility of the General Authority for Education Buildings (GAEB). Schools have limited autonomy as they receive financial allocations by line item which prevents principals from making independent allocation decisions.
9. There is a separate regulatory budget processes for capital education spending. Budgeting for capital spending falls under the responsibility of the Ministry of Planning and Economic Development and is implemented by GAEB. This means that the timeline for capital budgeting decisions does not necessarily match that of Figure 4. 4, and thus can result in allocations that are weakly responsive to meet population growth or school overcrowding.

[^3]10. Integrated financial and learning data is not fully utilized in the budget planning process. MOETE's statistical department operates the Education Management Information System (EMIS) which collates detailed administrative data. ${ }^{12}$ In turn, MOF compiles financial data by economic classification on the broad education sector by governorate, but does not make any distinctions by level of education or type of staff. ${ }^{13}$ Integrated data would allow MOETE and MOF to track learning outcomes against financial inputs at subnational levels of education, and thus would provide a platform for designing effective policy. A pathway forward for integrated data is discussed in the policy recommendations.

Figure 4. 4. MOF Budget Process for Education, 2021


Source: Interviews with MOF; (Krafchik, 2014)
2. Adequacy of non-financial resources
11. MOETE estimates that there is a shortage of over $\mathbf{3 2 0 , 0 0 0}$ teachers. The current context in Egypt provides a starting point for analyzing the adequacy of non-financial resources in education. Ahead of the 2021/2022 academic year, MOETE announced that it will hire teachers on short-term contracts, eligible for individuals below the age of 50 (Leila 2021). ${ }^{14}$ The impact of part-time teachers on learning outcomes is unknown, but recent research provides insights on the overall risk of burnout in systems that employ part-time teachers (Seibt and Kreuzfeld 2021). Other studies point to the discrimination endured by part-time teachers, who often find themselves locked into a cycle of never ending contracts without a clear pathway to a status change (Leigh 2014; Cau-Bareille, Teiger, and Volkoff 2019). EMIS data used for this report does not account for part-time teachers, as those should only appear in the upcoming publications ahead of the 2022/23 academic

[^4]year, but it is imperative to understand the volume of part-time teachers and their geographic distribution to observe the difference in STRs caused by their addition.
12. Teaching and classroom resources are unevenly distributed across education levels and governorates. As shown in Figure 4. 5a, the distribution and average of STRs differs considerably between levels and is most noticeable when comparing the primary and secondary levels. ${ }^{15}$ While average primary STR is 32 , it drops by 46 percent to 17 at the general secondary level. This finding is consistent sub-nationally, as primary STRs range from 1.5 to 2 times larger than secondary STRs across governorates. ${ }^{16}$ Figure 4 . 5b shows that the ratio of students to classrooms (SCR) follows a similar pattern of deviation, albeit with slightly smaller differences across education levels. ${ }^{17}$ Average SCR at the primary level is 56, dropping by 38 percent at the secondary level to reach an average SCR of 34.

Figure 4. 5. STR and SCR Box Plots across Governorates and Education Levels, 2021


Source: WB staff calculations based on MOETE EMIS. Note: The end points of a box plot represent the range of observations and box lines represent the $25^{\text {th }}, 50^{\text {th }}$ and $75^{\text {th }}$ percentile of observation
13. The resource gap between public and private schools is growing. As shown in Figure 4. 6, public primary STR overtook the private sector over the 2017-2021 period. Compared to an STR of 28 in 2017, the private primary ratio declined by 7 percent to 26 in 5 years, during which public primary STR grew by 21 percent. This pattern is repeated in SCRs, with the caveat that while STRs were similar in 2017, public primary SCR was already 44 percent higher than the private sector ratio. Over the 2017-2021 period, private primary SCR marginally declined by 2 percent to 32 , as the public sector SCR grew by 15 percent to reach 56 to take the gap between providers to over 70 percent in 2021.
14. The teaching and classroom shortage in public primary schools is likely to widen without urgent corrective action. As discussed above, more than half of the 24 million pre-tertiary students are enrolled in primary education, and as such is the focus of the simulation analysis presented in Figure 4. 7. Three scenarios are considered under the conservative assumption that the annual average growth rate in the student population over the 2017-2021 period is sustained until 2026:

[^5]- 'No Action': classroom and teacher growth continues at the 2017-2021 rate
- 'Maintenance': STR and SCR in 2026 is preserved at 2021 levels
- 'Targeted Reform': GOE targets 20 percent reduction in STR and SCR by 2026

As shown in Figure 4. 7a, under the No Action scenario only 10,000 classrooms are added by 2026 and SCR rises to 65 from a baseline of 56; under the Maintenance scenario, 50,000 classrooms are constructed to preserve the national SCR at 56; finally, under the Reform scenario 117,000 classrooms are added in 5 years to alleviate pressure on public spaces and bring the national SCR down to 45 . Similarly, Figure 4. 7b suggests that the No Action will add mounting pressure on human resources and will likely require the additional use of multiple shifts and short-term contract teachers as the national STR rises to 38, from a baseline of 32 . Under the Reform scenario, roughly two-thirds of the MOETE estimated 300,000 teacher shortage is addressed, bringing the national primary STR down to 25 . These simulations suggest that the investment-heavy task of 'catching-up' to the rising student population can be mitigated by progressive actions taken today and will be a central focus of the policy recommendations section.

Figure 4. 6. Public and Private Primary STR and SCR Growth, 2017-2021



Source: WB staff calculations based on MOETE EMIS
Figure 4. 7. Scenario Simulation of Classrooms and Teachers, 2022-2026

Classroom Simulations


Teacher Simulations


Source: WB staff calculations based on MOETE EMIS

## 3. Adequacy of financial resources

15. Spending on education is historically below the constitutional mandate. As shown in Figure 4. 8a, pre-tertiary expenditure relative to GDP has been gradually falling from a high of 2.8 percent in 2016 to 1.8 percent in 2020, less than half the mandated amount of 4 percent. The state budget documents published by the MOF reveal a unique formula to compute the share of education spending against the Constitutional mandate, which takes into account the education sector's share in the overall interest payments paid on the national public debt (14.6 percent in FY2020). ${ }^{18}$ The decline in pre-tertiary spending is also evidenced by the fall in real spending on education when calculated using constant 2010 prices; while nominal spending grew at an annual average of 11 percent between 2016 and 2020, real spending declined by an annual average of 3 percent over the same period. Although more stable compared to the pre-tertiary level, tertiary spending of 0.7 percent of GDP is similarly below the constitutional mandate of 2 percent. The opportunity cost of the annual gap to the constitutional mandate is reproduced in Figure 4. 8b, which shows that the education sector would have received a total of EGP700 billion in 5 years had the mandates for education been reached. This highlights that progressively increasing education spending can have a long-term impact towards addressing the resource shortage in education.

Figure 4. 8. Actual Education Spending and Cumulative Spending Gap, 2016-2020


Source: WB staff calculations based on MOF data
16. Egypt is gradually lagging behind international comparators in education spending relative to GDP. Although there is no linear causal link between spending and learning outcomes at higher levels of the former, Egypt would have generally been aligned with international median groupings had the 2016 level been sustained (Figure 4. 9a). By 2020, however, spending on education was between 1 and 3 percentage points lower than aggregate regional and high-performing country groupings. This lag is consistent when benchmarked against disaggregated spending by MENA countries with available data (Figure 4. 9b). The gap between Egypt and MENA median education spending as a share of GDP ( 4 percent in 2020) has widened from 0.7 percentage points in 2016 to almost 2 percentage points in 2020.

[^6]Figure 4. 9. Benchmarking Education Spending (\% of GDP), 2020 or Latest


Source: WB staff calculations based on MOF data; World Bank Education Statistics
17. Insufficient spending on education has led to the majority of funds being allocated to staff salaries. As shown in Figure 4. 10a, salaries and wages is the largest category of MOETE spending ( 92 percent), which includes teacher salaries at all levels of experience, in addition to total spending on nonteaching staff resources. Of the remaining 8 percent, 6 percent is allocated to non-personnel recurrent expenditures, of which the largest share is goods and services ( 5.6 percent), and grants and social benefits ( 0.1 percent). Nearly 2 percent of the budget is administered by GAEB for capital spending, as covered in Section 2a. Benchmarked against selected country groupings in Figure 4. 10b shows that spending on staff salaries in Egypt is 22 percentage points higher than the median of the top 10 TIMSS performers in $8^{\text {th }}$ grade mathematics, and 10 percentage points higher than the MENA median. In isolation, the 92 percent share of spending allocated to salaries could appear to signify spending inefficiency, but as previous analysis has shown that in the case of Egypt, this is likely caused by insufficient spending that could be channeled to address the resource gap in the early years of the system. This goes against a common feature of high-performing countries where spending on staff salaries does not crowd out other educational expenditures (OECD 2021)

Figure 4.10. Composition of Education Spending and Global Benchmarking, 2021

Panel a. Composition of Education Spending (\% of total)


Panel b. Benchmarking staff spending share (\%)


Note: Figure 4. 10b is based on regional medians. Source: WB staff calculations based on MOF data; World Bank Education Statistics.
18. Secondary education total salary spending per student is more than double that of the primary level. As shown in Figure 4. 11a, total salary spending per student increases progressively throughout the levels of education, peaking at EGP6,234 for technical secondary education. It is not uncommon for unit costs to differ between levels of education, but the magnitude of difference is worth highlighting. Average expenditure per student in OECD countries is 16 percent higher at the secondary level, compared to 104 percent in Egypt. As shown in Figure 4. 11b, this finding is replicated when viewed from the perspective of all staff expenditures, with one notable exception; primary spending per student goes from 13 percent below pre-primary spending when measured against teachers, to 11 percent above when measured against all staff (OECD 2021). ${ }^{19}$

Figure 4. 11. Total Teacher and Staff Salaries per Student by Education Level, 2021

Panel a: Teacher salaries per student


Panel b: Staff salaries per student


Source: WB staff calculations based on MOF BOOST; World Bank Education Statistics

## C. Equity of Education Spending

By exploring the distribution of funds across socioeconomic status groups, segments of the population where education investment would be most effective can be identified and targeted, to improve overall learning outcomes.
19. At both the preprimary and secondary levels of education, children from the wealthiest households enroll at twice rate of children from the poorest households. ${ }^{20}$ Pre-primary education is not compulsory and both public and private provision are significantly lower than the number of eligible children. As a result, only 22 percent of children from the lowest socioeconomic status households enroll, compared to 55 for the

[^7]highest. ${ }^{21}$ This is contrast to primary education, during which all families enroll at near universal levels. The drop in enrollment is again stark at the secondary level, during which 1 out every 2 children from the lowest socioeconomic status households remain in the education system, compared to nearly 90 percent of children from the highest socioeconomic status households. This is further evidenced by Figure 4. 12b, which shows that socioeconomic status and completion of preparatory education is positively correlated; nearly all children from the highest socioeconomic status households complete preparatory education, compared to only 62 percent of children from the lowest socioeconomic status households.

Figure 4.12. Net Enrollment Rate and Basic Education Completion by Level and SES, 2018


Source: WB staff calculations based on Household Income, Expenditure and Consumption Survey
20. Children from wealthier families sidestep overcrowded primary classrooms by enrolling in the private system. As shown in Figure 4. 13a, nearly 50 percent of children from the highest SES households avoid under-resourced schools in primary education by enrolling in the private system, compared to only 1 percent in the poorest SES group. Two major differences in enrollment dynamics stand out at the secondary level, as shown in Figure 4. 13b. First, the Al-Azhar track takes on a much more prominent role for all SES households, but in particular for children from the poorest households who enroll 5 times the rate of primary education. Second, whereas children from the wealthiest SES group continue to utilize the private sector, the rate of private enrollment drops at the secondary level by nearly half to 24 percent. Less crowded classrooms and more available teaching resources due to lower secondary enrollment is likely a major driver of this shift.

[^8]Figure 4. 13. Share of Enrollment by Provider Type and SES (\%), 2018

Panel a: Primary education level


Panel b: Secondary education level


Source: WB staff calculations based on Household Income, Expenditure and Consumption Survey
21. Wealthier households spend significantly more on average on private tutoring to prepare their children for high-stakes examinations. As shown in Figure 4.14a, while nearly 60 percent of children benefit from some form of family support in the first year of primary school, this progressively declines throughout the years of schooling. Private tutoring, however, is a common necessity for a large share of students and peaks at the start of the third preparatory year prior to the general preparatory high-stakes exam. At this juncture of the education system, students are sorted into secondary tracks or elect to drop out of the system. As shown in Figure 4. 14b, resources allocated to private tutoring rises linearly with socioeconomic status. Children from the highest socioeconomic status households spend 45 percent more than the children from the next highest status group, and nearly five-fold the amount of the lowest status group. The combination of these two findings suggests that while private tutoring appears necessary for successful transition through the education system, the amount and quality of private tutoring is likely disproportionately higher for children from the highest socioeconomic status families.

Figure 4.14. Utilization and Average Expenditure on Supplemental Education by SES, 2018

Panel a: Supplementary education utilization


Panel b: Average annual expenditure on tutoring


Source: WB staff calculations based on Egypt Labor Market Panel Survey
22. The opportunity cost of forgone income and low labor market returns likely causes children from poorer households to drop out of the education system prior to secondary education. This is demonstrated by Figure 4. 15a, which shows that a combined 83 percent of children from the lowest
socioeconomic status households cite lack of interest or financial necessity as the main reasons for dropping out of the system. One reason for this is presented in Figure 4. 15b, which shows that labor market returns are constrained prior to obtaining a graduate degree. The returns to completing secondary education is only 3.1 percent higher than for those who drop out after completing the preparatory level. The marginal returns for a post-secondary certificate are similarly low, but rise to 15.6 percent for obtaining a graduate degree. As demonstrated by NER calculations earlier, this likely benefits children from higher socioeconomic status households at much higher rates.

Figure 4. 15. Secondary Education Dropout Reasons and Returns to Education, 2018
Panel a. SES Group 1 cited reasons for dropping out (\%)
Panel b. Labor market returns by level (\%)


Source: WB staff calculations based on Egypt Labor Market Panel Survey and Household Income, Expenditure and Consumption Survey

## D. Summary of Key Findings and the Way Forward

23. There is considerable strain on public primary education due to a shortage in the number of teachers and classrooms. The teacher shortage is partially due to long periods of public teacher hiring freezes during a period of sustained growth in the primary student population. Similarly, the construction of classrooms has not kept up with demand for education. To manage this shortage ahead of the 2021/2022 school year, MOETE resorted to hiring temporary teachers and distributing students across multiple shifts during the day, with a yet unknown impact on the quality of learning. More recently in 2022, the GOE decided to allow for the recruitment of 30,000 per year - a total of 150,000 teachers over 5 years - while prioritizing early grades. In addition, the prolonged use of these temporary measures risks them becoming a structural part of the education system.
24. Public spending on pre-tertiary education is below the constitutional mandate of 4 percent of GDP and is declining. Spending on education relative to GDP is additionally lower than international comparators, including when benchmarked against other MENA countries. This results in a paradox in the composition of the education budget: staff salaries assume a 92 percent share of total MOETE expenditures, and yet there is an insufficient number of teachers for public primary classrooms. While this paradox suggests inefficient spending, it rather largely emanates from insufficient spending that crowds out non-personnel current and capital spending requirements.
25. The education budget process is primarily based on historical spending. This presents a significant obstacle towards linking national priorities for education with the appropriate level of resources. In addition to weakly connecting to learning outcomes and equity targets, a history-based approach limits the scope for lower levels of government to respond to urgent school needs, as the majority of spending decisions are centralized under the purview of MOETE
26. The education challenges presented in this PER manifest in the journey through the education system, with a particularly challenging period of early years schooling. As depicted in Figure 4.16, access to KG is limited to the few who can afford attending programs at a for-fee private provider, or are able to secure one of the few public spaces available. In addition to the financial barriers to entry, parental knowledge on the impact of Early Childhood Education (ECE) on lifelong learning subdues demand (Elbadawy 2015). For most students, entry into the system begins at the primary level, during which enrollment is essentially universal. There, 12 percent of children enroll in private schools to avoid the growing resource crunch in public schools. Children from wealthier households are additionally able to access higher amounts of quality private tutoring, which significantly increases the chances of entry into the general secondary track. Low returns to education cause many students to drop out of the system, and as a result, the final three years of basic education are characterized by much lower levels of STR and SCR.

Figure 4.16. Summary of the Journey

| ENROLLMENT $\underset{\text { KG }}{\text { IN }}$ | ENTRY TO PRIMARY EDUCATION | ENTRY TO PREPARATORY EDUCATION | General or TECHNCAL SECONDARY | GRaduati <br> HEINIO <br> MARRII |
| :---: | :---: | :---: | :---: | :---: |
| KP1: Limited public and non-affordable private supply constrains enrollment to children from higher socioeconomic status households | KP2: Universal access, with most students enrolled in public schools (88 percent) <br> KP3: Public spaces are crowded (SCR : 56) and understaffed (STR: 32), as opposed to the private sector (SCR: 32; STR: 26) | KP4: Large drop in STR (22) and small drop in SCR (50) <br> KP5: Children from wealthier households have greater access to private tutoring to prepare for the general preparatory exam, which determines entry into technical or general secondary | KP6: Low labor market returns, and the opportunity cost of forgone income leads to NER dropping to 60 percent | KP7: High-stakes exam determines entry to HE, primarily for general secondary students. New technological universities could open a pathway for technical secondary students. |

27. This policy recommendations presented here after are designed to be viewed from a holistic perspective (Figure 4.17). As such, they are shown in a single diagram to highlight the interplay between different reforms and how they have a multiplicative impact on improving the efficiency and effectiveness of public spending on education, and where best to leverage additional involvement of the private sector. The recommendations are also not agnostic to ongoing reforms underway at MOETE and seeks to build on them by providing specific complementary areas of support

Figure 4. 17. Summary of Public Expenditure Review Policy Recommendations


## Policy Recommendation 1

28. Expand resources to primary education. Expanding financial resources to primary education would provide the greatest returns on the overall adequacy and equity of education spending, as demonstrated by the analysis of Sections 2 and 3. First, SCRs and STRs are considerably higher during the primary years than preparatory or secondary, and thus the expansion of primary resources would have the greatest impact on lowering the overall STR and SCR figures. As a consequence, this would ease the burden on the need for multiple shifting students, or the use of temporary teachers. In addition, given that NER is near universal in the primary years, children from low socioeconomic status households directly benefit from additional public resources and thus also guarantees the highest return on the distributional equity of resources across the population. It is important to note, however, that policy recommendation 1 should be seen in conjunction with policy recommendation 2, which suggests a revision of the budget process for education to ensure that resources are targeted to the level of education and geographic areas that are most in need. Although necessitating a commitment of resources that would reverse the recent trend in education spending, expanding public funding to primary education would restore the commitment to the constitutional mandate.

## Enabling elements for achievement of policy recommendation 1

(i) Develop a framework for adding public school teachers. The GOE decision to add up to 150,000 teachers by 2027 should alleviate the growing teacher shortage gap, particularly at the primary level To maximize the impact on overall learning conditions, a framework specifying the criteria for teacher recruitment by level and governorate would support MOETE in ensuring adequate use of resources. As demonstrated above, demographic pressure leading to an increasing total enrolment of students will continue over the next 5 years, and could result in the use of temporary teachers as a structural part of the education system. The hiring of temporary teachers presents an opportunity towards ensuring that teachers are added gradually into the system in a way that safeguards the overall quality of teachers. Short-term contract teachers could receive specialized training throughout the duration of their contracts and then become the first batch of teachers to be converted to permanent contracts. This step would also communicate a clear plan of action that is likely to reduce the risk of low motivation amongst temporary teachers. The addition of public classrooms and teachers towards primary education under a reformed budget process promises to have a multiplicative effect on the ability of the education system to rebound and capitalize on MOETE's ongoing reforms in basic education.
(ii) Conduct a costing of absorbing students in overenrolled schools. In order to prioritize localities most in need, MOETE can conduct an analytical exercise that estimates the current and capital investments needed to stop the practices of hiring temporary teachers and multiple shifting classrooms. To facilitate this exercise, MOETE can expand on the well-structured EMIS by integrating financial data from education directorates. Directorates maintain (or can obtain) detailed information on education expenditures by education level and staff type. Collection of this data at the central level could be added to MOETE's annual cycle prior to production of the 5 EMIS chapters, whereby financial data could represent an internally produced Chapter 6 that covers actual expenditures. Table 4.1 suggests the implementation of a simplified data collection effort to be added to the annual planning cycle and digitized under the EMIS.

Table 4. 1. Suggested Salary Data to be Collected and Integrated into EMIS

| Data element | Official Name in Arabic | Level of reporting |
| :---: | :---: | :---: |
| Head Teacher | كبير معمين |  |
| Expert Teacher | معلم خبير |  |
| First Teacher A | معلم أول | Directorrate |
| First Teacher | معلم أول | Gender |
| Teacher | معلم | Provider type |
| Assistant Teacher | معلم مساعد | Education Level |
| School Management | إدارة مدرسية |  |
| Specialists | أخصائيون |  |
| Admin and contracted admin | إداريون وإداريون هتعاقدون |  |
| Workers | عمال |  |

Policy Recommendation 2
29. Transition the education budget process towards formula-based funding. Expanding resources towards education under a revised budget process supports the efficient use of additional funding. Although there are numerous mechanisms through which countries can transition from a history-based to a formulabased approach for financing education, the steps can be summarized in two overarching steps:
(i) Step 1: Identify main education functions to be decentralized. A prerequisite to education funding formulas is to first determine which education functions would lead to overall efficiency gains if delegated from MOETE to education directorates. Mapping out education functions against the desired level of centralization provides the foundation for a revised budget process, as it determines which categories of spending should be external to the funding formula and managed by directorates (Jeong, Lee, and Cho 2017; Dewi 2021). Two main education functions can be considered for decentralization: simple works maintenance and budgeting for goods and services at the school level. Initially, Egypt should proceed with caution to avoid the potential pitfalls of decentralization. International evidence on fiscal decentralization, particularly high-decentralization models like Community Schools and School Based Management (SBM) have mixed evidence, due in large part to being applied in unsuitable contexts (Shephard 2014; Carr-Hill, Rolleston, and Schendel 2016). Egypt's own experience with decentralization models, such as the CS pilot in 1992 and the SBM model in 2001, reemphasizes the need for limited, progressive action (Allam 2021). Box 4. 1 presents a case study of Argentina's journey of selective decentralization in education and its impact on learning, with the lessons learned from some aspects of decentralization that did not work as intended.
(ii) Step 2: Design the funding formula. The initial funding mechanism determines the level of autonomy provided to local governments based on the results of policy decision 1, thus providing the framework through which MOETE can design the funding formula, categorized into three options:
$>$ Foundation formula: under this modality, directorates receive funding based on the number of students, with adjustments for national priorities. Additional weights can be included to account for adjustments of the overall envelope, such as the number of special needs students, the number of in rural areas, or the number of students below the national poverty line. A balance, however, needs to be in place between a simple formula that risks not capturing the complexity of the system, and a more sophisticated formula that is not accessible or difficult to understand. This is a common method of fund transfer in many OECD countries, such as in Denmark and Sweden as it promotes delegated accountability and self-regulation (Gromada and Shewbridge 2016). Funding from directorates to schools can follow a similar modality.
$>$ Resource allocation formula: Resource allocation formulas base funding decisions on the aggregated cost of inputs in education. This mechanism most closely resembles the status quo of education financing in Egypt, but would require ongoing costing of resources to determine the total funding envelope for directorates. Although this mechanism ensures more centralized control of resource allocation, the cumbersome process for estimating and updating cost estimations can result in a lack of transparency and the misallocation of financial resources.
> Hybrid formula: While there is no standard definition of hybrid formulas, these modalities utilize a combination of foundation and resource allocation formulas. For example, funding can be based on the total number of enrolled students, but the cost per student is determined based on a resource allocation formula. This modality most resembles a Per-Capita Financing (PCF) model that centers on the number of students but also creates space for discretionary spending to cater for specific local needs. Box 4.2 summarizes Armenia's experience in transitioning towards a PCF modality.

## Enabling elements for achievement of policy recommendation 2

(i) Pilot a formula-based funding model. The formation of a short-term committee with representation from MOF and MOETE to oversee a formula-based funding pilot program allows for a sequential process towards reform. The pilot can either be conducted for one modality at the directorate or locality level, or can include multiple alternative modalities to leverage the lessons learned from each approach.
(ii) Conduct PFM debottlenecking analysis. The World Bank's FinEd Toolkit seeks to help countries assess which aspects of the Public Financial Management (PFM) system need to be improved in order to increase the effectiveness of education spending in promoting better learning outcomes. The toolkit was designed to improve PFM by setting realistic targets and bridging the gap between MOETE and MOF. The toolkit can be a precursor for further reform in budgeting by gathering the necessary stakeholders and assessing the options for decentralizing and funding formulas. The methodology adopts a bottom up approach to examine service delivery challenges from the perspective of a school at the frontline of the education system. This is where the service delivery impact of PFM bottlenecks is most visible and measurable. The methodology is explicitly designed to aid education authorities formulate a realistic and impactful reform plan based on the findings of the assessment The toolkit offers a 5-step detailed approach to addressing bottlenecks, of which this PER greatly supports the first 3 steps:

- Step 1 - Mapping out the basic education sector
- Understanding how the sector is currently organized
- Identify main service delivery and value for money challenges
- Review of institutional structure
- Step 2 - Identifying and prioritizing constraints to service delivery
- Identify constraints for service delivery at the school level for key drivers of learning
- Corroborate information obtained in step 1
- Step 3 - Identifying the proximate causes (bottlenecks)
- Determine key causes for bottlenecks
- Review budgeting, planning, monitoring and procurement systems
- Step 4 - Identifying the underlying root causes
- Availability of data for planning
- Establishment of an accountability structure
- Political economy
- Step 5 - Preparing an action plan to address bottlenecks
- Mapping of short-term action items and long-term objectives


## Box 4. 1. Lessons from Argentina's selective decentralization

Until 1992, Argentina's education system operated two parallel secondary tracks, one at the provincial level and the other by the federal government. after which the central government decentralized all secondary schools to the provincial level. The decision to decentralize was part of a slate of structural reforms in the 1990s that centered on privatization and reducing the role of the central government across various sectors of the economy. Delegation of school authority took place periodically over a two year period ending in 1994; at its conclusion, over half the secondary school population switched from federally run schools to autonomous, provincial schools.

Negotiations between the federal and state governments guaranteed that Province-run schools would not assume any financial burden from the transfer. This guarantee was upheld via the Federal-Tax Sharing Agreement (FTSA), which used a formula-based funding approach to calculate the share of each Province from total federal revenues. Through this process, responsibility for several key education functions was additionally delegated, such as current and capital expenditures, staff management, teacher training, and budget and planning. The immediate evidence from decentralization suggested that success was contingent on local capacity to absorb the additional student. In some Provinces that had low institutional capacity relative to the federal government, decentralization led to political backlash as local Provincial governments discouraged the formation of local school councils or attempts to support local decision-making by the central government.
Decentralization brought some success, but not for all. Overall results on standardized exams showed an improvement of 3.5 percent in Mathematics, and 5.4 percent in Spanish. Average results obfuscate a key difference by level of municipal poverty, however, as non-poor communities exhibited a significantly large improvement, while poor communities had the opposite effect, falling substantially after decentralization. Several possible reasons are possible for this finding, most prominent of which is the unequal political power some communities had compared to others, which influenced their ability to extract larger amounts of resources, due to their stronger representation in local political offices. In addition, children from wealthier households had parents that were able to use their stature, time, and ability to form parent associations and closely monitor teachers in their communities.
The case of Argentina presents significant lessons learned for Egypt, and further evidence the importance of approaching reform with caution and a long-term view. This enables deeper consideration towards equity measures, the absence of which are often a strong driver for the unraveling of decentralization efforts.
(Fazekas 2018)

## Box 4. 2. Per Capita Financing of General Education in Armenia

In the 1990 s, Armenia was suffering from a rapidly deteriorating education system and a severe lack of resources. Compared to other countries with similar levels of income, Armenia had a relatively high enrollment rate at the primary level which, similar to Egypt, declined significantly at the secondary level. Education spending was unevenly distributed across schools and as such, some schools had idle classroom capacity and others were overcrowded. An economic recession that subsequently cut education expenditure from 8 percent of GDP to 1.2 percent in 1994 prompted the Ministry of Education and Science (MOES) to initiate a national education strategy in 1997 with per capita financing as a major reform area, introduced primarily to address the fiscal problems in the sector.

A World Bank supported pilot in 154 schools was scaled nationwide, and Armenia adopted Per-Capita Financing (PCF) as a tool to ensure greater school autonomy, improve accountability in management, improve cost-effectiveness and help eliminate staff redundancy. Led by the inter-ministerial Working Group on Education Finance and Management, the reform was based on a formula built on the analysis of inputbased budgets for the pilot schools. A simple formula based on a linear regression with two components was constructed as follows:

$$
\begin{aligned}
& \text { Total School Budget }=A \times N+B \\
& \text { Where: } \\
& A=\text { Per student unit cost } \\
& N=\text { Number of students } \\
& B=\text { Fixed cost (informally called 'maintenance costs') }
\end{aligned}
$$

The structure of the formula was consistent over time, but revisions were made on an annual basis to reflect changes in unit costs. The formula was later adjusted to include different weights for schools in high mountainous areas due to different budget and consumption patterns (for example, those areas had larger salary rates for teachers and higher fuel consumption in winter). Although aware that having a simple formula has the risk of not capturing the complexity of the system, MOES opted for increased transparency in the short run.

PCF contributed to substantial internal efficiency gains The PCF led reform resulted in a STR increase from 10.8 in 2003 to 13.9 in 2006, while also gradually optimizing the number of staff across levels and schools. This freed resources which then allowed the government to increase average teacher salaries by almost 400 percent. In terms of equity, PCF did not achieve meaningful gains mainly because the funding formula never adjusted the weights for the higher costs of educating disadvantaged students or ethnic minorities. The formula did relatively well on the transparency and accountability metrics with more schools gaining autonomy and ownership over their financial management (yet there were some cases of school budgets being negotiated which compromised some degree of efficiency and transparency).

## Policy Recommendation 3

30. Universalize access to KG. This policy recommendation is presented last because it is designed to be viewed in conjunction with expanding resources to primary education under a revised budget process. While the impact on efficiency and equity of the system is not immediate, universalizing access to KG through public and private provision would increase both the likelihood of children being more prepared for primary education, and the likelihood of staying longer in the education system (Heckman 2019; Greeley 2014; Krafft 2015). This creates the platform for increased enrollment in secondary education, particularly for children from lower socioeconomic status groups who access KG at lower rates and are more likely to drop out of the system,
thus substantially impacting the equity of public financial resources. Universalizing KG also capitalizes on MOETE's progress in establising a Quality Assurance System for ECE in Egypt, which will standardize quality metrics to be used for licensing and accreditation of ECE providers and thereby ensuring that any expansions adhere to a set of pre-defined quality metrics for the public and private sectors. Ensuring that children begin their interaction with the education system early can have lasting impacts, and with making the commensurate investments in expanding primary level resources, this can greatly suport the ability of children of successfully navigate the preparatory phase of education into general secondary. Successful reform at the KG and primary levels would complement the reform currently underway in national assessments and the development of secondary education. Although this recommendation focuses on the provision of ECE, it is important to note that, particularly for more marginal socioeconomic groups, increasing awareness of the benefits of early education will have a compounding effect on enrollment.
31. The private sector can play a key role in universalizing access to KG. Given the low current rate of pre-primary enrollment, there is less of an urgency for expansion of public funding as is the case in primary education. As such, there is a clearer pathway towards leveraging the private sector through Public-Private Partnerships (PPP) in KG provision. As discussed in section 1, nearly 88 percent of primary provision is from the public sector, and the private sector is already growing at high rates in secondary education. This presents an opportunity for PPPs at a lower risk on equity, as it avoids the need to transition students from public primary classrooms to private schools. In addition, incentivizing private provision of KG through PPP models can be targeted towards areas of most need. As discussed below, there are numerous modalities that can explored that would also allow for expanded public provision, particularly in more rural areas that would not provide enough of an incentive for the private sector.

Enabling elements for achievement of policy recommendation 3
(i) Develop a PPP Modality for Private Sector Expansion. The development of a PPP modality is necessary for private sector expansion, as it would lay the rules of engagement, the expected outcomes, and the financing mechanism for achievement of universal enrollment along with areas of potential public sector expansion. Several PPP modalities exist for education across the world and although a full discussion of the merits of each is beyond the scope of this PER, Box 4.3 summarizes the growing result-based modality of Development Impact Bonds (Kabli, Rizzello, and Trotta 2021; Lazzarini 2020; Larasati et al. 2015; World Bank, n.d.).
(ii) Conduct a costing of universalizing access to KG through public and private provision. A necessary pre-condition of deciding on a scope of PPPs in education is conducting a complete demand and supply analysis of ECE provision in Egypt. The majority of the information needed is already available either through MOETE EMIS, or can be obtained through the Government's traditional data collection channels from education directorates, and can be used to compile a school-level master dataset on public and private provision of ECE. Feasibility analysis is then divided as follows:

- Step 1: Current captured and uncaptured demand:_this part would quantify the total supply of KG classroom by locality against total enrollment by type of provider, and use disaggregated population statistics for 4 and 5 year-old children to determine total captured and uncaptured demand. It is important that this analysis is conducted by locality to minimize the risk of discounting the large transportation burden on families to reach a KG provider in their community
- Step 2: Capacity for public sector absorption in existing schools: two key pieces of information are delivered in this part. First, analysis of total enrollment by classroom can be used to quantify how many seats are unutilized. Together with results from part 1 above, this can be used to sum up the total surplus, if any, of KG spots by locality. Second, education directorates can conduct a data collection effort to determine how many classrooms can be added or refurbished in existing public
schools. Given the huge over crowdedness issues described earlier in primary schools, MOETE can consider the ability of secondary schools to absorb additional students.
- Step 3: Conduct a request for information (RFI) survey from the private sector:_The final piece of the analytical puzzle is to understand the physical ability of the private sector to absorb additional students either in existing classrooms or by constructing an adjacent classroom within existing facilities. The RFI can additionally be used to calculate total current operating costs for private providers, which can be later used to estimate the average teacher salary needed to attract additional teachers.

32. Increasing resources towards primary education and universalizing KG would set Egypt on a path to a complete sector overhaul. Universalizing access to KG education would complete the reform of the 412 age category that covers pre-primary and primary education under an adaptive and metric-budget process.

## Box 4. 3. Development Impact Bonds for ECE expansion

Development Impact Bonds (DIB) sit at the intersection of PPP models and results-based financing. Although the specific details differ depending on the type of project, the below figure represents the overarching structure of any DIB. The stakeholders under a DIB are numerous, but can be condensed into three main categories: investors, service provider and outcome funders. The outcome funder, which can either be a government entity or a consortium of international development partners and a government entity, pays investors upon the achievement of agreed upon results. In the case of ECE expansion, outcome funders can pay against increased enrollment achieved. Investors absorb all the risk and technical effort of operating a DIB, and in turn sign agreements with service providers (in this case, a private KG provider or group of providers). Upon achievement of results, the outcome funder is then responsible for payouts against achieved results, plus an interest to cover the risk. Other actors not shown in the figure include technical assistance providers, independent verification agencies to confirm results, and lawyers specialized in PPP modalities.

DIBs focus on outcomes, and have a high chance of success if implemented correctly. By focusing on outcomes, DIBs inherently build a culture of monitoring and evaluation, and incentivize collaboration between several entities who all benefit from achievement of results. Implementation of DIBs in Egypt has a high chance of success given the small current ECE market, especially at the KG1 level.

## References

Allam, D. 2021. "Explaining the Persistence of 'Decentralisation' of Education in Egypt." International Journal of Educational Development. https://doi.org/10.1016/j.ijedudev.2021.102357

Assaad, R. 2013. "Equality for All? Egypt's Free Public Higher Education Policy Breeds Inequality of Opportunity." In Is There Equality of Opportunity under Free Higher Education in Egypt? (Arabic), edited by Asmaa Elbadawy, 83-100. New York, NY: Population Council.

Assaad, R., and Caroline Krafft. 2015. "Is Free Basic Education in Egypt a Reality or a Myth?" International Journal of Educational Development 45: 16-30. https://doi.org/10.1016/j.ijedudev.2015.09.001

Carr-Hill, R., C. Rolleston and R. Schendel 2016. "The Effects of School-based Decision-making on Educational Outcomes in Low- and Middle-income Contexts: A Systematic Review." Campbell Systematic Reviews. https://doi.org/10.4073/csr.2016.9

Cau-Bareille, D., C. Teiger, and S. Volkoff. 2019. "Revealing the Hidden Processes behind Discrimination against Part-Time Teachers in France: A Lever for Improving Their Situation." In Advances in Intelligent Systems and Computing. https://doi.org/10.1007/978-3-319-96065-4_29

Dewi, A. 2021. "Curriculum Reform in the Decentralization of Education in Indonesia: Effect on Students' Achievements." Cakrawala Pendidikan. https://doi.org/10.21831/cp.v40i1.33821

Egypt State Information Service. 2014. "Constitution of The Arab Republic of Egypt (English Translation)." 2014.

Elbadawy, A. 2015. "Education in Egypt: Improvements in Attainment, Problems with Quality and Inequality." The Egyptian Labor Market in an Era of Revolution.

Greeley, B. 2014. "The \{Heckman\} \{Equation\}: \{Early\} \{Childhood\} \{Education\} \{Benefits\} \{All\}." Bloomberg.Com.

Gromada, A., and C. Shewbridge. 2016. "Student Learning Time: A Literature Review." OECD Education Working Papers, No. 127.

Heckman, J. 2019. "Giving Kids a Fair Chance." In Giving Kids a Fair Chance. https://doi.org/10.7551/mitpress/9781.003.0001

Jeong, D., H. Lee, and S. Cho. 2017. "Education Decentralization, School Resources, and Student Outcomes in Korea." International Journal of Educational Development. https://doi.org/10.1016/j.ijedudev.2016.12.003

Kabli, A., A. Rizzello, and A. Trotta. 2021. "Roadmapping New Impact Bonds in a Post-Covid World: Insights from Case Studies in the Education Sector." Sustainability (Switzerland). https://doi.org/10.3390/su13084121

Krafchik, W. 2014. "A Guide to the Egyptian Budget." https://www.internationalbudget.org/wp-content/uploads/A-Guide-to-the-Egypt-Budget.pdf

Krafft, C. 2015. "Increasing Educational Attainment in Egypt: The Impact of Early Childhood Care and Education." Economics of Education Review. https://doi.org/10.1016/j.econedurev.2015.03.006

Larasati, A., K. Varada, S. Nugroho and W. Itagaki. 2015. "Enhancing Early Childhood Education and Development Through Social Impact Bond: A Case Study of Indonesia." Academia.Edu.

Lazzarini, S. 2020. "Social Impact Bonds in São Paulo’s State Public School System: New Modality of PublicPrivate Partnership in Brazil: Commentary." Education Policy Analysis Archives. https:/ /doi.org/10.14507/epaa.28.5248

Leigh, J. 2014. "I Still Feel Isolated and Disposable': Perceptions of Professional Development for Part-Time Teachers in HE." Journal of Perspectives in Applied Academic Practice. https://doi.org/10.14297/ipaap.v2i2.105

Leila, R. 2021. "Dealing with Shortages: Temporary Teachers." AhramOnline, 2021. https://english.ahram.org.eg/NewsContent/50/1201/423999/A1Ahram-Weekly/Egypt/Dealing-with-shortages-Temporary-teachers.aspx

OAMDI. 2013. "Labor Market Panel Surveys (LMPS), Version 2.1 of Licensed Data Files; ELMPS 2012. Egypt: Economic Research Forum (ERF)." http://www.erf.org.eg/cms.php?id=erfdataportal
——. 2014. "Harmonized Household Income and Expenditure Surveys (HHIES). Version 2.0 of Licensed Data Files; HIECS 2004/2005 - Central Agency for Public Mobilization and Statistics (CAPMAS). Egypt: Economic Research Forum." 2014. http://www.erf.org.eg/cms.php?id=erfdataportal

OECD. 2021. "Education at a Glance 2021." https://www.oecd-ilibrary.org/docserver/b35a14e5en.pdf?expires=1636461763\&id=id\&accname=ocid195787\&checksum=C3FC6492F59D2120EF8840FA926 95ACA

Seibt, R., and S. Kreuzfeld. 2021. "Influence of Work-Related and Personal Characteristics on the Burnout Risk among Full-and Part-Time Teachers." International Journal of Environmental Research and Public Health. https://doi.org/10.3390/ijerph18041535

Shephard, D. 2014. "Nonformal Education for Improving Educational Outcomes for Street Children and Street Youth in Developing Countries: A Systematic Review." International Journal of Social Welfare. https://doi.org/10.1111/ijsw. 12080

World Bank. n.d. "World Bank Signs Agreement to Launch New Social Impact Bond." 2019. https://www.worldbank.org/en/news/press-release/2019/02/19/world-bank-signs-agreement-to-launch-new-social-impact-bond
—— 2019. "Egypt, Arab Republic Learning Poverty Brief." https:/ /pubdocs.worldbank.org/en/628301571223583690/MNA-MNC03-EGY-LPBRIEF.pdf

Zaki E., F. Abdelgawad, and A. Elgendy. 2019. "School Educational Policy in Egypt: Societal Assessment Perspective." Journal of Humanities and Applied Social Sciences. https://doi.org/10.1108/jhass-05-2019-004

## CHAPTER 5. HIGHER EDUCATION: MEETING A GROWING DEMAND AND CAPTURING OPPORTUNITIES

## A. Overview of the Higher Education Sector

Enrollment in higher education has increased, with public universities absorbing the majority of students, given the high cost of private education. A disproportionate share of enrollment in humanities and social sciences reflects the working of the university admission system.

## 1. An increasing demand for higher education

33. Egypt has achieved tremendous progress in expanding access to higher education over the last five decades, but tertiary enrollment rate remains below the MENA region average. In 1972, Gross Enrollment Ratio (GER) in tertiary education stood at 7 percent. By 2018, the tertiary GER increased to 39 percent (Figure 5. 1). The increase in tertiary enrollment was particularly high among females, resulting in eliminating the gender gap in tertiary GER. Despite these large gains, Egypt's tertiary enrollment is still below the average for the MENA region (Figure 5. 2). In 2018, for example, Egypt's Tertiary GER was well below Algeria, and Iran as well as some aspirational non-MENA countries such as Malaysia and Poland. Unlike many other MENA countries, enrollment rates for males and females in Egypt are very close (Figure 5. 3).

Figure 5. 1. Tertiary Gross Enrollment Ratio by Gender in Egypt (1971-2018)


Figure 5. 2. Tertiary Gross Enrollment Ratio (2018)


Note: GER is defined as the ratio of total enrollment in tertiary education, regardless of age, to the population in the 5year age group immediately following secondary education. Source: World Bank. Education Statistics Database.

Figure 5. 3. Tertiary Gross Enrollment Ratio by gender in 2018


Source: World Bank. Education Statistics Database
34. Humanities and social sciences account for the majority of students enrolled in tertiary education, owing to the university admission system. In 2019-20, for example, almost two thirds of tertiary students (64 percent) were enrolled in the fields of Education (12 percent), Business, Management, and Law ( 32 percent), and Arts and Humanities ( 20 percent). In contrast, the share of enrollment was only 3 percent in Agriculture and related fields, 5 percent in Information and Communications Technology and 9 percent in Engineering, Manufacturing, and Construction. The disproportionate share of enrollment in humanities and social sciences is a result, in part, of the university admission system which historically has placed students into fields of study based on their track at the secondary level as well as their performance on the secondary education exit examination. ${ }^{22}$ High-scoring students attend top fields of study such as Medicine, Engineering, and Pharmacology, whereas the majority of secondary students enroll in fields that require lower scores on the school exit examination, such as Law, Commerce, and Arts. Overall, females represent a large majority of students enrolled in humanities and social sciences whereas male students comprise an overwhelming majority of students enrollment in Engineering, Information and Communications Technology, and Business, Law, and Management. ${ }^{23}$

## 35. Egypt is one of the top three destinations for international students studying in the MENA region,

 following United Arab Emirates and Saudi Arabia (Figure 5. 6). There were more than 50 thousand international students enrolled in Egyptian institutions in 2016, according to the most recent data. Despite the high number of international students, Egypt's inbound mobility rate, i.e., share of international students out of total tertiary[^9]enrollment, is among the lowest in the region (Figure 5. 7). The low inbound mobility rate provides an opportunity to attract more international students, especially given the relatively low cost of higher education, and cost of living in general, in Egypt relative to other major destinations in the region. In fact, increasing inbound mobility has become a top priority for MOHESR. ${ }^{24}$ Over the last few years, MOHESR has introduced several reforms to increase enrollment of international students, including designing a new admission platform, simplifying the admission requirements for these students, revising the legal framework for international universities, and developing partnerships with international universities to establish branch campuses in Egypt.
Figure 5. 4. Tertiary enrollment by field of study, 2019-20 Figure 5. 5. Enrollment by field of study and gender, 2019-20


Source: CAPMAS. 2020a. Annual Bulletin of Student Enrolled - Teaching Staff Higher Education 2019/2020. Classification of fields of study is based on the 2013 International Standard Classification of Education (ISCED) published by UNESCO Institute of Statistics (UNESCO 2014).

Figure 5.6. Total inbound internationally mobile students in Figure 5. 7. Inbound mobility rate in 2020 or most recent 2020 or most recent data



Source: UNESCO Institute for Statistics.

[^10]
## 2. What type of institutions do Egyptian students attend?

36. The past six years in particular witnessed a rapid expansion in total enrollment, with public institutions accounting for most of this increase. Between 2014-15 and 2019-20, the number of students enrolled in tertiary education increased by almost three quarters of a million, from 2.6 million to 3.3 million students (Figure 5. 8). ${ }^{25}$
37. Public institutions continue to enroll the majority of students, while the expansion of private institution remains impeded by many factors. The share of student enrollment in public institutions has been relatively stable around 79 percent between 2015-16 and 2019-20 (Figure 5. 9). Public universities and Al Azhar account for the overwhelming majority of students attending public institutions (Figure 5. 10). Meanwhile, enrollment in private higher education institutions comprises a small share of total tertiary enrollment in Egypt. ${ }^{26}$ In 2019-20, for example, only 22 percent of tertiary students were enrolled in private institutions, of which 65 percent in private high institutes. Private universities account for a small share of private tertiary enrollment. In 2019-20, 207,154 students were enrolled in these institutions, representing only 28 percent of private enrollment. Egypt's private enrollment share is among the lowest in the MENA region (Figure 5. 11), indicating a limited role of private sector in service provision. The low share of private enrollment in Egypt could be attributed to the relatively high cost of private institutions especially private universities, ${ }^{27}$ the limited supply, ${ }^{28}$ and the strict governance structure of higher education. ${ }^{29}$ Given the growing demand for higher education and the mounting pressure on public resources, the small share of private enrollment presents an opportunity for expanding the sector and providing more choices for students. This would require, however, improving the governance structure of higher education in order to give institutions more flexibility in admission, program offerings, financing, curriculum design and developing partnerships with the private sector.
[^11]Figure 5. 8. Total enrollment in tertiary education


Figure 5. 9. Share of total tertiary enrollment by sector (\%)


Figure 5.10. Share of enrollment by sector and institution
Figure 5.11. Private enrollment share in tertiary education in 2020


Source: CAPMAS. 2020a. Annual Bulletin of Student Enrolled - Teaching Staff Higher Education 2019/2020, World Bank. Education Statistics Database. Private Higher Institutes are institutes that offer 4-year degrees, equivalent to a university degree, whereas Various Institutes and Technical Institutes offer 2-year technical diploma. Both public and private institutes offer programs in a specific specialization to undergraduate students. In contrast, Academies award degrees in a select number of specializations for both undergraduate and post-graduate students.

## B. The Quality of Higher Education

Strong participation in labor force, but high unemployment for women and recent graduates and a mismatch between skills and actual occupations. Insufficient funding limits the production of quality research.
38. Measuring quality of higher education is a complex task that relies on various proxies of impact and performance. A commonly agreed approach is to measure the employability of graduates and the relevance of the skills acquired compared to the job markets' needs. This can however be complicated by the fact that labor market outcomes of higher education graduates are directly influenced by the structure and
dynamism of the labor market, but also because such outcomes are seldom tracked by universities. Another way to look at the quality of tertiary institutions is to measure research output. Finally, various rankings are established that can provide additional benchmarking information.

## 1. Graduates' skills and labor market outcomes

39. Labor market outcomes of higher education graduates are not tracked by universities in Egypt. As a result, the analysis presented in this section relies heavily on labor survey data to examine the labor market outcomes of higher education graduates such as labor force participation and unemployment.
40. University graduates have the highest labor force participation (LFP) rate ${ }^{30}$ among all education groups in Egypt. According to the 2019 labor force survey, 73 percent of the prime working age population ${ }^{31}$ with university degree or above participated in the labor force compared to 66 percent for those who attended post-secondary education institute, 60 percent for individuals with technical secondary education and 46 percent for those with general secondary education. There is a substantial gap in LFP rates between males and females, especially among individuals with low educational attainment. On average, only 15 percent of women with secondary education or less participated in the labor force in 2019 compared to 93 percent of men. yet, the gender gap in LFP among university graduates was 46 percentage points in 2019, which is considerably smaller than the gap for other education-level groups (Figure 5. 12).

Figure 5. 12. Labor force participation rate by education group in 2019 (prime working age)


Source: 2019 Labor Force Survey, CAPMAS
41. With this strong participation in labor force, unemployment is highest among higher education graduates in Egypt particularly for women and recent graduates. Among the prime working age population (age 25-54), individuals with university degree or above have the highest unemployment rate across all education groups (Figure 5. 13). In 2019, for example, 13 percent of individuals with university degrees or above were unemployed, which is considerably higher than the rate among individuals with secondary, preparatory, and primary education. Moreover, women tend to have much higher unemployment rate as 23 percent of women with university degree were unemployed in 2019 compared to only 9 percent of men. Yet, this gender gap in unemployment is greater among individuals with secondary education.

[^12]42. Unemployment rate is also higher among recent university graduates. Data from the 2019 LFS suggests that unemployment rate is highest among those who graduated within the four years prior to the survey, i.e., 2015 to 2018. For instance, 55 percent of individuals who graduated from university in 2018 were unemployed, compared to 39 percent in 2017, 36 percent in 2016, and 29 percent in 2015.

Figure 5.13. Unemployment rate by education level in 2019 (prime working age)


Figure 5. 14. unemployment rate by graduation year


Source: 2019 Labor Force Survey, CAPMAS
Source: 2019 Labor Force Survey, CAPMAS
43. The high rate of unemployment among tertiary graduates can be attributed to both demand and supply-side factors. The decline in the share of public sector employment, the weak labor market and the large share of informal economy are key drivers behind the rising unemployment rate. For instance, the share of employment in the public sector, historically the largest employer in the country, has significantly declined from 35 percent in the early 2000s to 21 percent in 2017.32 This decline was not compensated by the formal private sector jobs, resulting in an increasing size of the informal economy. ${ }^{33}$ Furthermore, most of the employment gains over the last 20 years were concentrated in routine occupations which target mainly secondary level and non-tertiary graduates. ${ }^{34}$ For example, between 1998 and 2018, routine occupations increased by 67 percent compared to only 14 percent for cognitive occupations. ${ }^{35}$ On the supply side, the large increase in the supply of university graduates, and the concentration of graduates in humanities and social science, has contributed to the rising unemployment rate. ${ }^{36}$ In 2018-19, for example, 61 percent of total tertiary graduates graduated from Business, Management, and Law (30 percent), Arts and Humanities (14 percent), Education (12 percent), and Social Science, Press, and Media (5 percent).

[^13]Figure 5.15. Share of total graduates by field of study, 2018-19


Source: CAPMAS. 2020b. Annual Bulletin of Higher Education and Higher Degrees Graduates 2019.
Figure 5. 16. Employment by occupation type among tertiary graduates in 2019 (prime working age)


Source: CAPMAS, 2019 Labor Force Survey.
44. A significant share of tertiary graduates in Egypt work in occupations for which they are overqualified. In 2019, for example, almost a third of tertiary graduates ( 31 percent) were employed in occupations that do not require high skills (Figure 5.16). The share of graduates working in occupations that do not match their skill sets varies significantly by field of study. Figure 5. 17 divides occupations into three main categories based on their educational attainment and skills requirements ${ }^{37}$ : a) high-skill occupations that require tertiary education such as legislators, senior officials, managers, professionals, technicians and associates, b) mid-range occupations that mostly require non-tertiary vocational and technical education such as craft workers, machine operators, and clerks, and c) low-skill occupations that require secondary education or lower such as skilled agriculture, services, and elementary occupations. For each field of study, Figure 5. 17 displays the share of employment by occupation category. Overall, share of graduates working in occupations that match

[^14]their skill sets is the highest among graduates who have degrees in health and engineering-related fields such as Medicine, Pharmacy, Nursing, Manufacturing, and Construction. In contrast, a substantial share of graduates with degrees in Services, Science, and Religious Education work in mid-range and low-skill occupations.

Figure 5. 17. Employment by field of study and type of occupations in 2019


Source: 2019 Labor Force Survey. Data is presented for prime working age population (individuals aged 25 to 54)

## 2. Research Output

45. Egypt's research output has increased substantially over the last decade, but insufficient funding remains an obstacle. In 2020, the number of citable documents has reached 31 thousand publications, more than a triple of the number reached in $2010(9,221)$. Despite this large expansion, Egypt underperforms most countries in the MENA region with respect to its research output when compared to its large population (Figure 5. 19). The limited production of quality research could be attributed to several factors including lack of adequate funding for research (Figure 5. 20), low capacity of teaching staff, and poor conditions of university equipment, labs, and university facilities in general (OECD, 2010). More detailed data on research output, funding, and staff capacity by university is essential to understanding the challenges hindering research production in Egypt. ${ }^{38}$

Figure 5. 18. Number of research documents and citable documents in Egypt (2010-2020)


Source: Scimago Journal and Country Rank. 2020. Available at:
https://www.scimagoir.com/countryrank.php

[^15]Figure 5. 19. Number of citable documents per million population in 2020


Source: Scimago Journal and Country Rank. 2020. Available at:
https://www.scimagoir.com/countryrank.php

## 3. University rankings

46. University rankings are often used as a proxy to measure quality of tertiary education across countries. These rankings, however, have several limitations such as the tendency to focus on hard science, arbitrary choice of weights and indicators, and the general inconsistencies in ranking universities across indicators. Due to these limitations, results from these rankings should be interpreted with caution. That said, Egypt's universities are represented in the top 1000 universities in all four major rankings of universities, including the Shanghai Academic Ranking of World Universities (ARWU), the Times Higher Education (THE) World University Rankings, the QS World University Ranking, and the Webometrics Rankings. For example, in 2021, 7 Egyptian universities ranked in the top 1000 in the ARWU ranking, 12 in the top 1000 in the THE ranking, 4 in the top 1000 in the QS ranking, and 3 universities in the top 1000 in the Webometrics ranking. In that respect, Egypt tends to outperform most countries in the MENA region in the number of universities ranked in the top 1000 across all four major ranking but still lags behind high-performing MENA countries such as Iran and Israel as well as aspirational non-MENA countries such as Poland and Turkey.

Figure 5. 20. Expenditure on research and development ( $\%$ of GDP)


Source: UNESCO Institute for Statistics

Figure 5. 21. Number of universities ranks in the top 1000 in the ARWU ranking in 2020-21


Source: Shanghai Academic Ranking of World Universities (ARWU). Available at http://www.shanghairanking.com/

## C. The Adequacy, Efficiency, And Equity of Resource Allocation

47. Higher education spending absorbs a decent share of total spending on education but remains insufficient, with a declining trend in real per student spending. The large investment in establishing new technological and national non-profit universities, together with the decline in real government expenditure on wages, will have major implications for the sector. Inequities in access to higher education reflect large socioeconomic gap.

## 1. Government spending on higher education ${ }^{39}$

48. After several years of a declining trend, government expenditure on tertiary education has started to pick up but remains lower than regional comparators. In FY2020, it accounted for 0.7 percent of GDP ${ }^{40}$, up from 0.6 percent in FY2019. Despite that increase, the share of tertiary spending, relative to the size of the economy, is still below the 2016 levels (Figure 5. 22). Furthermore, Egypt's spending on tertiary education as a share of GDP is lower than the average share for OECD countries, but also lower than its regional comparators and other aspirational peers such as Poland and Malaysia (Figure 5. 23).

Figure 5. 23. Expenditure on tertiary education (\% of GDP, 2020 or most recent year)


Figure 5. 22. Share of expenditure on tertiary education


Source: WB staff calculations based on MOF BOOST data; World Bank Education statistics

Figure 5. 24. Expenditure on tertiary education (\% of total education spending, 2020 or most recent year)


Source: WB staff calculations based on MOF BOOST data; World Bank Education statistics

[^16]49. While absorbing a decent share of the total spending on education ${ }^{41}$, current levels of tertiary spending are actually low compared to other MENA countries. This is due to the low education spending in Egypt, relative to the size of the economy, and the rapid expansion of enrollment. ${ }^{42}$ Specifically, whereas per student spending has increased substantially in nominal terms over the last five years, real per student spending ${ }^{43}$ has been declining as a result of inflation. ${ }^{44}$ Between FY2016 and FY2020, nominal per student spending rose from EGP 7,581 to EGP 11,847 whereas real spending fell from EGP 4,248 to EGP 3,908. Moreover, in FY2016, per student spending constituted 25 percent of GDP per capita. By FY2020, this share has decreased to only 20 percent (Figure 5. 25). Egypt's per student spending on higher education is the second lowest in the MENA region (Figure 5. 26).

Figure 5. 25. Total spending per student in Egypt


Figure 5. 26. Per student tertiary expenditure as \% of GDP per capita in 2019 (or most recent year)


Source: MOF BOOST data and World Bank Education Statistics Database.
50. Public universities tend to rely heavily on the government funding to cover their expenses. In FY2020, for example, public treasury represented, on average, 84 percent of total revenues in public universities. There is, however, a substantial variation across universities in their dependence on public funding. Universities with large shares of enrollment such as Cairo, Alexandria, Ain Shams, and Mansoura tend to rely less on public funding given their relatively large share grants, own resources, and special funds. In FY2020, special funds represented more than a third of total revenues in Cairo Universities ( 34 percent), 37 percent in Alexandria University, 30 percent in Ain Shams University, and 32 percent in Mansoura University. Across most universities, own resources ${ }^{45}$ comprised a very small share of revenues. The only exceptions are Matrouh University, Cairo University and Arish University where own resources accounted for 14 percent, 6 percent, and 4 percent of total university revenues, respectively.

[^17]Figure 5. 27. Funding sources by University in FY2020


Source: MOF
2. Recent trends in government spending
51. A key feature of government expenditure on tertiary education in Egypt is the large expansion of capital spending in FY2020. During that year, real expenditure on capital investment totaled EGP 4.1 billion, a massive increase from EGP 1.9 billion in FY2019. Capital spending has also increased as a percentage of total tertiary spending and relative to the size of the economy. In FY2020, capital spending on tertiary education increased to absorb almost the third ( 31 percent) of total spending on higher education, up from 18 percent in FY2017. The substantial increase in capital spending was driven in large part by large investments in both the Egypt-Japan University of Science and Technology (E-JUST) ${ }^{46}$ and the establishment by the MOHESR of new technological ${ }^{47}$ and national non-profit universities. In FY2020, MOHESR and E-JUST accounted for a total of EGP 6.2 billion in capital spending, which constituted more than 50 percent of total government spending on capital investments during that year ${ }^{48}$.
52. The large investments in establishing new technological and national non-profit universities will have major implications for the governance, financing, and structure of the higher education sector in the country. In theory, expanding access to these universities have several potential benefits including providing students with more education opportunities, reducing pressure on public institutions, and increasing overall competitiveness of the higher education sector. Achieving these benefits would require, however, putting in place measures to ensure equity in access to the new universities in order not to exacerbate the already large socio-economic gaps in tertiary enrollment ${ }^{49}$, and improve the ability of public universities to compete with the new universities, especially with respect to recruitment and retainment of teaching staff. ${ }^{50}$

[^18]Figure 5. 28. Real government expenditure on tertiary education, Economic classification, in Billion EGP


Figure 5. 29. Expenditure on tertiary education, Economic classification, in \% of GDP


Source: WB staff calculations based on MOF BOOST data, IMF's World Economic Outlook. Real government expenditure is calculated using 2010 constant prices.
53. Unlike capital spending, real government expenditure on wages has slightly declined over the last four years, from EGP 7.2 billion in FY2017 to EGP 7.1 billion in FY2020. ${ }^{51}$ Due the large increase in capital spending, share of spending on salaries and wages declined substantially during the same period, from 67 percent to 55 percent of total tertiary expenditure, equivalent to a decline from 0.5 percent to 0.4 percent of GDP. 52
54. The share of salaries and wages vary substantially across institutions due to variation in student enrollment, number of teaching staff, and capital spending. For example, in FY2020, salaries and wages dominated tertiary spending in universities with most student enrollment such as Zagazig University, Helwan

[^19]University, Assuit University, and Ain Shams University. In contrast, share of salaries and wages was smaller in newly established universities located in border governorates such as Matrouh University, Arish University, and New Valley University. These universities tend to have low student enrollment and high levels of capital spending. For instance, salaries and wages comprised only 11 percent only of spending in Matrouh University, 21 percent in Arish University, and 22 percent in New Valley University.

Figure 5.30. Tertiary spending by university - the economic classification


Source: WB staff calculations based on MOF BOOST data


Source: WB staff calculations based on MOF BOOST data

## 3. Efficiency of tertiary spending

55. The misalignment between student enrollment and teaching staff across public universities and faculties, in addition to the wide variation in per student spending, result in inefficiencies. The majority of public universities are inefficient, and could deliver the same number of graduates even if resources are reduced by half.
56. Differences in student-teacher ratios (STR) across universities reflect some inefficiencies in the allocation of higher education resources. At the tertiary level, the average STR (students per teaching staff member) ${ }^{53}$ of 45 masks a substantial variation across public universities and across faculties. STR in Alexandria University (48:1), for instance, is almost twice the STR in Cairo University (25:1), even though the two universities account for a very similar share of tertiary enrollment ( 8 percent). Similarly, El Menia University, Souhag University, and South Valley University take up the same share of total enrollment (3 percent) but have very different STR (Figure 5. 32).
57. The variation in STR is driven by differences across universities in number of teaching staff, type and number of programs offered, and general inefficiencies in resource allocation. For example, there is a misalignment between student enrollment and teaching staff across many public universities. In 2019-20, Cairo University accounted for only 8 percent of total tertiary enrollment but 15 percent of total teaching staff in public universities. In contrast, Helwan University comprised 9 percent of total enrollment but only 6 percent of total teaching staff.

Figure 5. 32. Student-teacher ratio by university in 2019-20


Source: CAPMAS. 2020a. Annual Bulletin of Student Enrolled - Teaching Staff Higher Education 2019/2020
58. Student-teacher ratio also varies significantly across faculties. The Faculties of Law and Commerce tend to have, on average, a very high STR compared to other faculties, indicating a higher level of crowdedness. In 2019-20, for instance, there were 372 students per teaching staff member in the Faculty of Commerce and 621 students per teaching staff member in the Faculty of Law. In contrast, STR was 18:1 in the Faculty of Dentistry, 17:1 in the faculty of Veterinary Medicine, and only 5:1 in the Faculty of Medicine. ${ }^{54}$ This variation in STR across faculties is mainly driven by enrollment imbalances across these faculties, resulting from the university admissions system at the secondary education level. Faculties of Medicine, engineering, and Pharmacy tend to admit only the very top performers in high school, based on their

[^20]school exit examination score. Other Faculties such as Commerce and Law admit tens of thousands of students each year due to its lower requirements for the school exit examination scores.
59. Even within the same fields of study, there are substantial differences in STR across public universities. In 2019-20, STR for the Faculty of Medicine ranged from only 2:1 in Ain Shams University to 65:1 in Kafr El Sheikh University. Similarly, for the Faculty of Dentistry, there were 7 students for each teaching staff member in Cairo University compared to 120 students per each teaching staff member in South Valley University. STR in the Faculty of Pharmacy varied also from 17:1 in Helwan University to 207:1 in Souhag University.

Figure 5. 33. Student teacher ratio and share of total enrollment


Source: MOHESR
Figure 5. 35. Student-teacher ratio in select faculties


Figure 5.34. Share of enrollment and teaching staff by university


Figure 5. 36. Student-teacher ratio by field of study 2019-20


Source: MOHESR. Figure 5.36 shows average STR across faculties whereas Figure 5.37 presents the distribution of STR for the same faculties across universities, using a boxplot. The end points of a boxplot represent the range of observations and box lines represent the 25th, 50th and 75 th percentiles of observations.
60. Per student spending varies substantially across public universities in Egypt. In FY2020, the difference between the top spending university per student (Matrouh University) and the lowest spending university (South Valley University) was more than EGP 50,000. In general, differences in unit cost reflect variation across universities in levels of capital spending, types, and number of faculties/programs, STR, and costs of providing services in general. For example, the high unit costs in Matrouh (EGP 57,941), New Valley (EGP 54,624), and Arish Universities (EGP 50,907) are mostly driven by large capital spending in these universities, which represented 83 percent of total spending in Matrouh University, 71 percent in New Valley University, and 76 percent in Arish University.

Figure 5. 37. government spending per student across public universities


Figure 5.38. Total recurrent spending per student


## Source: MOHESR and MOF

61. Variation in unit cost across public universities also reflect large inefficiencies in the allocation of resources. There is a misalignment between tertiary spending and student enrollment. Figure 5. 39 divides universities into five quintiles based on total spending per student. As shown, average per student spending in the top quintile (EGP 13,493) is more than two times average spending in the lowest quintile (EGP 5,962 ) even though universities in the lowest quintile account for a greater share of both student enrollment and number of teaching saff. For example, universities in the top quintle account for only 10 percent of total
enrollment but more than 20 percent of total tertiary spending. In contrast, universities in the lowest quintile constituted 32 percent of enrollment but only 18 percent of tertiary spending. Data at the university level shows similar misalignment between per student spending and student enrollment (Figure 5. 40).


Figure 5. 40. Recurrent spending per student and total enrollment in 2019-20


Source: MOHESR and MOF
62. A Data Envelopment Analysis (DEA) ${ }^{55}$ was used to assess the internal efficiency of public universities in Egypt. The DEA analysis was based on two input indicators (total spending per student and student-teacher ratio) and one output indicator (number of graduates ${ }^{56}$ ). The results of the DEA analysis show large inefficiencies across public universities in Egypt. ${ }^{57}$ The average efficiency score is only 44 percent, suggesting that, on average, public universities in Egypt could achieve the same level of output (i.e., number of graduates) even after reducing their inputs (i.e., tertiary spending) by 56 percent. Furthermore, only four universities are fully efficient, i.e., have an efficient score of 100 percent: Cairo University, Ain Shams University, Zagazig University and Helwan University. The majority of public universities are inefficient, with many of them scoring considerably below the average. For example, the efficiency scores for Suez University (8 percent), New Valley University (3 percent), Arish University (3 percent), and Matrouh University (2 percent) are more than a standard deviation below the average efficiency score. Many of Egypt's low-efficiency universities could substantially increase their number of graduates with the same level of public spending.

[^21]Figure 5. 41. Education efficiency frontiers


Source: MOF and MOHESR
63. There is a negative correlation between per student spending and efficiency of public universities. High spending universities, such as Arish University and Suez University have very low efficiency scores. However, at any given level of per student spending, there is a substantial variation in efficiency scores across universities. For example, Kafr El Sheikh University, Tanta University, and Zagazig university have similar levels of per student spending, but their efficiency scores are very different. Similarly, STR is negatively correlated with efficiency scores. Universities with high STR such as Sadat University, Damanhour University and Kafr El Sheikh University have very low efficiency scores whereas universities with relatively small STR such as Cairo and Zagazig university have higher efficiency scores.

Figure 5. 42. Efficiency scores and STR


Figure 5. 43. Efficiency score unit cost


Source: MOF and MOHESR

## 4. Equity of tertiary spending

64. Although public higher education is free in Egypt, households contribute significantly to financing the education of their children through out-of-pocket expenditure. These may cover registration fees, books, transportation, and other living expenses; they represent on average, 3.8 percent of total household expenditure and 58 percent of total household spending on education. The share of household spending on higher education varies significantly across families with different socio-economic background. Households from the top consumption quintile tend to spend considerably more on higher education than families from the bottom quintiles. For example, among households in the top consumption quintile, 6 percent of total household expenditure goes to higher education compared to only 2 percent among households in the bottom two quintiles. The large socio-economic gap reflects systematic inequities in access to higher education across households from different backgrounds (Krafft \& Alawode 2016). In general, families from disadvantaged backgrounds tend to enroll their children in higher education at much lower rates than other families, which is due mainly to financial constraints, low expectations of children, and negative perceptions about the benefits of higher education. ${ }^{58}$

Figure 5.44. Share of tertiary spending out of total household expenditure, by consumption quintile


Figure 5. 45. Share of tertiary spending out of all education expenditure, by consumption quintile


Source: Egypt's 2018 Household Income, Expenditure and Consumption Survey (HIECS)

[^22]65. Individuals from poor households. i.e., those from the bottom consumption quintile, are much less likely to enroll in tertiary education than those from more advantaged backgrounds. Data from the Egypt's 2018 Household Income, Expenditure and Consumption Survey (HIECS) shows a 39 percentage-point difference in Net Enrollment Rate (NER) in tertiary education between individuals in the lowest consumption quintile and those in the top quintile. Specifically, NER at the tertiary level was 19 percent among households in the lowest consumption quintile compared to 51 percent in the fourth quintile and 58 percent for individuals in the top quintile. Moreover, among households in the bottom quintile, NER in tertiary education is the lowest across all educational levels. In primary education, for example, NER among households in the bottom quintile was 93 percent compared to only 19 percent for tertiary education.

Figure 5.46. Net Enrollment Rate by education level and consumption quintile


Source: Egypt's 2018 Household Income, Expenditure and Consumption Survey (HIECS)
66. The large socio-economic disparities in access to tertiary education is due, in large part, to significant disparities in access to general secondary education, the main pathway to university. ${ }^{59}$ Many poor families decide not to send their children to secondary education because of financial constraints, high opportunity cost, or low expectations for children. NER in secondary education was only 48 percent among households in the bottom quintile, which is substantially lower than the 88 percent for the top quintile (Figure 5. 46).
67. A smaller share of individuals from the bottom wealth quintile attends private institutions compared to individuals from the top quintile. Figure 5. 47 and Figure 5. 48 present type of institution attended by individuals with tertiary education across different wealth quintiles. This is based on the results from the 2018 Egyptian Labor Market and Panel Survey (ELMPS). As shown, only 7 percent of individuals in the bottom wealth quintile attended private institutions compared to 11 percent of individuals in the fourth quintile and 13 percent of individuals in the top quintile (Figure 5.47). ${ }^{60}$ Moreover, students from the bottom wealth quintile are more likely to attend religious universities, i.e., Al Azhar, than those from the top quintile. In 2018, 11 percent of individuals in the lowest quintile attended religious tertiary education compared to only 5 percent in the top wealth quintile. Overall, public universities account for the largest share of enrollment across all wealth quintiles, with slightly larger share of students from the top wealth quintile attending private universities (Figure 5. 48). The small share of enrollment in non-public institutions among individuals from disadvantaged background suggests that the mere expansion of national non-profit tertiary education, without a comprehensive student aid system, will likely exacerbate the already large socio-economic gap in access to higher education.

[^23]Figure 5. 47. Tertiary enrollment by wealth quintile and type of institution (public vs. private)


Source: The 2018 Egypt Labor Market Panel Survey.
68. Spending on higher education is the least equitable among all education levels. A Benefit Incidence Analysis shows a substantial gap in share of public spending on tertiary education across households from different socio-economic backgrounds. Figure 5. 49 presents the share of tertiary spending by education level and consumption quintile. The bottom consumption quintile accounts for only 10 percent of spending in tertiary education compared to 31 percent for the top quintile. This is due mainly to the low enrollment rate in tertiary education among poor households.

Figure 5.48. Tertiary enrollment by wealth quintile and type of institution (university vs. institute)


Figure 5.49. Share of public spending by education level and consumption quintile


Source: Egypt's 2018 Household Income, Expenditure and Consumption Survey (HIECS)

## D. Public Financial Management Considerations

Funding allocation is not linked to any performance-based outcomes or system-level objectives. Actual spending consistently exceeds the budgets in total and across various spending categories
69. Public funding of tertiary education in Egypt is based on historical allocations and negotiations between public higher education institutions and the Ministry of Finance. Each year, public institutions prepare their own budgets based on actual spending in the last three years, their current and future needs including staffing and investment plans, and costs of providing services. These institutions, then, submit their budgets directly to the Ministry of Finance (in case of public universities) or to the MOHESR (in case of technical institutes and new technological and national non-profit universities ${ }^{61}$ ). There is no clear link

[^24]between funding allocation and any input-based indicators such as student enrollment, performance-based outcomes such as graduation rates, on-time graduation, or system-level objectives. Furthermore, most public funding is allocated to cover non-discretionary spending such as staff salaries and wages.
70. The budget for higher education is consistently over executed, with actual spending consistently exceeding budget allocations. For example, in FY2020, actual spending on wages and capital investment, the two largest spending items, exceeded budgeted spending by 11 percent and 47 percent, respectively. The discrepancy between actual and budgeted spending is persistent over time and across all spending categories. Figure 5.50 presents budget variance, i.e., the ratio of actual spending to budgeted spending during the fouryear period between FY2017 and FY2020. In general, spending on support, grants, and social benefits tends to have the highest budget variance compared to all other categories. In FY2020, actual spending on this category exceeded budgeted spending by 132 percent. The consistent high budget variance overtime indicates inaccurate budgeting which could be attributed to the limited capacity of higher education institutions in the area of budget preparation and forecasting.

Figure 5. 50. Budget execution by resource category


Source: MOF. Budget variance represents the ratio of actual spending to budgeted spending

## E. Key Findings and The Way Forward

71. Egypt's tertiary education system has increasingly come under pressure due to the rapid expansion of enrollment over the last few decades, the insufficient government spending to keep pace with the growing demand, and the strict governance structure that provides higher education institutions with very little autonomy in resource mobilization and utilization. This section presents key policy recommendations to improve access to tertiary education, enhance the efficiency and equity of resource allocation, and improve graduates' labor market outcomes.
1) Develop a new funding strategy for the higher education sector that includes:
a. Objective, transparent, and predictable criteria for allocation of public funding across higher education institutions. Government funding is not currently linked to any performance-based outcomes or system-level objectives. Rather, it is determined mainly based on historical basis and negotiations between individual public higher education institutions and the Ministry of Finance. This has resulted in the persistence of large inefficiencies across institutions. A new funding mechanism that focuses on results and performance in higher education could lead to large improvements in the efficiency of funding allocation and quality of higher education.

- Specifically, the new funding mechanism should include a link between public financing of higher education and measures of performance such as quality of education, graduates' learning and employment, research productivity, as well as relevance and impact on local and national development. This new approach could be implemented through a funding formula or performance contracts.
- The funding formula could include a mix of input-based indicators, such as enrollment, as well as performance-based measures such as completion rate, on-time graduation, and graduates' employment. Performance contracts could be implemented through negotiations where MOHESR and potentially MOF discuss with each university a multiannual performance agreement and funding envelop. These agreements should take into account differences in disciplinary costs and quality across institutions.
- Shifting from a funding approach based on line-item budget to a funding mechanisms may require reforming the current legal environment of higher education financing in Egypt which emphasizes historical/incremental funding. It will also require collecting data on key sector outcomes such as completion rate and graduates' labor market outcomes which are not currently available in addition to putting in place strong monitoring and quality assurances systems to ensure the proper implementations of the new funding mechanism.
- Furthermore, the new funding approach should be implemented gradually, e.g., in a small-scale pilot that includes few universities and/or a portion of public funding. This may reduce the resistance to changing current funding mechanisms, provide policymakers with sufficient time to build support for the new funding mechanism among key stakeholders, and identify any implementation bottlenecks that might hinder the new mechanisms.
b. Cost-sharing mechanisms, i.e., mechanisms to shift some of the cost burden of higher education from state budget to students and higher education institutions. Egypt's higher education institutions are heavily dependent on public funding to cover their expenses. Given the steady rise in demand for higher education and limited ability of government spending to keep pace with this rising demand, new cost-sharing arrangements should be explored.
- A key objective of these cost-sharing mechanisms would be to incentivize public institutions to increase their non-governmental revenues. This is implemented internationally through matching funds and/or capacity building programs as well as regulatory changes to ensure that public institutions are able to generate and properly spend their revenues.
- Annex 5.1 presents a variety of financing mechanisms that could be used to enhance funding for higher education including performance-based funding, matching funds, competitive grants, and student loans. Each type of these financing mechanisms serves a different purpose. Therefore, a combination of these mechanisms could be used. For example, matching funds could be used to improve the research productivity of higher education institutions. Similarly, competitive grants could be used to enhance the relevance, quality, and research productivity of programs in high priority areas.
- It should be noted also that, similar to formula-based funding, some of these funding mechanisms may require reforming the legal environment of financing higher education in Egypt.
c. Clear mechanisms to ensure equality of opportunity in access to the new national non-profit universities, especially among students from disadvantaged backgrounds, i.e., from bottom wealth quintiles. Given the large socio-economic gap in access to tertiary education, it is essential that these new universities provide equal access to all qualified students regardless of their financial needs or socio-economic backgrounds. This could be implemented through a comprehensive student financial aid system that includes a mix of needs-based scholarships/grants, student loans, and work-study programs. These mechanisms could be used to target specific type of students (e.g., students from poor families) or steer students into specific programs (e.g., female students into STEM fields).


## 2) Expand access to private institutions, especially private universities.

Private institutions account for a very small share of tertiary enrollment in Egypt. In 2019-20, the share of private enrollment was only 22 percent, which is among the lowest in the MENA region. The low private enrollment is driven by several factors including the limited supply of private institutions, the high costs of attending these institutions and the strict governance structure of the higher education sector. To increase private enrollment in higher education, the following steps should be considered:
a) Develop predictable regulations of the private sector. Private provision of tertiary education is strictly regulated with private institutions having very limited financial and institutional autonomy.
Furthermore, current laws and regulations governing the private sector are ambiguous, cumbersome, and inefficient.
b) Provide private institutions with flexibility in determining fees, admission, and program offerings. For example, private institutions should be able to set up their own admission criteria, provided that these criteria are objective, predictable and transparent. In addition, the increased autonomy of the private sector should be accompanied by strong and predictable monitoring and quality assurance systems to ensure quality of serviced provided by these universities.
c) Provide targeted financial aid to qualified students from middle and low-income families to encourage them to attend private institutions. Examples of this financial aid include student loans, scholarships, and grants.
d) Allow all universities, including private universities, access to competitive research funding.
3) Reform the university admission system to steer students into high employability programs.

The Egyptian higher education system suffers from a chronic oversupply of graduates in low employability fields, driven in large part by the current university admission system. Specifically, selection into higher education is based solely on students' score on the secondary education exit examination, which results in concentration of large share of students in low employability fields. Aligning the university admission system with labor market needs is essential to improve outcomes of higher education graduates. This would require:
a. Identifying and enhancing the capacity of programs with high labor market demand. This would require collecting systematic and regular data at both the national and institutional levels on the labor market outcomes of graduates, e.g., through tracer studies. This data will be essential to inform the review and design of tertiary programs and identify areas for improving the quality of these programs, understand the experiences of tertiary graduates in the labor market and identify any skill shortcomings, and improve the career choices of tertiary students and provide them with relevant information on the labor market needs.
b. Provide higher education institutions with flexibility in program offerings. Currently, public higher education institutions have limited flexibility in designing programs, especially at the undergraduate level, that respond to the diverse needs of students and changing demands of the labor market. Considerations might be given to increasing partnerships with the private sector, e.g., local employers and industry associations, to enhance the labor market relevance of the university programs and improve employability of graduates.
4) Enhance the research capacity and output of universities. Relative to population size, Egypt's research output is well below most countries in the MENA region. To improve the quality of research output, Egypt should consider the following:
a. Conduct an in-depth analysis of research capabilities of universities, including capacity of teaching staff, available funding for research, and main factors hindering the research productivity of universities.
b. Provide incentives to universities and teaching staff to increase their research productivity, through targeted funding, such as matching funds, and competitive grants, and performance-based incentives.
c. Improve the research infrastructure of universities, including labs, equipment, and facilities.
d. Encourage collaborations across universities by providing incentives to establish research clusters.

# Annex 5.1. Examples of Funding Mechanisms in Higher Education ${ }^{62}$ 

## Funding mechanism Description

| Line-item budgets | Funding is allocated to finance specific item/activities. Under this approach, <br> higher education institutions have very limited flexibility in distributing funding <br> internally and are subject to a high level of financial control. Few countries follow <br> this approach. |
| :--- | :--- |
| Block grants | Funding is allocated to higher education institutions through block grants. In <br> some system, such as Australia and New Zealand, higher education institutions <br> have complete control over the management of these block grants, i.e., there are <br> no restrictions on how these institutions can distribute funds. In other systems, <br> such as Sweden and Iceland, block grants are divided into broad categories such <br> as teaching, research, and operations cost with institutions having some flexibility <br> in moving funds within the same category. It should be noted that this funding <br> mechanism would require a) strong monitoring and quality assurance systems to |
|  | assess the performance and b) high capacity of higher education institutions in <br> managing their own funds. |
| Funding allocation is based on a formula, that includes input-based indicators <br> such as enrollment and number of staff; output-based indicators such as <br> completion rate, retention rate, and graduates labor market outcomes; or a mix of of <br> both input-based and output-based indicators. This approach is commonly used <br> in countries such as England, United States, Denmark, and Netherland. A key |  |
| advantage of this approach is that it provides incentives to institutions to |  |
| improve their performance. However, it might lead to several unintended |  |
| consequences. For example, linking funding to enrollment might encourage |  |
| institutions to focus on quantity of over the quality of learning. Similarly, linking |  |

[^25]| Students' scholarships and grants | Funding is directed towards students instead of institutions. It is often intended <br> to cover the costs of higher education, especially in private institutions or public <br> institutions in countries where higher education is not free such as United States. |
| :--- | :--- |
|  | There are two broad types of scholarships/grants: needs-based (where eligibility |
| is based on students' financial need) and merit-based scholarships (where |  |
| eligibility is based on some measure of student performance). This mechanism is |  |
| often used to increase enrollment among a specific subgroup of students, e.g., |  |
| disadvantaged students, or in certain high priority areas. |  |


| Student loans | Students' loans are loans designed to help students cover the costs of attending <br> higher education including tuition, fees, and living expenses. These loans tend to <br> have a very low interest rate compared to the market rate and are usually <br> guaranteed by the government. Students' loans are commonly used in United |
| :--- | :--- |
| States, China, Canada, Australia, and England. |  |

## References

Ghada Barsoum. (2014). Aligning Incentives to Reforming Higher Education in Egypt: The Role of Private Institutions. The Economic Research Forum (ERF), Egypt.
Caroline Krafft and Halimat Alawode. (2016). Inequality of Opportunity in Higher Education In the Middle East and North Africa. The Economic Research Forum (ERF), Egypt.
Central Agency for Public Mobilization and Statistics. (2019). Annual Bulletin of Student Enrolled - Teaching Staff Higher Education 2018/2019
——. (2020a). Annual Bulletin of Student Enrolled - Teaching Staff Higher Education 2019/2020
——. (2020b). Annual Bulletin of Higher Education and Higher Degrees Graduates 2019.
Dilip Parajuli, Dung Kieu Vo, Jamil Salmi, Nguyet Thi Anh Tran. (2020). Improving The Performance Of Higher Education In Vietnam. The World Bank.

Economic Research Forum. Egypt's Labor Market Panel Survey, ELMPS 2018. Available at: http://www.erfdataportal.com/index.php/catalog/157\#metadata-disclaimer copyright.
——. Egypt, Arab Rep. - Household Income, Expenditure, and Consumption Survey, HIECS 2017/2018 2017. Available at: http://www.erfdataportal.com/index.php/catalog/168

Fahim, Y., \& Sami, N. (2011). Adequacy, Efficiency and Equity of Higher Education Financing: The Case of Egypt. Prospects, 41, 47-67.
Fatma Abdelkhalek, Ray Langsten. (2019). Track and Sector in Egyptian Higher Education: Who Studies Where and Why?. FIRE: Forum for International Research in Education Vol. 6, Iss. 2, 2019, pp. 45-70
Fatma El-Hamidi. (2020). Employment polarization and deskilling of the educated in Egypt. Economic Research Forum. Available at: https://theforum.erf.org.eg/2020/08/08/employment-polarisation-deskilling-educated-egypt/
IMF. Consumer Price Index. Available at: https://data.imf.org/?sk=4FFB52B2-3653-409A-B471D47B46D904B5
Jill Johnes. (2006). Data envelopment analysis and its application to the measurement of efficiency in higher education, Economics of Education Review, Volume 25, Issue 3, Pages 273-288,
Khalid Abu-Ismail and Salim Araji. (2020). Getting the private sector to generate decent jobs in Arab countries. Economic Research Forum. Available at: https://theforum.erf.org.eg/2021/11/21/getting-private-sector-generate-decent-jobs-arab-countries/
OECD. (2008). Tertiary Education for the Knowledge Society: Volume 1 and Volume 2, OECD Reviews of Tertiary Education, OECD Publishing, Paris, https://doi.org/10.1787/9789264046535-en.
_-. (2010). Reviews of National Policies for Education: Higher Education in Egypt in 2010. Available at: https://www.oecd-library.org/education/reviews-of-national-policies-for-education-higher-education-in-egypt-2010 9789264084346 -en

- . (2019). Education at a Glance 2019: OECD Indicators, OECD Publishing, Paris, https://doi.org/10.1787/f8d7880d-en.
——. (2020). Resourcing Higher Education: Challenges, Choices and Consequences, Higher Education, OECD Publishing, Paris, https://doi.org/10.1787/735e1f44-en.
Ragui Assaad and Ghada Barsoum. (2019). Public employment in the Middle East and North Africa. IZA World of Labor 2019. Available at: https://wol.iza.org/articles/public-employment-in-the-middle-east-and-north-africa/long
Ragui Assaad, Caroline Krafft \& Shaimaa Yassin. (2020). Job creation or labor absorption? An analysis of private sector job growth in Egypt, Middle East Development Journal, 12:2, 177207, DOI: $10.1080 / 17938120.2020 .1753978$
Santiago Herrera and Abdoulaye Ouedraogo. (2018). Efficiency of Public Spending in Education, Health, and Infrastructure: An International Benchmarking Exercise. Policy Research Working Paper
UNESCO. (2014). ISCED Fields of Education and Training 2013 (ISCED-F 2013). UNESCO Institute for Statistics Montreal, Quebec, Canada.
World Bank. (2021). Egypt Higher Education Policy Note Series: Sustainable and Equitable Financing for Higher Education. Unpublished work.
__. (2021). Egypt Higher Education Policy Note Series: Employability and Relevance of Higher Education Graduates. Unpublished work.
——. Education Statistics (EdStats). Available at: https://datatopics.worldbank.org/education/
Yong-bae Ji and Choonjoo Lee. Data Envelopment Analysis in Stata. The Stata Journal. Available at: https://www.cgdev.org/sites/default/files/archive/doc/stata/MO/DEA/dea in stata.pdf


# CHAPTER 6. A REVIEW OF HEALTH SPENDING: RESOURCES, OUTCOMES AND THE ROAD AHEAD 

## A. Overview of the Health System Outcomes

Rapid population growth and an increasing burden of NCDs weigh against the progress achieved on health outcomes, hereby increasing the need to intensify prevention efforts and improve access to quality treatment.
72. Egypt's population has grown rapidly over the last decade and is expected to significantly grow in spite of declining growth rate and total fertility rate (TFR). Egypt's population surpassed 100 million in 2017 and exceeded 102 million in 2021 (Figure 6. 1). The population grew at an average annual rate of 2.1 percent between 2010 and 2020, compared to 1.8 percent in the previous decade (WDI, 2021). The total fertility rate (TFR) increased from 3.0 births per woman in 2008 to 3.5 births per woman in 2014 and slowly decreased to 3.3 in 2018, significantly above the replacement fertility rate of 2.1 births per woman (Figure 6. 2). The TFR in Egypt is also significantly higher than the rates observed in other lower middle- income countries and higher than the MENA region average of 2.8 births per woman. There are also differences within the country, with the fertility rate significantly higher in rural areas ( 3.8 births per woman) than in urban areas ( 2.9 births per woman). The country's high fertility rate has resulted in a population pyramid with a wide base, with children aged under fifteen and five representing 32 percent and 11 percent of the population, respectively (Figure 6.3). If the current trends continue, by 2050, Egypt's population is expected to reach close to 160 million.
73. The demographic transition and population policy will have a huge impact on the economy, the health system in the future, and the broader social welfare system. Healthy population growth is a key contributor to the expansion of labor force and economic growth. Rapid population growth, however, will lead to a high dependency ratio in the next decade, and risks diluting the economic growth in per capita terms, limiting employment opportunities, and exerting significant pressure on the social welfare and health systems. Annex 6. 1 presents some scenarios for declining fertility rates as opposed to prevailing ones, together with their implications for per capital growth. Results suggest that a lower fertility rate will lead to savings in public expenditures on social sectors. They also suggest that on the contrary, without more ambitious population policy, Egypt's economic growth will be diluted by the rapidly growing population.
74. The Government of Egypt (GoE) has considered the rapidly growing population represents a major threat to the country's development and has recently launched the "Developing the Egyptian Family" Program (Box 6. 1). The program has a holistic approach of the needed enabling activities that would allow Egypt to achieve its demographic dividend. The program focuses on 5 main pillars, namely: (i) Female economic empowerment, especially in the age group of 18 to 40 by supporting the access of those women to Small and Medium Enterprises (SMEs) through financing and training; (ii) Service provision through enhanced family planning and making available a wide range of family planning services in health centers and hospitals; (iii) culture awareness, (iv) legal; and (v) digitalization. There has also been considerations on using financial incentive scheme to provide financial support disbursed to families that follow certain criteria (eg: 2 children maximum, have regular checks on women health such as breast cancer checks, reproductive health checks; other criteria include attending the "Mashoora" or "Marital Advice" course prior to marriage. In addition, the Egypt National Population Strategy 2015-2030 (ENPS 2015-2030) ${ }^{63}$ has outlined detailed strategies and

[^26]program targets. Many of these plans are still in early phase, and will require strong budget support and implementation capacity to achieve the intended population development targets.

Figure 6.1. Egypt's population (in millions and growth rates), actual for 2000 and projections for 2021-2050

Figure 6. 2. Fertility Rates (1990-2019)
(births per woman)


Source: WDI, UN Population Division (2020) and projections

Figure 6. 3. Egypt's population pyramid, 2020, 2030 (projection), 2050 (projection)


Source: World Bank.2021. The Economic Impact of Population Growth in Egypt, policy brief

## Box 6. 1. National Family Development Program in Egypt

Stakeholders: Led by the Prime Minister and a host of other entities including Ministry of International Cooperation (MoIC), Ministry of Local Development (MoLD) and Ministry of Planning (MoP) among other ministries and alongside other councils: National Council for Women (NCW), National Population Council (NCP) and National Council for Motherhood and Childhood (NCMC)
Objective: Raise the quality of life of the Egyptian family (a multi-faceted approach and not just about birth control) Lifespan: 3 years [2021-2024]
Funding: National funding. Budget has been approved for the services pillar on reproductive health and family planning activities, however, the budget for other pillars are not yet approved. Central budget held at MoP level. The President gave green light to find external sources of finance. New sources cite: EGP2.9 billion (USD 185 million)
Geographic reach: Operations in the same nine governorates as Haya Karima, at least for the first year - since both projects share the same objective. The poorest governorates in 2019 HEICS are the ones with the highest fertility rate: Assuit, Sohag Qena, Menia, Luxor, Aswan, Giza, Sahrqia, Daqahliya

## Project 5 Pillars:

I. Economic Pillar:

- Represents 60 to 70 percent of the budget and targets women empowerment through entrepreneurship and microfinance. Women's desire for children is usually less than men, but their household bargaining power doesn't allow them independence in their choice. So empowering women financially could have an impact on the household decision making process.


## II. Services Pillar:

- Availing reproductive health services, community health workers and female doctors that are residents in the PHC (not mobile clinics), free provision of birth control methods (family planning). They currently have 1500 female doctors and 400 NGOs volunteers and Community Health Workers to provide service on reproductive health issues with MoHP.
III. Cultural Awareness Pillar:
- NCW is working on hosting "Galasat El Dawar" or "Mayor Roundtable Sessions" which are sessions hosted in the mayor's residence to educate religious leaders.
- NCMC is working on family planning from the perspective of child's rights to education and health, focusing on the distancing between children. The objective is to utilize the cultural centers across all villages to promote these messages, with one of the main target audiences being the children themselves so as to increase their awareness about the rights they can ask from their parents.
IV. Legal Pillar:
- Criminalize the delayed registration or non-registration of newborns. the new strategy will have financial incentives for families that abide to a certain criterion, ex: 2 children only (similar to Takaful \& Karama as well as Haya Karima); so there might be an incentive for couples not to register their newborns or delay the registration such that they could continue to receive the benefits.
- Amplify the penalty to include jail sentence (not just a fine) for those incriminated in Minor Marriage and Child Labor, penalty extended to include the parents and marriage witnesses in case of the minor marriage.
V. Digitization Pillar:
- Data and portal: CDC will develop an Observatory to monitor population data live across districts and governorates. And there will be a portal for the families to explore the array of services available to them.
- Needs Assessment: The Observatory will project population growth and thus inform the planning of services capacities (i.e. where to build schools next?)
- Impact Evaluation: The Observatory will also play an important role in the evaluation of the national plan to understand which of the pillars has the most impact and which pillars to focus on, as well as the regional differences and time trend
- KPIs: KPIs will spread across all implementing authorities and is an automated process.

75. Over the past two decades, Egypt has made substantial progress on improving basic health outcomes, as part of its goals to boost human capital. Between 1996 and 2019, and in line with global advancements, life expectancy increased from 67.0 to 73.9 years (Figure 6. 4), while under-5 mortality declined from 61.5 to 21.5 deaths per 1,000 live births (Figure 6. 5). Significant improvements were achieved in child health outcomes, partially owing to high levels of vaccination, with coverage of BCG, DPT, Pol3, and measles being above $9^{\circ}$ in 2019. Some improvement has also been observed in maternal health, with maternal mortality declining from 54 to 42.8 deaths per 100,000 live births between 2010 and 2019 (Figure 6. 6). On many indicators, Egypt performs better than other lower middle-income countries (LMIC), but lags behind other regional comparators. Life expectancy, for example, is lower than in other MENA countries - with life expectancy of 76.7 years in Tunisia and Morocco and 74.3 years on average in the MENA region (Figure 6. 4).

Figure 6. 4. Life expectancy at birth (2002-2019)


Source: World Bank Development Indicators (WDI) Indicators (WDI)

Figure 6. 5. Under-5 mortality rate per 1,000 live births (1996-2019)


Source: World Bank Development
76. Despite good achievements on basic health outcomes, malnutrition and stunting remain a big challenge for Egypt. Almost one in five Egyptian children under the age of five were stunted in 2014 (DHS, 2014). At 2.1 million, Egypt has the largest number of stunted children in the MENA region and the $12^{\text {th }}$ largest stunted population in the world. Additionally, nutritional outcomes are poor, and have not improved substantially between 2000 and 2014 (Figure 6. 7). Stunting not only leads to poor health outcomes, but also compromises learning outcomes and economic productivity in adulthood. Improving nutrition for children should be a key priority for Egypt to improve basic health outcomes and boost human capital. Globally, nutrition policies have focused on several key areas (Box 6. 2).
77. Egypt has launched several specific nutrition initiatives, but most existing nutrition initiatives do not address the stunting challenge. Existing nutrition programs include the baby-friendly hospital initiative, infant and young children growth monitoring promotion, the food fortification program, universal salt iodization, feeding counseling, LBW infant feeding and the school feeding programs (SFP), ${ }^{64}$ which has been operating in Egypt since 1968. In 2016, the program was expanded to reach all public schools, and in August of 2021, the GOE announced an increase in the cost of bread nationwide to help support 12.2 million students receiving meals. However, most existing nutrition initiatives in Egypt do not address the stunting challenge, as stunting is irreversible after the first 1000 days in a child's life. Therefore, stunting interventions need to target pregnant mothers, infants and young children below 3 years of age. However, the current nutrition program such as school feeding program targets the school-age children, and programs aimed at improving the nutrition of pregnant mothers and children in the initial 1000 days remains largely unfunded and uncoordinated. Moreover, children's growth at second and third years of life are not systematically monitored, and the stunting data is also outdated with the most recent data from 2014. Many countries facing a stunting problem have a dedicated national nutrition program, which is currently missing in Egypt. These include for example the Poshan Abhiyaan National Nutrition Mission launched in India in 2018 under the Ministry of Women and Child Development, as well as Ethiopia's National Nutrition Program which had started in 2010. The latter involves 12 ministries for coordinated nutrition actions. In contrast, some other countries are adopting a health system approach, integrating comprehensive nutrition services into the general health system, such as Bangladesh and Nepal.

[^27]Figure 6. 6. Maternal mortality ratio per 100,000 live births
(2000-2017)


Source: World Bank Development Indicators (WDI)

Figure 6.7. Trends in malnutrition of children under age 5 (2000-2014)


Source: EDHS, 2014.

Box 6. 2. Key areas of nutrition policies and global practices
Inclusion of Action Areas Related to Nutrition in National Policies in 167 Countries


Source: WHO. Global nutrition policy review 2016-2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition. Geneva: World Health Organization; 2018.
78. Despite overall progress, inequities persist across sex, geographic areas, and socioeconomic determinants. For example, life expectancy is almost three years longer for women than men (75.9 years for women and 73.4 years for men in 2021), and the gap has narrowed only slightly since 2000 s (Figure 6. 8). Meanwhile, the neonatal, infant and under-5 mortality rates are highest in metropolitan governorates, followed by Upper Egypt governorates, border governorates, with Lower Egypt governorates having the lowest rates. The under-5 mortality rate in metropolitan governorates is 24.3 deaths per 1,000 live births compared to the national average of 20.4 deaths per 1,000 live births respectively and is one and half times higher than the rate in the Lower Egypt governorates (15.9 deaths per 1,000 live births) (Figure 6. 9). The counterintuitive high neonatal and children mortality rate in metropolitan governorates is partially due to the concentration of neonatal care facilities in those regions, where sick neonates from whole country seek care. The current statistical methods capture the location of death, instead of classifying by location of birth, leading to the observed trend. This highlights the need for more accurate data collection in death registry and expansion of neonatal care capacity in under-developed regions.

Figure 6. 8. Life expectancy at birth by gender, Egypt 2006-2021


Source: Egypt in Figures, CAPMAS, Vitals 2021


Source: MoHP Statistical Yearbook
79. There is a need to redirect the health system's resource to prevent and manage NCDs and their risk factors. The major burden of disease shifted from communicable to non-communicable diseases (NCDs), and the health system has yet to adapt to this epidemiological transition. In 2019, NCDs accounted for 85.6 percent of all deaths in Egypt, higher than the proportion of deaths attributable to NCDs in MENA (78.5 percent), and substantially higher than the average for lower middle-income countries ( 64.1 percent) (Figure 6. 10). Almost one in three Egyptian citizens are at risk of dying prematurely (between the ages of 30 and 70 years) from one of the four main NCDs (cardiovascular disease, chronic obstructive pulmonary disease, diabetes, and cancer) (Figure 6.11). The probability is higher among men than women- 32.7 percent among men compared with 23.2 percent among women in 2019. Over half of NCD deaths in Egypt happen before the age of 70, higher than most comparator countries. This implies that NCD patients are not well managed, leading to deaths at younger ages (Figure 6.12). In addition, it also flags the prevalent risk factors for pre-mature NCD deaths such as the very high obesity rates and smoking rate in men.

[^28]Figure 6.10. Percentage of deaths attributable to
NCDs (\% of total deaths), 2019


Figure 6.11. Probability of dying between the ages of 30 and 70 from one of the four main NCDs, 2019. (percent)


Source: WDI and World Health Organization (WHO) (2020), Global Burden of Disease (IHME) 2019

Figure 6. 12. Premature deaths due to noncommunicable diseases (NCD), proportion of all NCD deaths, 2019


Source: World Health Organization (WHO) (2020)
80. Ischemic heart disease, cirrhosis, and stroke were the top three causes of deaths in 2019, accounting for 51 percent of all deaths. Road injuries ranked fourth and represented 5 percent of deaths. The rate of deaths attributable to road injuries at 29.8 deaths per 100,000 is the 12 th highest in the world (IHME, 2021). The large incidence of deaths due to cirrhosis can be attributed to the previously high prevalence of Hepatitis C (Figure 6. 13). The infection rate of hepatitis C declined by 50 percent between 2017 and 2019 owing to the GOE launching the 100 million Healthy Lives campaign in 2018. Over 60 million adults were screened for hepatitis C, diabetes, hypertension, and obesity (Box 6. 3). The early identification and treatment of Hepatitis C under the 100 million Healthy Lives Campaign can prevent many cirrhosis cases in the next several decades, and cirrhosis death is expected to decrease in Egypt.
81. Unhealthy lifestyle factors and risky behaviors contribute to the high burden of NCDs. Nearly 29 percent of all deaths can be attributable to high blood pressure, 18 percent attributable to high blood glucose, and 23 percent attributable to high body mass index (BMI) in $2019 .{ }^{66}$ Almost 23 percent of the population in Egypt currently smokes. The prevalence of smoking is lower (Figure 6.14) than in countries with similar levels of income but is higher than the MENA regional average (19 percent). Smoking, however, is largely

[^29]concentrated among men - more than 43 percent of men smoke compared to less than 1 percent of women. ${ }^{67}$ Prevalence of smoking is also higher among the older age groups: 33 percent of 15 - to 29 -year-old men smoke compared to 52 percent of men between the ages of 30 and 59 years (CAPMAS, MOHP, and WHO, 2018). A quarter of the adult population does not meet the WHO recommendations on physical activity for health (i.e. at least 150 minutes of moderate-intensity physical activity per week, or equivalent). Almost 30 percent of the adult population has high blood pressure, of whom only 13.7 percent have it under control (i.e. systolic blood pressure under 140 and diastolic blood pressure $<90$ ), pointing to significant gaps in the management of NCDs (STEPS, 2018). In addition, more than a third ( 35.7 percent) of the population is obese, and the prevalence of obesity is almost twice as high among women than men ( 49 percent and 25 percent, respectively).
82. Estimates suggest that productivity losses in Egypt due to chronic conditions alone represent 12 percent of GDP. With population aging, the economic burden is expected to double by 2030 if adequate steps to combat NCDs are not implemented. To avoid the huge economic loss, NCD prevention, screening, and early management are critical. Moreover, a whole-of-government approach is needed to address the NCD risk factors through urban planning, health taxes, school-based actions, food policy, and sports, among others. Though some NCD interventions have been implemented, Egypt is unlikely to achieve the Sustainable Development Goal (SDG) target of a 33 percent reduction in premature mortality from four main NCDs by 2030 (SDG 3.4) unless NCDs and risk factors are better managed.

Figure 6.13. Hep C Infection Rate per 100,000
$\underline{2015-2019}$


Source: MoHP Statistical Yearbook (2020)

Figure 6.14. Smoking prevalence, 2018
(percent of population ages $15+$ )


Source: WDI (2020), Egypt: HEICS 2018

[^30]
## Box 6. 3. The " 100 Million Healthy Lives" Campaign has high return to investment ${ }^{68}$

The 100 Million Healthy Lives is a landmark public health program in Egypt, aimed at tackling critical health issues and improve population health. Under this initiative, the MOHP launched a nation-wide screening campaign starting in 2018, in which over 60 million adults have been screened for hepatitis C , diabetes, hypertension, and obesity. This is the world's first and largest public health program for hepatitis C.

## Impacts on Hepatitis $C$ elimination in Egypt

Approximately 3.5 million people ( 4.6 percent of the adult population in Egypt) were newly found to be positive for hepatitis $C$ and were referred to treatment centers for free treatment by December 2021. By September 2019, over 380,000 newly identified hepatitis C patients had been successfully cured (with a cure rate of 98.8 percent). The total cost of screening, evaluation, and treatment was US $\$ 207$ million. Over US $\$ 70$ million was spent on treatment alone, with an average cost of US\$44 per patient.

## Economic opportunities from screening and treatment of NCDs

The economic loss due to diabetes alone is estimated at US $\$ 1.3$ billion in 2010 for Egypt, and chronic conditions have been found to cause productivity losses equivalent to 12 percent of Egypt's GDP. ${ }^{69}$ Without interventions, the economic burden is expected to double by 2030 with the population aging. To avoid the large economic loss, NCD prevention, screening, and early management are critical. The NCD screening campaign screened nearly 60 million individuals at a cost of around US $\$ 2$ per person. If all the screened individuals with NCDs are followed up with treatment, around 6.64 million Quality-adjusted life years (QALYs) (i.e. healthy life years) would be saved over 15 years. ${ }^{70}$ In addition, the direct cost savings would amount to US $\$ 8.6$ billion, most of which would be due to averted long-term NCD treatment costs. NCD screening and treatment is highly cost-effective and gives a return-to-investment ratio of 2.33 .

Source: Data on NCD screening were from MOHP program data. Cost-effectiveness results are from WB staff analysis.

## B. The Healthcare System: Structure, Access and Utilization

Government and parastatal facilities cater for the larger part of the population. An incomplete regulatory regime poses obstacles that impede the easy entry of private sector participants, in addition to lengthy, cumbersome, and costly processes.

1. The health system structure
2. Egypt's health care system consists of government agencies and facilities, parastatal and quasigovernment entities, and private facilities (Figure 6. 15). Government and parastatal facilities, collectively referred to as public sector, are the sole provider of primary health care (ie. family medicine services), as private sector is not licensed to deliver primary care. The private sector plays an important role in the delivery of secondary and tertiary care (ie. specialist care and inpatient care). Given the smaller size of private hospitals, however, the public sector caters for a larger share of the population. While 68 percent of secondary and tertiary facilities are private, the private sector only holds 28 percent of hospital beds.

[^31]84. The GOE is the major provider of preventive care, specialist care and inpatient care through its central programs and affiliated health facilities. The Ministry of Health and Population (MOHP) operates the largest number of health facilities and hospital beds to deliver primary care and tertiary care ( 386 hospitals and centers, 37,003 beds, 5,458 primary care facilities in 2019). Other ministries (including Ministry of Education, Ministry of Interior, and Ministry of Transport, among others) also operate health facilities. The different government systems do not have a central coordination mechanism. Budget, human resources, and facility operation are managed separately, leading to a fragmented public health service delivery system. GOE operates a total of 6,111 health facilities, including 5,458 primary care facilities, 74,700 pharmacies and more than 90,000 beds in 653 inpatient facilities nationwide. GOE health programs and health facilities are managed at central level, as well as through governorate-level health directorates (Figure 6. 16). The central government manages the budget-funded flagship public health and curative care programs, including the " 100 Million Healthy Lives Campaign" which tackles the burden of hepatitis C, diabetes, hypertension, obesity, women's care and family planning, the "Program for Treatment at the Expense of the State (PTES)" which supports the treatment of low-income and underprivileged population, and the "model hospital" programs which aims at improving public hospital quality. Local governments also deliver public health programs and health services.
85. Parastatal healthcare entities, quasi-governmental organizations in which government ministries have a controlling share, are also important players in tertiary health service and financial coverage. These include the Health Insurance Organization (HIO), and the Curative Care Organization (CCO). Compared to government agencies, parastatal entities are governed by their own set of rules and regulations, have separate revenue sources, and exercise more autonomy in daily operations. However, most parastatal entities are not self-sustained financially, therefore the Ministry of Health and Population (MOHP) has a controlling share, and partially finances those entities through budget. The CCO is a small program financed by the government and the private health insurance. The THIO is also financed by the government, although its Program for Treatment at the Expense of the State (PTES) is also financed through HIO referrals. The HIO plays the role of a payer, provider, and supervisor of healthcare. There are four broad categories of HIO beneficiaries: government employees, some private sector employees, pensioners, and widows. The Student Health Insurance Program (SHIP) covers students and children under the age of 18. The HIO is financed through premiums, government budget, as well as earmarked cigarettes taxes. As a provider of health care, the HIO manages 39 hospitals and more than 8000 school clinics, polyclinics, and pharmacies. Government entities and parastatal entities, together referred to as public sector providers, comprise 72 percent of the beds: (i) MoHP (29 percent); (ii) other ministries (24 percent), including the Ministry of Higher Education, Railway Authority, Ministry of Interior; (iii) bodies affiliated with MoHP (19 percent), such as HIOs.

Figure 6.15. Organization of Egypt's Health System


## 2. What role for the private sector?

86. Private healthcare providers include for-profit and nonprofit organizations and are the main provider of outpatient care and pharmacy services. These include, among others, private doctors, hospitals, traditional midwives, and private pharmacies. Moreover, many non-governmental organizations provide health services, including religiously affiliated clinics and other charitable organizations, all of which are registered with the Ministry of Social Solidarity. Private health care providers manage 28 percent of hospital beds in the Egypt health system, yet data on the number of private medical clinics and pharmacies are not available (Figure 6.16).
87. The private sector is not allowed to provide primary care, as licensing procedures and regulations are deterring private sector participation in the primary healthcare sector. This is a policy barrier for the private sector to provide primary care under UHIS. Egypt's incomplete regulatory regime produces obstacles, in addition to lengthy, cumbersome, and costly processes that impede the easy entry of private sector participants (World Bank, 2020). For example, Law 153 of 2004 restricts the ownership of outpatient clinics to certified physicians only; therefore, only organizations that are 100 percent owned by physicians can be licensed as a clinic. Exceptions are made only for charities or companies that are opening clinics to serve their own staff. Other licensing regulations require clinics to receive multiple licenses from different agencies, several of which can be applied for only after the clinic has been built. The cycle of approvals and paperwork involves at least nine government agencies, and entities are subject to conflicting rules and regulations mandated by different regulators, along with various fees and payments
88. The UHIS is expected to bring a paradigm shift to the service delivery and financing system in Egypt. Both public and private facilities will be contracted through the UHIS for coverage. As a result, the service delivery capacity in the public sector and private sector will merge to jointly serve the population needs. Public sector service capacity planning also needs to move away from the silo approach towards a national masterplan including both public and private providers. Yet, it will be important to address the regulatory bottlenecks for private sector provision to maximize the benefits and increase access to quality care under UHIS. The detailed implications of UHIS are discussed in Section IV.

Figure 6. 16. Distribution of secondary and tertiary healthcare facilities and beds by affiliation, 2019


[^32]
## 3. Availability of the healthcare services - efficiency and equity challenges

89. Health system efficiency requires the appropriate and balanced levels of resources and resource mix to produce high quality health services. Data on the private sector are limited, but available data on the public sector suggest there is a shortage and mismatch of resources, in addition to shortcomings in quality, idle capacity and waste.
90. Public sector healthcare provision has not been able to keep up with population growth, and the increase in service capacity has mostly occurred in the private sector. The public sector remains the main provider of care, but the number of public hospitals and beds has declined by 1.1 and 6.7 percent, respectively, over the past decade. The decline is even more worrisome considering the demographic trends, with a population growth of 25.6 percent during the same period (Figure 6. 17, Figure 6.18). Meanwhile, the number of private hospitals and beds increased by 10 and 38 percent, respectively. The number of primary health care units, however, increased over the past decade, especially in urban areas (by 16.1 percent). The bed-topopulation ratio at 1.32 beds per 1,000 population in 2019 is below the MENA average of 1.54 beds per 1,000 population but almost double the ratio for LMIC (0.77) (Figure 6. 19).
91. Despite the relatively low bed-to-population ratio, public hospital beds are not fully utilized, indicating a low demand for health services at public facilities possibly due to quality concerns. The bed occupancy rate has been below 50 percent in the MOHP system since 2010 (Figure 6. 20). The average length of stay (ALOS) is around 2.5 days in general hospitals, in part due to the large number of birth deliveries for which the ALOS is lower compared to other services/reasons for seeking care. The ALOS in specialized hospitals, providing more complex care, is 5.1 days. The low bed occupancy rate suggests that patients' demand for health services at public facilities is low due to the low quality in public hospitals and the fact that hospitals may inflate their bed capacity to receive more budget funding. This highlights the importance of re-orienting and re-organizing inpatient care to reduce waste and improve the efficiency of the system.


Source: MoHP Statistical Yearbook, various issues.
*Public hospitals include: MoHP hospitals, facilities affiliated with MoHP and hospitals affiliated with other ministries. Rural primary health care unit include: family medicine unit, subsidiary clinic, medical point; Urban primary health care include: Comprehensive clinics and urban neighborhoods, child care units, urban health center, family medicine center, health offices

Figure 6. 19. Hospital beds (per 1,000 people) across
peers, $\mathrm{MRV}^{*}$


Figure 6. 20. Bed occupancy rate in MoHP hospitals, (\%) 2010-2019


Source: WDI (2020), Data for Egypt is WB staff calculation based on MOHP Statistical Yearbook (2019).*Hospital beds include inpatient beds available in public, private, general, and specialized hospitals, and rehabilitation centers. In most cases beds for both acute and chronic care are included. Most recent value for all variables. Data for Egypt are for 2019.
92. Public facilities face many performance challenges due to low salary scale and a shortage of basic inputs. Anecdotal evidence points to shortages in essential equipment and supplies in hospitals, especially for advanced treatment and complex procedures. Although in principle services are provided free-of-charge in public hospitals, patients and their families are often required to provide inputs necessary for their treatment at their own expense due to shortages in basic inputs, particularly for surgeries. Additionally, insufficient standards, the prevalence of dual practice among health practitioners, and low wages in the public health sector provide little incentive for a better performance. Medical providers only need to obtain a one-time license, and there are no continuous medical education requirements. Most healthcare jobs (e.g., physicians, nurses, and other health professionals) are low-paid, with pay entirely disconnected from market rate. This results in dual practice ${ }^{71}$, with around 80 percent of medical doctors working in both the public and private sector. They may also seek work in non-governmental entities, or even in public sector through external contracts provided by other public providers. Moreover, some doctors move to the private sector or immigrate overseas. All exaggerated the human resource loss in the public sector. Adding performance incentive is critical to retain the health workforce and motivate staff performance in the public sector. Globally, different performance-based incentives have been adopted. Some examples are presented in Box 6.4.

[^33]Box 6. 4. Global examples on performance-based incentives for health workforce


Source: World Bank Policy Note on Performance-Based Incentives
93. The lack and distribution of human resources presents challenges for service delivery, and the specialization mix is not fully aligned with the burden of disease. Over the past decade, the density of physicians and nurses increased slowly after adjusting for population growth, whereas the supply of pharmacists and dentists grew at a much higher rate. The total number of physicians per 1,000 people reached 1.24 in 2019 (Figure 6.21). The ratio is comparable to the MENA regional average (1.32) but is lower than in other middleincome countries. The nurse-to-physician ratio has increased from 1.6 in 2016 to 1.9 in 2019 (Figure 6. 22). Notably, the nurse-to-physician ratio is significantly higher in public facilities than private facilities (2.2 compared to 0.7 nurses per physician, respectively). This could be due to an uneven increase in private sector physicians by 80 percent over the past decade that was only met by a 46 percent increase in the number of nurses (Figure 6.23). Unlike relatively stable growth in the number of physicians and nurses, the supply of pharmacists has witnessed large increases over the past decade, thereby creating an oversupply of dentists and pharmacists in the health system (Figure 6.24). Under the ongoing reform, there has been task shifting from clinical jobs to administrative and management jobs among the pharmacists with oversupply issues. To improve
efficiency of the health system, better human resources planning, management and wage adjustment are needed. There is a need for raising the baseline standards of working conditions and supporting health workers with tools for increasing quality of care that were identified as challenges. These include increasing salaries, providing career development prospective, and providing sufficient essential equipment and supplies.

Figure 6.21. Physicians (per 1,000 people) across peers, $\underline{\text { MRV* }}$


Source: WDI (2020). Data for Egypt is from WB staff calculation based on CAPMAS Health Services Statistics Bulletin (2019). Most recent value for all variables. *Note: Physicians include generalist and specialist medical practitioners. Includes public and private sector data. Private sector data is collected by CAPMAS using forms. For 2019, the frame size consisted of 1,506 hospitals out of which 1130 responded ( $75 \%$ response rate).

Figure 6.22. Nurse-to-physician ratio by sector 2010-2019


Source: MOHP statistical yearbook 2020

Figure 6. 23. Physicians (per 1000 people) by sector 2010-2019


2010201120122013201420152016201720182019
_— Public sector physicians per 1000 population
_Private sector physicians per 1000 population
——Total physicians per 1000 population

Figure 6.24. Pharmacists and dentists (per 1000 people) public sector, 2010-2019


2010201120122013201420152016201720182019
——Pharmacists per 1000 people, public
——Dentists per 1000 people, public

Source: WB staff calculations based on CAPMAS Health Service Statistics Bulletin, 2019. Private sector data is collected by CAPMAS using forms. For 2019, the frame size consisted of 1,506 hospitals out of which 1130 responded ( $75 \%$ response rate).

## Box 6. 5. The Brain Drain Challenge in Egypt's Healthcare System

Egypt is facing a brain-drain challenge in most medical professions, especially for physicians. The latest published GSP (General Syndicate of Physicians) records for the year 2020 indicate that there are 212,835 active physicians registered with the Syndicate -a legal pre-requisite to practice medicine- constituting 2.1 physicians per capita. The year reported the first-ever drop in the absolute number of physicians registered with the syndicate. Of those registered, 188,535 reported having some sort of affiliation with the public sector, of which 85 percent follow a dual practice (working in public and private sectors alike). The remaining physicians reported an exclusive previous or current employment with the private sector. In addition, the GSP reported that nearly 120,000 physicians are currently working abroad ( 56 percent of total registered physicians) while nearly 62,000 (29 percent) are actively working in facilities affiliated with MOHP, severely limiting the availability of those serving the Egyptian population. Furthermore, the market was always supplemented by a continuous stream of nearly 10,000 fresh medical graduates every year. However, the GSP has reported that starting in 2019, nearly three thousand fresh graduates have opted not to get a medical license and effectively pursue other careers. Anecdotal evidence suggests that the GCC markets, the UK (post-Brexit) and the EU have further increased the openings for fresh medical graduates from developing countries, including Egypt.

The GOE has been exerting efforts over the past decade to boost the numbers of physicians working inside the country, especially in the public sector, and prevent a continuous drain of emigration or career shifts. Those measures include i) incremental increases in compensation packages; and ii) non-tangible benefits in training opportunities and access to continuous medical education. However, anecdotal evidence suggests that most physicians still hold a view of emigrating, attracted by the following factors: i) better compensation packages, sometimes by multiple folds; ii) better working conditions in terms of working hours and legal protection against medical responsibility and physical attacks; iii) similarity of language and culture in most emigration destinations, notably the Gulf Cooperation Council countries and iv) better career advancement and skill acquisition in more advanced medical settings.
94. The distribution of resources (infrastructure and health workers) across governorates is not fully aligned with the needs of the population, highlighting the need for data-driven planning supported by IT systems. For instance, the distribution of public hospitals across governorates is disproportionate to its share of population in 9 out of 27 governorates. The disparity is less nuanced when it comes to the distribution of hospital beds across governorates (Figure 6. 25). There does not seem to be a regional bias per se, but the mismatch is however particularly evident in Sharqia, Alexandria and Menia, for which the share in public hospital beds is substantially lower than their share in population. There also appears to be a mismatch between the distribution of physicians (MoHP health directorates) across governorates and population size (Figure 6. 26), particularly in Dakahlia, where 16 percent of physicians affiliated with the MoHP health directorate are stationed although it is home to only 7 percent of the population. The availability of primary care health centers also varies largely across governorates and between urban and rural regions (Figure 6. 27 and Figure 6. 28). In most of the governorates, the PHCs are more concentrated in the rural areas, reflecting the government policy to strengthen PHC service capacity in rural areas. In addition, private clinics, which are often perceived as substitute for PHCs in Egypt, are more available in urban areas, hereby making rural PHCs important providers of health services in rural areas. The per capita distribution of PHC shows that PHCs are less available in urban governorates, which needs to be expanded to deliver primary health care to the residents. These discrepancies can be associated to the limited availability and use of health information system and data to inform planning, management and policy decisions. Instead, the allocation is largely based on existing historical inputs, and most facilities still use paper-based medical records, and no electronic medical record system is available.

Figure 6.25. Share of public hospitals beds and population across governorates, 2019 (percent)


Figure 6. 26. Share of MOHP physicians and population across governorates, 2019 (percent)


Source: Author's calculation based on MOHP Statistical Yearbook, 2019


Source: SYB, 2019 and CAPMAS Population Data (estimates for Mid 2019)
95. In addition to the routine health service delivery, Egypt has several distinct Presidential Initiatives in the health sector. Most of those presidential initiatives are funded out of budget or health insurance programs, with diverse objectives, ranging from improving hospital capacity to vertical disease prevention and treatment programs. A list of presidential initiatives are displayed in Table 6. 1.

Table 6. 1. Presidential Initiatives in the health sector

| Name of the <br> Presidential <br> Initiative | Target <br> Population | Brief Description |
| :--- | :--- | :--- |
| Women's <br> Health | Women in <br> childbearing age | Through 3500 PHCs, women are checked for a wellness examination, <br> precursors of NCDS, gynecological, reproductive, and family planning <br> consultation and services offered. Also screened for breast cancer and taught <br> self-examination techniques. |
| Detection and <br> treatment of <br> Viral Hepatitis | All population | In 2018, campaign mode was able to screen 58 million individuals for |
| C | Hepatitis C and put 2.5 million patients on curative medicines. Since 2018, <br> routine screening and referral of positive cases integrated in all inpatient <br> medical procedures and those for high-risk groups. Also, on-demand <br> screening for Hepatitis B and maintaining life-long access to medicines. |  |
|  |  |  |


| Detection and treatment of NCDs | High risk and established cases with NCDs | In 2018, campaign mode was able to screen 58 million individuals for high blood pressure, high blood sugar and Body Mass Index. Referral to NCDs centers across all districts established for treatment adherence, prevention and management of complications. |
| :---: | :---: | :---: |
| School-children health program | All school children | Annual screening of school children for anemia, anthropometric measurements, signs of infectious and chronic diseases with proper referrals. Also, de-worming prophylaxis for specific age-groups. |
| Shortening the surgical \& medical interventions waiting times. | Persons undergoing highly specialized medical procedures through PTES or HIO. | Through a unified database system, patients are linked to public and private tertiary centers with access to adequate and timely funding to shorten and prevent the creation of waiting times for the specialized medical and surgical procedures. |
| Model Hospitals | All non-UHIS Governorates | Equipping and boosting operations of a strategically located tertiary care center (Renovated or newly built) in non- UHIS governorates to ensure the provision of 3ry services at the regional levels until the full roll-out of UHIS. |


| Self-sufficiency <br> of plasma <br> derivatives | Patients with <br> liver cell failure, <br> Burns and blood <br> element <br> deficiencies. | Ensuring the safe and un-interrupted supply of safe plasma products through <br> the establishment of dedicated plasma centers that are responsible for <br> donations, analysis, fractionation and local sufficiency of plasma and plasma <br> products to mitigate against frequent global shortages. |
| :--- | :--- | :--- |
| Early detection <br> of hearing <br> impairment in <br> newborns | All Newborns | Hearing tests using specialized equipment for all newborns in all PHCs to early <br> detect and refer to treatment of newborns with newborn hearing defects. |
| Support <br> investment in <br> health service <br> providers | All healthcare <br> providers in the <br> public sector | Support to the newly launched Board certification training and examination <br> systems for medical professionals and the newly established General Health <br> Council. |


| Early detection and treatment of muscular dystrophies | Newborns showing early symptoms | Establishment of specialized clinics and referral to specialized treatments for newborns suspected of having rare newborn muscular dystrophies. |
| :---: | :---: | :---: |
| Prevention of blindness | All high-risk <br> patients with <br> precursors of eye <br> diseases and <br> those with <br> established <br> blindness <br> causing diseases | Early examination and referral to an established network of specialized eye hospitals for those suffering from controllable precursor conditions and/or active blindness causing diseases for management and treatment. |
| Kidney failure detection and treatment initiative | Persons with conditions that are high risk for kidney failure or severe renal disease | Through all PHCs, examinations and rapid blood tests for high-risk individuals for chronic renal impairment and/or renal failures. Referral to specialized kidney centers for further treatment, management and/or dialysis programs. |
| Prevent the spread of infection from mother to fetus | High risk pregnant women | Through dedicated maternity wards, antenatal, intrapartum and postpartum interventions and treatments to prevent the transmission of infected mothers to their newborns for various diseases e.g., Hepatitis B \& C, HIV, Syphilis, etc. |
| Early detection of neonatal and chronic diseases. | Newly married couples and High-risk families | Establishment of dedicated consultation centers for newlyweds and high-risk families to prevent, detect and manage the various hereditary and genetic conditions that may arise in certain individuals. |

## 4. Utilization of healthcare services, efficiency and equity challenges

Healthcare suffers from low utilization of primary care, frequent use pharmacies as the first choice of treatment with unknown quality of care, low use of NCD care, and disparities in service use. Cost-effective services are needed to address the most pressing disease burden.
96. Private clinics and pharmacies are the preferred choice as service provider for chronic and acute medical conditions, while primary care facilities are under-utilized. More than half of individuals with chronic conditions seek care at private clinics which offer specialist outpatient care ( 53.6 percent), while 18.5 percent seek medical advice at pharmacies, and 11.5 percent receive care at government hospitals (Figure 6. 29). For acute conditions, more than a third ( 38.3 percent) of individuals with acute conditions seeking medical advice at pharmacies. This is a worrisome trend that raises concerns about the quality-of-care individuals receive, as retail pharmacies are loosely regulated and are not licensed to diagnose and prescribe medications.
97. Primary care is under-utilized in Egypt, with shortages and stock-outs compromising the quality of care in public facilities. As the licensing regulations do not allow private practitioners to practice primary care, government primary health care ( PHC ) centers are the only providers. Primary care is the gatekeeper in the health system, and globally primary care covers many cost-effective services. Despite investment in government PHC facilities, quality of primary care is low. Only 1.4 percent and 1.6 percent of patients with chronic and acute conditions use government PHCs as the location of care. This is because many government PHC facilities are ill-equipped, experience shortages of manpower, have poor drug supply chain management, and report drug stock-outs. Besides supply-side information, there has been rather limited monitoring of service quality from patient perspective focusing on patient satisfaction.
98. Utilization of NCD services is low, particularly in public facilities, leading to poor NCD management outcomes and high burden to the health system. Only around 30 percent of diabetes and 48 percent of hypertension cases are well managed, and the service delivery system lacks continuity in care. In Egypt, only 88 percent and 68 percent of patients diagnosed with diabetes and hypertension, respectively, are put on treatment (Figure 6.30). Among those on treatment, only 30 percent achieve the clinical target of blood glucose control. The treatment success rate for blood pressure is around 48 percent. Unmanaged hypertension and diabetes can lead to the development of other conditions, among which the most prevalent and deadly are stroke, ischemic heart diseases, and chronic kidney diseases. Only 2 percent of hypertensive patients reported receiving follow-up care at primary health care centers. Most sought follow-up care with private physicians (41.1 percent), followed by government hospitals ( 19.2 percent) and pharmacies ( 16.8 percent). Similar patterns were also observed for diabetes follow-up care, with 53.8 percent seeking care with private physicians, 27.8 percent at government hospitals, and 4.7 percent at pharmacies. Almost 15 percent of individuals with hypertension and 5 percent of individuals with diabetes, however, reported that they did not receive follow-up care (STEPS, 2018). In addition, effective NCD lifestyle interventions are under-provided and under-utilized. Health workers rarely provide advice on lifestyle risk factors. Only 15 percent of individuals reported being advised by health workers to reduce daily consumption of sugar, and only 28 percent of smokers were advised to quit smoking tobacco during a visit to a health worker in the past 12 months (STEPS, 2018).
99. Disparities in utilization of basic maternal health services exist across geographic regions, with households in rural, remote, and slum areas suffering the most from poor health outcomes and inadequate services. Maternity care coverage is strongly correlated with place of residence and income levels. Women from the wealthiest households (Q5) in urban regions enjoy better coverage in antenatal care, skilled birth attendance, and met family planning needs than their poorest counterparts (Q1) (Figure 6.31). While over 90 percent of births were attended by a health care professional, the percentage of health service coverage for newly pregnant women is only around 50 percent and remained stagnant in the past decade. The average number of visits during pregnancy is 2.6 , lower than the WHO recommendation of at least 4 visits (Figure 6 . 32). Some governorates are lagging. Suez and South Sinai had very low rates of births at health institutions, and underuse of primary care visits during pregnancy is observed in half of governorates (see Annex 6.2 for a color map of maternal and child health care by governorate). Other than maternal health, households in urban areas also have higher utilization rates of ambulance services and secondary care than their rural counterparts.

Figure 6. 29. Proportion of patients using each type of care for chronic conditions and acute condition (\%)


Note: Other consists of corporate clinic or hospital, other nonmedical place like treatment abroad
Source: CAPMAS, HIECS 2017

Figure 6.30. Linkage to care and treatment success rate of patients with a diagnosis of hypertension or diabetes


Source: Egypt STEPS NCD Risk Factors Surveillance Survey 2018, and Egypt Health Issues Survey 2015

Figure 6.31. Proportion of Pregnant Women using Maternal Health Care, by Women's Income Level and Residence


Source: EDHS (2014)

Figure 6. 32. Indicators of maternal and child health care in primary care units from 2013 to 2019

100. The utilization of healthcare services for acute and chronic conditions is affected by socioeconomic conditions. Utilization of health services is significantly lower among the poor, with only 59 percent of poor individuals reporting using health services in the last six months, compared to 74 percent among the non-poor. Geographically, there is a clear negative correlation between health service utilization and poverty rate in the governorate (Figure 6.33). This could be due to differences in access to health care and ability to pay for private health services, with public provision not sufficiently catering for the needs. Three governorates with over a 50 percent poverty rate (Luxor, Souhag, Assiut) had the lowest health service use among all governorates, indicating that access to and affordability of health services in these under-developed governorates need to be improved to reduce inequity. While the UHIS scheme provides full premium subsidy for the poor (see section IV), it is important to raise awareness and demand for health services and ensure equitable access to quality care

Figure 6.33. Regional variations in utilization of care and poverty


Source: HIECS 2017 \& CAPMAS

## C. Health Expenditures: Evolution, Adequacy and Efficiency of Spending

Health sector spending is low by international standards and has been declining in real terms. A heavily OOP-funded health financing system needs to move towards more efficient and equitable funding sources, including through higher government spending.

## 1. Overall health spending in Egypt and funding sources

101.A small and shrinking government spending is directed to the health sector, with Egypt comparing unfavorable with peer countries. The healthcare budget is the fourth largest in the total public budget, following the public services, social protection, and education budgets. Only an average of 5.2 percent of total government budget has been spent on the health sector in FY2016-FY2021 (Figure 6. 34), ${ }^{72}$ equivalent to an average of 1.5 percent of GDP. Moreover, the share of health expenditure in the budget decreased from 5.3 percent in FY2016 to 4.9 percent in the budget for FY2018-the lowest level in the past five year, and then bounced back since FY2019. In FY2021, related to COVID-19 response, government spending on health reached a historical high of 1.6 percent GDP, or 6.5 percent of total government spending as per the functional classification. The FY2022 budget includes a slight decline in government spending on health, compared to the FY2021 level. When adding the off-budget health spending by economic authorities, the public spending on health reached $1.9 \%$ GDP in FY19. Moreover, Egypt's current health expenditure (CHE), public and private sources together, amounted to 5 percent of GDP in FY2019, below the average of 6.4 percent of GDP in MENA, 12.0 percent in high-income countries, and 10.0 percent globally (Figure 6.35 ). It is also lower than in other countries with similar per capita income, such as Morocco and Tunisia, where total health expenditure constitutes 6.0-7.0 percent of their GDP. Similarly, per capita spending on health in Egypt (US\$126) is lower than that of LMIC average (US\$262) and the MENA average (US\$1006) in 2018 (Figure 6. 36).
102.This has resulted in out-of-pocket (OOP) payment by users being the major financing source for health care in Egypt. Over the past decade, the share of OOP remained above 60 percent of current health spending, reaching 63 percent in 2019 (Figure 6. 37). Pooled government spending (i.e., government transfers and social health insurance contributions) accounted for 28 percent of current health spending. ${ }^{73}$ Another 8 percent was from voluntary health insurance schemes.


Source: Ministry of Finance.

Figure 6.35. Global comparison of Egypt's total current health expenditure


Source: WHO GHED (2018), World Bank World Development Indicators

[^34]Figure 6.36. Per capita spending on Health (2018)


Source: Global Health Expenditure Database

Figure 6. 37. Egypt's current health spending by funding sources (2000-2019)


Source: Global Health Expenditure Database

## Box 6. 6. Definition of government health spending

To comply with a constitutional mandate adopted in 2014 to increase government health spending to at least 3 percent of GDP, the government uses a wider definition (compared to the typical functional classification) to calculate government health spending (Figure B. 6. 1). Under this broader definition, government spending on health has surpassed the constitutional mandate benchmark since 2018. On top of the functional classification figures, the wider definition of health expenditures includes (i) expenditures by all health sector extra-budgetary government entities, such as economic authorities and public sector companies (such as the HIO, UHIA, GAHC, GAHAR), (ii) budget expenditures on health even if it is not classified under the "health" functional sector such as armed forces and police hospitals; (iii) the share of the health sector of total interest payments and (iv) expenditure on drinking water and sanitation (WASH) which is considered as a preventive health expenditure ${ }^{1}$. Using this broader definition, total government spending has almost doubled to reach 4.4 percent of GDP in 2021, up from 2.5 percent of GDP in 2016.

Figure B. 6. 1. Government health spending under the functional classification system vs GOE's broader definition (2016-2021)


Source: MOF. Note: The wider definition used to comply with constitutional mandate uses the previous year GDP
103. While capital spending and purchases of goods and services have gained importance in the past five years, spending on wages has gradually declined. According to the economic classification, 45 percent of government spending on health was allocated to compensation of employees, 26 percent was directed to goods and services, and subsidies, grants and social benefits (including PTES, HIO) absorbed 11 percent of government health spending in 2020 (Figure 6. 38). Capital spending (investment), in turn, represented 17 percent of total government spending on health. The share of spending on wages has significantly decreased (from 61 percent in FY16 to 45 percent in FY20), mostly due to the slow increase in public health workers' salary, whereas the ongoing efforts to refurbish public hospitals and health centers have boosted the share of assets acquisition (from a previous 10 percent in FY16 to 17 percent in FY20) and purchase of goods and services (previously at 19 percent in FY16 to 26 percent in FY20).
104.Importantly, resources are gradually re-shifted towards cost-effective primary and preventive care. In recent years, the share of government health spending on general hospital services has decreased by almost 14 percentage points (from 68.8 percent in 2015 to 52.8 percent in 2019, returning to their share of 2011) (Figure 6.39). At the same time, the share for general health services (including primary care, preventive care, and other health services managed at the governorate level and below) has increased from 20.7 percent to 36.6 percent over the same time period, indicating a reprioritization of primary care and preventive care. Most of the increase in primary care spending was on assets and goods. Many primary care centers, however, continue to suffer from lack of doctors, shortage of medicines, and low quality of services. Future investment in primary care should thus make a greater emphasis on PHC staff capacity, management, and quality improvement. The WHO recommends that countries spend at least 1 percent of GDP on primary health care. ${ }^{74}$ In FY2021, Egypt's spends a very small proportion of its total health spending on PHCs, much lower than the WHO recommended level.


Source: Ministry of Finance.
Note: FY2020 data used since FY2021 data are missing number in some key spending categories and for FY2022 only budget data available.
105.Egypt has an extensive government subsidy program for the health sector. From 2015 onwards, government spending on health subsidy has drastically increased (Figure 6. 40). The largest subsidy programs are those focusing on the treatment at the expense of state (PTES), patients with renal failure and the ambulance authority. Subsidies for medicines and infant formula has also significantly increased over the years. The subsidy for vulnerable groups to enroll in UHIS started in FY2020, and is expected to grow in the future with the roll out of the UHIS.

[^35]Figure 6. 40. Government subsidy to the health sector (in LE million)
Million LE
15,000
13,000
11,000
9,000
7,000

Source: Ministry of Finance

## 2. Adequacy of public spending on health

Government spending is insufficient to address the health needs of the population while ensuring financial protection. The high financial burden falling on households calls for a substantial boost in government spending to shield them for their implications on welfare and poverty.
106.The state budget on health fully or partially covers the expenses through seven entities, namely i) the Ministry of Health and Population central programs and entities; ii) governorate health directorates for regional programs and MOHP health facilities in the region; iii) PTES which covers underprivileged Egyptian patients who cannot otherwise afford to pay for health care; iv) HIO which provides health insurance coverage as well as health services for civil servants, preschool and school children (around 58 percent of the population) (notably, the state budget does not directly fund HIO , but it provides revenues for the HIO through the employer's share in the contribution for governmental employees, the subsidies for certain groups like children, students and mothers); v) the Curative Care Organization (CCO), providing secondary hospital services to both public and private health insurance beneficiaries; vi) the Teaching Hospitals and Institutes Organization (THIO) which provides tertiary care and treats non HIO insured individuals, and vii) other government sector health facilities (university hospitals, etc) (Figure 6.15).
107.Government spending on health, as defined by the internationally accepted System of Health Accounts (SHA) definition, remains low and inadequate. According to the functional classification (which includes spending going to MOHP, affiliated public provider entities and university hospitals) remained stagnant around 1.5 percent of GDP during the past 5 years. This means that the rapid increase in nominal terms (from EGP37.2 billion in 2015 to EGP87.1 billion in 2019) corresponds to a decline in real terms between FY2018 and FY2019 (Figure 6. 41). In FY2020, a small increase in real terms is seen, likely related to the COVID-19 response. The stagnant trend of government spending is even more obvious if population growth is taken into account (Figure 6. 42), implying that the additional investment in public facilities and programs could not meet the increasing health care needs. By global benchmarking, Egypt's government spending under the functional classification for health was lower than most comparator countries (Figure 6.43). Low government spending results in low public provider capacity, lack of human resources and equipment, and ultimately inefficiency and poor quality of care. Moreover, it limits the ability of the government to protect the population from financial hardship due to high OOP payment.
108. Due to low government spending, Egypt's health system is predominantly financed from out-ofpocket payments - an inefficient and inequitable source of health financing. Egypt's OOP spending as a share of current health expenditure is among the highest globally, accounting for almost 62 percent of all health expenditures in the country (Figure 6. 44). The very high OOP spending places a significant financial
burden on the population in Egypt. The average per capita OOP spending in 2017 was EGP1874 (US\$ 119) for urban residents and EGP1423 (US\$ 91) for rural residents (Table 6. 2). Health has become the third largest spending category for Egyptian households, after food and housing.

Figure 6.41. Government spending under functional classification of health (in nominal and real terms)


Source: MOF data, inflation from WDI

Figure 6.42. Time trend of government spending per capita (in real terms 2010 EGP)


Source: MOF data, inflation from WDI

Figure 6. 43. Government health spending (under functional classification of health only) Egypt vs. comparator countries


Mote: Egypt Source: WHO GHED (2018)

Figure 6.44. OOP as a share of current health expenditure


Source: WHO GHED (2018)

Table 6. 2. Household OOP on health vs income and

|  | Urban | Rural | Total |
| :---: | :---: | :---: | :---: |
| Household OOP on | 5358 | 4866 | 5089 |
| health |  |  |  |
| Household income | 66604 | 51657 | 58436 |
| Household consumption | 54015 | 44388 | 48754 |
| expenditure |  |  |  |
| \% of household income | 8.9\% | 9.5\% | 9.2\% |
| spent on health |  |  |  |
| \% of household | 10.3\% | 10.8\% | 10.6\% |
| consumption |  |  |  |
| expenditure spent on |  |  |  |
| health |  |  |  |

Source: HIECS (2017)
109.Almost a third of households face catastrophic health expenditures, and 7 percent of households have been pushed into poverty due to high OOP payments. One third of households spent more than 10 percent of household income on health care (i.e., incurred catastrophic health expenditure). Around 7 percent of households spent more than 25 percent of income and 2 percent of households spent more than 40 percent of income on health (Figure 6. 45). High OOP spending on health impoverished nearly 7 percent of Egyptian households in 2017. The rate of catastrophic expenditure is higher in Damietta, Kafr al-sheikh, western provinces, Qalyubia (Figure 6. 46). The rate of catastrophic expenditure is lower among the poor people, and the financial burden is higher for the wealthier (Figure 6. 47, Figure 6.48). This could be because affordability is a barrier for the poor people to access health services, and a high proportion of poor people chose not to seek care because they are unable to bear the expenses (Figure 6. 49). At the same time, more poor individuals seek care at public facilities where most services are provided free of charge. This suggests that government spending more effectively targets the poor.

Figure 6.45. Proportion of Households with Catastrophic Health Expenditure


■ 2015 ■ 2017
Source: HIECS $(2015,2017)$
Figure 6. 47. Catastrophic health expenditure by poverty status and region


Source: HIECS (2017)

Figure 6. 46. Catastrophic health expenditure by governorates.


Figure 6.48. Concentration curve of OOP vs income in Egyptian households


Source: HIECS (2017)

Figure 6. 49. Reasons for not seeking care for the non-poor and poor population


Source: HIECS (2017)
110.Most of OOP spending stems from the purchase of medicines and products, representing 61 percent of OOP spending. This is consistent with the observed public preference to use private pharmacy as the point of care and low coverage of pharmaceutical products under the existing benefits packages. Inpatient care, usually better covered by health financing schemes, only accounted for 6 percent of OOP. To reduce OOP health spending in Egypt, it will be important to increase coverage for medicines in the benefit package, strengthen regulation of medicines (including rational drug use and prescriptions), and improve access to and quality of outpatient care.
111. Nearly half of Egypt's population has health insurance coverage through social health insurance and private voluntary health insurance schemes, but this does not necessarily translate into effective financial protection. Almost 19 percent of the population is covered under the HIO , the old social health insurance scheme, and 28 percent are covered by public student health insurance (
112. able 6.3). Both types of insurance, however, typically do not offer comprehensive coverage. Only 2 percent of the population has private health insurance through their employer. Trade union and individual subscription to private health insurance accounted for less than 1 percent. The highly fragmented and inefficient health insurance schemes call for a unified universal health insurance system in Egypt to more efficiently pool the risk and protect population against financial risks for health.

## Box 6. 7. Government health insurance schemes before UHIS

Enrollment into the governmental/social insurance schemes is not mandatory, which has contributed to a highly fragmented and duplicating health insurance pooling system, and low financial coverage. Close to half of the population are not covered by any insurance scheme (49.8 percent), with the majority of the other half (around 47 percent) being enrolled with the governmental scheme (including HIO , student insurance schemes, etc.), and only 3 percent of the citizens benefiting from a private health insurance (Figure 6. 48). Among the insured, numerous insurance schemes co-exist, limiting the system's redistributive capacity. Moreover, most schemes do not have sufficient coverage for health services or are not able to collect adequate premiums, resulting in low efficiency and low financial protection. Some individuals are eligible for coverage by more than one insurance schemes, such as syndicates, banks, private companies, non-governmental organizations, ministries of Interior and Defense, and private insurance companies.
These fragmented but overlapping risk pools result in complex management processes and high administrative costs, and adverse selection in some schemes. For instance, opt outs are common in HIO , leaving only the sick, poor and extremes of age benefiting from the system while they contribute little. Therefore, the HIO does not receive adequate premiums and suffers from big financial risks.
able 6.3. Share of population ( $\%$ ) covered by public and private

| health insurance (2017) |  |  |
| :--- | :---: | :--- |
| Type of Insurance Coverage | \% of <br> population <br> covered | Classification |
| Student health or treatment insurance | $27.9 \%$ | Public Insurance |
| Health insurance through the Health <br> Insurance Organization (HIO) | $18.7 \%$ | Public Insurance |
| Health insurance or private treatment by <br> employer | $2.2 \%$ | Private Insurance |
| Health or medical insurance through a <br> trade union or union | $0.7 \%$ | Private Insurance |
| Health insurance or treatment by employer <br> for another family member | $0.5 \%$ | Private Insurance |
| Individual subscription to health insurance | $0.3 \%$ | Private Insurance |
| Not subscribed or benefited | $49.8 \%$ | No Insurance |

Figure 6. 50. Distribution of citizens according to their status of insurance, 2017


Sources: HIECS 2017
113.Though some poor people were enrolled in health insurance schemes before UHIS, they still lack effective financial protection. Despite enrollment in the old health insurance schemes, poor households still pay on average EGP500 on health care in 2017, in contrast to the average of nearly EGP2000 paid by the nonpoor households (Table 6. 4). While the same insurance policy apply to poor and non-poor beneficiaries, the big difference in OOP shows that the poor still face financial challenges and use less services.

Table 6.4. Household head enrollment into health insurance schemes vs. average annual per capita OOP on health, by poverty status

| Type of insurance | $\%$ of poor enrollees | Average annual per capita OOP on health in 2017 <br> (EGP) |  |
| :---: | :---: | :---: | :---: |
|  |  | Non-poor households | Poor households |
| Health insurance through the Health Insurance Organization | 17\% | 2254 | 554 |
| Health insurance or private treatment by employer | 17\% | 1594 | 523 |
| Health insurance or treatment by employer for another family member | 14\% | 3636 | 556 |
| Health or medical insurance through a trade union or union | 11\% | 2190 | 298 |
| Individual subscription to health insurance | 0\% | 2752 | 429 |
| Not subscribed or benefited | 18\% | 1831 | 484 |
| Total | 29\% | 1991 | 500 |

Source: HIECS 2017

## 3. Efficiency of public spending on health

114.Historically, Egypt government largely uses line-item budgeting for the health sector, which does not link to specific outputs or performance targets. Recently, there has been an effort to improve the flexibility and efficiency of budget. While line-item budget accounts for majority of public spending in health sector, program budgeting is also used for some central public health programs, where budgets link to specific program targets. Based on limited data, some large central public health programs such as the 100 Million Healthy Lives has achieved good health outcomes, showing good budget impact. The line-item budget finance specific inputs (staff compensation, medicines and supplies, assets, etc.) in health facilities and administrative entities. The Unified Public Finance Law No. 6 for the year 2022 (which will completely switch to programbased budgeting within four years) allows budget units to reallocate budget appropriations from one line item to another within the same chapter. However, the administrative process is not easy. Therefore, there is still limited flexibility with spending, irrespective of the local needs, demand, or the ability to spend the budget. In addition, in facilities funded by line-item budget, there is tendency to increase inputs and lead to waste. Globally, countries are moving away from line-item budgets to more efficient budgeting and payment methods to health facilities. In 2016, among 33 OECD and affiliated countries surveyed, only two countries still use line-item budget for public hospitals (Costa Rica and South Africa) ${ }^{13}$.
115.The most common replacement for line-item budget is global budget with service targets, which is used by many countries with a budget-funded health system or social health insurance systems. In global budget, a fixed amount will cover the aggregate costs of a hospital providing a set of services. Global budget usually does not restrict the spending categories as in the line-item budget method and gives significant autonomy to the entity. By 1990s, global budget financing for public hospitals is prevalent in OECD countries. In 1993, 16 of 22 OECD and affiliate countries surveyed used global budgeting (UK, Australia, Canada, Denmark, Finland, France, Sweden, Germany, Switzerland, Italy, Norway, Iceland, Ireland, Netherland, Portugal, Spain) ${ }^{75}$. In 2016, 13 of the 33 OECD and affiliate countries surveyed still used global budget to finance public hospitals, whereas the others have adopted more advanced payment methods (Belgium, Canada, Denmark, Iceland, Ireland, Italy, Luxembourg, Mexico, New Zealand, Norway, Portugal, Sweden, and Turkey) ${ }^{76}$. While global budget is commonly used for countries funding public health facilities using general budgets (such as Canada), and also among countries with social health insurance systems (such as China). Therefore, global budget will be a compatible budget method under Egypt's UHIS.

[^36]116.Historically, especially in the 1970s- early 2000 s period, the budget allocation to different governorates was highly correlated with the number of available hospital beds, which were used as a proxy for the amount of services being provided. This phenomenon has incentivized hospitals to overinflate their bed capacity even if they were stalled capacity and not actually providing services. Budget top-ups over the years were then affected by the high-base, as budgets were growing disproportionally to the volume, quality and patient satisfaction of the rendered services. Going forward, budgetary allocations need to become gradually more correlated to an actual composite review of the facility's: i) volume of rendered services; ii) target achievements of their submitted annual plans; iii) quality ratings; and iv) patients satisfaction and feedback scores.
117.An efficient public health spending reflects an optimal use of resources to achieve the best health outcomes. The concept of efficiency encompasses two dimensions: allocative efficiency measures whether inputs are optimally allocated according to the priority needs, while technical efficiency is a measure of the effectiveness with which a given set of inputs is used to produce an output, which in this case is the high-quality health services. A production function approach is typically used to measure efficiency, in which investment in various health resources and inputs (such as health human resources, hospital beds, pharmaceuticals) across different levels of health system produces the outputs of health services (inpatient services, outpatient services, primary care services, preventative services, etc.), which eventually improve the health outcomes (such as life expectancy, mortality, productivity).

Box 6. 8. Transition from Line-item budget to global budget as a feasible option for Egypt health system

## Advantages of global budget over line-item budget

Global budget has several advantages for the payers: 1) It has administrative simplicity and low transaction cost; 2) It sets limits for total expenditure by hospital, and would help control rapid health expenditure growth if hospitals cannot shift cost to other payers (e.g. health insurance, or patients); 3) With proper incentive design, global budget can set strong incentives for performance enhancement, and encourage hospitals to improve clinical practice and efficiency; 4) By linking funding to service targets, instead of inputs, it helps align health service provision with health sector goals and strategies; and 5) Global budget could incentivize providers and health professionals not to provide unnecessary or low-value care.
Payment methods for public hospitals in OECD and affiliated countries

| Country | Payment method for acute <br> inpatient care for publicly owned <br> hospitals | Country | Payment method for acute <br> inpatient care for publicly owned <br> hospitals |
| :--- | :--- | :--- | :--- |
| Australia (AUS) | Payment per case (DRG-like) | Luxembourg (LUX) | Prospective global budget |
| Austria (AUT) | Payment per case (DRG-like) | Mexico (MEX) | Prospective global budget |
| Belgium (BEL) | Payment per case (DRG-like) | Norway (NOR) | Prospective global budget |
| Canada (CAN) | Prospective global budget | Poland (POL) | Payment per case (DRG-like) |
| Chile (CHL) | Prospective global budget | Portugal (PRT) | Prospective global budget |
| Czech Republic (CZE) | Payment per case (DRG-like) | Slovenia (SVN) | Payment per case (DRG-like) |
| Denmark (DNK) | Prospective global budget | Spain (ESP) | Prospective global budget |
| Finland (FIN) | Payment per case (DRG-like) | Sweden (SWE) | Prospective global budget |
| France (FRA) | Payment per case (DRG-like) | Switzerland (CHE) | Payment per case (DRG-like) |
| Germany (DEU) | Payment per case (DRG-like) | Turkey (TUR) | Prospective global budget |
| Greece (GRC) | Payment per case (DRG-like) | United Kingdom (GBR) | Payment per case (DRG-like) |
| Iceland (ISL) | Prospective global budget | Costa Rica (CRI) | Line-item budgets |
| Ireland (IRL) | Prospective global budget | Lithuania (LTU) | Payment per case (DRG-like) |
| Israel (ISR) | Payment based on procedure or | South Africa (ZAF) | Line-item budgets |
| Italy (ITA) | service | Payment per case (DRG-like) | Latvia (LVA) |
|  | Payment based on procedure or |  | Prospective global budget |
| Japan (JPN) | service |  |  |

Source: OECD,2016¹

## Global examples of transition from line-item budget to global budget for public hospitals

1. In practice, countries transited from line-item to global budget in different ways. Albania simply aggregated several line items to form the global budget; Turkmenistan started by permitting some expenditure flexibility across line-items
2. During the transition to global budget in the 1960s in Canada, historical budget was used as base for adjustment, and hospitals gained flexibility to move budget across line items. In later stages, case-mix-based (normative approach), and population-based approach (capitation approach) were mixed in budget ceiling estimation
3. Nowadays, most countries estimate global budget based on case-mix or DRGs. Many other countries eventually transition to mainly DRG-based payment system.

What capacities are needed at public hospitals to implement global budget reforms?4


[^37]118.Despite low levels of current health spending and reliance on OOP spending, Egypt has been able to achieve relatively good health outcomes by global comparison. Life expectancy at birth in Egypt is slightly lower than comparator countries, but around average of countries of similar level of per capita health spending (Figure 6. 51). Infant mortality rate is also similar to countries with comparable level of health spending per capita (Figure 6.52). Yet, compared to countries with similar level of health spending but better health outcomes, the efficiency of health spending in Egypt could improve further.

Figure 6.51. Life expectancy vs current health spending
per capita (US\$) global comparison


Source: WHO GHED (2018)

Figure 6. 52. Infant mortality vs current health spending


Source: WHO GHED (2018)
119.The process of decentralizing government health spending was reversed since 2015 to re-focus on high impact central health programs, however, disparities in health spending across governorates persist. While in 2015, 50 percent of government health spending was managed through local governments, this share has declined to 34 percent in 2020, with 41 percent being channeled through central administration. The re-centralization trend is largely due to the creation and existence of large health programs managed by the MOHP, while spending on hospitals remained relatively stable (Figure 6. 53). In FY2020, 36.6 percent of government health spending was directed to general health services through the general office of Ministry of Health and Population, General Authority for Hospitals and Educational Institutes, and General Authority for Healthcare. Another 52.8 percent was distributed to directorates of health affairs (decentralized to governorates), and hospitals. Among the locally channeled funds, Cairo, South Sinai, Assiut, Suez had relatively high government spending per capita, whereas Kafr Elsheikh and Beheira had very low spending by the local governments and health facilities (Figure 6.54). Moreover, at the local level, there is not much room for discretionary spending as most of the budget goes to staff compensation. This further hinders re-allocation of resources to improve efficiency and ability to meet evolving health needs at local level.


Source: MOF
120.When all health expenditures are considered, Egypt spends more on medicines but little on prevention, leading to inefficiencies in health spending. A third of current health spending is on medical goods, among the highest shares in comparator countries (Figure 6.55). This can be linked to the public's preference of using private pharmacies as the point of care in Egypt and lack of prescription enforcement, raising concerns about the quality of care and the efficiency of spending on medicines. Despite being the most cost-effective intervention, preventive care accounted for only 1 percent of current health spending in Egypt - the lowest among all comparator countries. Spending on prevention needs to increase to improve the efficiency of the system and achieve better health outcomes.

Source: MOF

Figure 6.55. Distribution of current health spending by functions


Source: WHO GHED (2018)

## The Universal Health Insurance System

The UHIS is designed to bring a paradigm shift to the health financing system in Egypt. Policy design and the early phases of UHIS implementation can inform the way to improve the access, efficiency and quality of health care services.
121.The GOE has identified universal health coverage (UHC) as a national priority, to address the existing health system challenges, accelerate progress toward universal health coverage, and transform Egypt's health financing and service delivery systems. The old health insurance scheme HIO suffers from several endemic challenges, including low financial protection, high OOP spending, fragmentation and inefficient risk pools, adverse selection, high opt out, lack of gate keeping and referrals, limited choice of providers, and low financial sustainability of insurance schemes. In December 2017, the government passed the Universal Health Insurance Law (UHIL) to accelerate progress towards UHC (i.e. to improve access to quality health services and ensure financial protection). The UHIS is designed to address the challenges with
the current health system and the existent HIO scheme (Box 6. 9). The UHIL envisions mandatory coverage for all citizens in the country, including vulnerable groups (approximately 30 percent of the population) who will be fully subsidized by the government. In addition, the UHIL allows (i) optional coverage for Egyptians living abroad and (ii) coverage for all foreign residents, subject to reciprocal agreements with their respective countries. The UHIS will be rolled out in six phases over a 15 -year period[1]. Phase I included six governorates which became operational in 2019 with a pilot in Port Said, UHIS further expanded to Luxor in 2021, and expansion to Ismailia is currently underway. UHIS will further expand to another three more governorates (Aswan, Suez and South Sinai).

Box 6. 9. UHIS addresses the inefficiencies of HIO to improve UHC

| Feature | Health Insurance System (HIO) | $\begin{array}{c}\text { Universal Health Insurance } \\ \text { System (UHIS) }\end{array}$ |
| :--- | :--- | :--- |
| $\begin{array}{l}\text { Organizational } \\ \text { structure }\end{array}$ | $\begin{array}{l}\text { The HIO is the payer, provider, and } \\ \text { supervisor of healthcare. }\end{array}$ | $\begin{array}{l}\text { Three organizations will manage the } \\ \text { health system. the Universal Health } \\ \text { Insurance Agency (UHIA) will be } \\ \text { the 'payer,' the General Authority for }\end{array}$ |
| Health Care (GAHC) will be the |  |  |$\}$


| Choice of | Beneficiaries are linked to specific <br> pealth facilities and cannot access <br> pealth services in other facilities. <br> Public facilities only. | Beneficiaries are free to choose <br> service providers if they use the <br> referral system. |
| :--- | :--- | :--- |
|  | Both public and private providers <br> are covered. |  |
| Financial <br> sustainability | The system is financially under <br> pressure. | Financial and actuarial sustainability <br> is ensured by law. |

122. Four new agencies have been established to implement the UHIS: the Universal Health Insurance Agency (UHIA) (i.e., the 'purchaser'), the General Authority for Healthcare (GAHC) (i.e., the 'provider'), and the General Authority for Healthcare Accreditation and Regulation (GAHAR) (which will be responsible for quality assurance and accreditation), and the Unified Procurement Agency (UPA) (Figure 6. 56). The four agencies are expected to transform health financing and service delivery, incorporating good global practices on strategic purchasing, quality improvement, service delivery, and governance.

Figure 6. 56. UHIS implementation arrangements by four entities

123.The UHIS has a multi-source revenue mobilization mechanism, and early projections show good financial sustainability. The UHIS mobilizes revenues from two key sources: compulsory premium contributions and general tax revenues. Citizens are classified into different categories (employees, employers, pensioners, and dependents) and are mandated to contribute a small percentage of the wage/pension as premium (Table 6. 5). The vulnerable groups' premium will be fully subsidized by the treasury at 5 percent of the national minimum wage to ensure those who cannot afford paying their contributions are not left out. The subsidy for premium will be raised from the common pool various sources, including solidarity tax, tobacco tax, road toll, driving license fees, medical facility licensing fees, UHIA investment returns and other sources. An actuarial analysis conducted by the MOF shows good financial sustainability of UHIS with the planned revenue sources within the next ten years. However, when actual implementation data on revenue, enrollment, utilization and cost becomes available, the actuarial projection needs to be updated regularly to inform the longterm financial sustainability.

Table 6. 5. Health financing of UHIS

| Categor | Contribution | Dependents |
| :---: | :---: | :---: |
| Formal employees (civil servants, private sector, and other nongovernment employees) | $1 \%$ of subscription wage | $3 \%$ for a nonworking spouseor one without steady income,1\% for each child or dependent |
| Self-employed. | $5 \%$ of insured wage or wage according to tax declaration or the maximum insured wage, whichever is greater |  |
| People with total disability and nonformal employment pensioners. | $5 \%$ of the insured wage, and the total amounts paid by the person for all the family members shall not exceed $7 \%$ and the public treasury shall pay the cost differential |  |
| Pensioners | $2 \%$ of the monthly pension value |  |
| Single mothers and beneficiaries of pensions | $2 \%$ of the monthly pension value |  |
| Employer's share covering their employees | $4 \%$ (3\% for illness and $1 \%$ for occupational injuries) of insured wage |  |
| Subscription covered by the public treasury for the vulnerable groups | $5 \%$ of the national minimum wage for each vulnerable person |  |

## Box 6. 10. Fees and Taxation to raise revenue for UHIS

- EGP 0.75 of the price of each pack of cigarettes sold in the local market, whether of local or foreign production, and this amount shall be increased every three years by EGP 0.25 and capped at EGP 1.5
- $10 \%$ of the value of any sold tobacco item, other than cigarettes
- EGP 1 for each vehicle on a toll road
- EGP 20 per year when issuing or renewing a driving license
- EGP 50 when issuing or renewing a car license whose engine capacity is less than 1.6 L
- EGP 150 when issuing or renewing a car license whose engine capacity exceeds 1.6 L and is less than 2 L
- EGP 300 when issuing or renewing a car license whose engine capacity is 2 L and more
- EGP 1,000 to EGP 1,500 when clinics, treatment centers, pharmacies, and pharmaceutical companies enter into contract with the UHIS
- EGP 1,000 for each bed when issuing licenses for hospitals and medical centers
- A solidarity contribution tax of $2 / 1,000$ out of the total of the sole proprietorships and companies, regardless of their nature, line of business, or the legal system they are subject to, as well as the economic public authorities
- 50 percent of the revenues collected in the self-revenue funds in public health facilities
- EGP 5 stamp tax on the applications submitted to the UHIA, HCO, and GAHAR
- Returns of the UHIA investments
- Fees for other services provided by the UHIA other than those provided for under the UHIL
- Foreign and domestic grants and loans concluded by the GOE for the UHIA
- Gifts, aid, donations, and bequests accepted by the UHIA's Board of Directors

Source: UHIL Policy document

## 124.Some challenges are already identified and can be summarized as follows:

- As with all major social health insurance reforms globally, there are several observed or anticipated challenges that UHIS needs to overcome. ${ }^{77}$ Based on the analysis of UHIS policy documents, early implementation and global experiences, the potential challenges and recommendations are listed below.
- The acceleration of the rollout of UHIS may trigger financial deficits. This is because the introduction of new governorates will only generate minor increases in premium collection, while expenditures are expected to be larger with the resultant new medical claims. At the same time, tax revenues have already been maximized owing to their national imposition from the start of implementation. This will create negative balances with each additional governorate that is being introduced into the system, and will deplete the so far accumulated reserves.
- Enrolling the informal sector: social health insurance programs often face challenges enrolling citizens who are non-poor and working in the informal business sector. The enrollment of this group of beneficiaries requires a strong income tax and social security system through which the premium can be collected, which is currently difficult to track and implement. See Box 6.11 on other countries' experience in enrolling the informal sector into the UHIS.
- Mobilizing revenue: despite the diverse revenue sources in the design of the UHIS, the revenue generation capacity needs to be assessed with implementation data, and more diverse revenue sources need to be considered for the long-term. The solidarity tax adds cost to small businesses and may be met with fierce resistance from the business community. In the longer term, improving tax generation and collection, and introducing new tax bases such as taxing sugar and unhealthy goods could be considered for strengthening fiscal sustainability.

| Box 6. 11. . Enrolling the informal sector beneficiaries-experiences from selected countries |  |  |
| :--- | :--- | :--- |
| Country | Strategies |  |
| Korea | - | National health insurance law that covers all citizens and leaves no one behind |
|  | - | Incremental approach to enroll those who are most receptive first and demonstrate |
| benefits of the social health insurance scheme to the public |  |  |

[^38]
## India

- Identify and target eligible beneficiaries through a census
- Unique digital identities for each person to help beneficiary targeting
- Entitlement scheme subsidized by government budget-no premium and no copayment for the eligible beneficiaries

Source: WB-MOF UHIS global knowledge exchange webinar series

## 125.Public provider reforms in GAHC:

- Enhancing the management capacity of and ensuring a flexible regulatory environment for public providers: the implementation of universal health coverage is often companied by supply side capacity expansion to meet the increasing health care demand. Public facilities need to improve their management capacity to effectively function under UHIA's strategic purchasing. For instance, the transition from line-item budget to strategic purchasing requires public providers to have capacity for financial management, planning, billing, resource (HRH, beds, equipment, pharmaceuticals) management, clinical performance management, IT system, contracting, procurement, which may or may not be currently available in many public health facilities. In addition to management capacity enhancement, public providers also need significant regulatory flexibility and autonomy that allows providers to re-distribute resources (such as closing or converting unused wards, re-distributing or task-shifting health human resource, adjusting procurement of medicines and goods, paying staff performance bonus) to maximize output and reduce waste in health facilities. However, public facilities follow government financial management rules, while staff salaries have to adhere to the pay scale for public sector employees regardless of performance. More flexibility would be needed to enable efficient operation by public facilities, to reap the benefits of the reforms, and to achieve financial sustainability---using revenues from UHIS to sustain operations.
- Clinical quality improvement driven by private sector competition: Under the UHIS, both private providers and public providers will be contracted using a unified fee schedule and similar output-based contracts. Public and private providers will both serve the health care needs of the population. The healthy competition between private and public providers is expected to drive clinical quality improvement in public facilities, particularly in areas where private sector provision is already prevalent. Patient preference for private sector might lead to crowding out of the public providers. It is important, however, for UHIA and GAHC to enforce the basic quality standards and continue to closely monitor the provision of care quality through medical audits at both public and private providers participating in UHIS.
- Continue the supply-side government investment for public provider capacity improvement: Improving public facility clinical and management capacity require refurbishment of infrastructure (including IT system) and capacity building. Such costs are usually not factored into health service prices and not covered under the strategic purchasing contract. The government already heavily invested in public health facilities under Chapter 6 of the budget), but continuous government direct investment will still be needed to improve public provider infrastructure and capacity.


## 126.Engaging private providers:

- Master planning, complementarity and competition between public and private sector: Private providers are important players in the Egyptian health system, particularly for outpatient specialty care and inpatient care. However, in cases of specialties of strong patient preference for private care, there might be crowding out of public care. While the current capacity planning is largely focused on the public sector, the future health system capacity planning (for hospitals, PHCs, clinics, beds, human resources, specialty services, etc) need to take a holistic master-planning approach that
considers service capacity from both public and private sectors, and encourages healthy competition and complementarity between public and private. Importantly, this will ensure that the entire population has adequate access to health services under UHIS regardless of location and will help to address the current gaps in provider skill mix and geographical distribution.
- Incentives for participation of private sector: many social health insurance programs globally face challenges engaging private providers if the reimbursement prices for health services are set significantly below the cost of delivering such services. When the set price is too low, private providers may opt out from the scheme, compromising the provider network of the scheme. On the other hand, if the set price is too high, there will be supplier-induced demand and unnecessary health spending. The engagement with private providers needs to be based on market research, and understanding of the private provider behaviors, while levering the negotiation power of UHIA as the single largest payer for health care in Egypt. In addition, timely payment to private providers is also critical to encourage private participation.

Table 6.6. Analysis of anticipated UHIS implementation challenges and recommendations

| Key functions UHIS | UHIS Target | Anticipated UHIS Challenges in implementation | Recommendations |
| :---: | :---: | :---: | :---: |
| Revenue raising | Multi-source revenue raising for the whole population | - Collecting premium from the informal sector non-poor who are not easily captured in the tax system or social security system by the Ministry of Social Solidarity <br> - Resistance from the business community to pay the social solidarity tax particularly during COVID-19 pandemic <br> - uncertainties on fiscal sustainability | - Improve beneficiary targeting to the non-poor population working in informal sector; consider financial, transactions, and information barriers for this group to enroll in UHIS <br> - Consider alternative financing mechanism through general or specific taxes (eg. sugar tax) which can be channeled through general government revenue and health budget <br> - Closely monitor the unwanted effect of solidarity tax on business community <br> - Repeat the actuarial study regularly with real implementation data as mandated in the clause 44 of the UHIL. |
| Risk pooling | Single risk pool | - Upward redistribution-the poor subsidize the rich, the less developed governorates subsidizing the more advanced governorates, due to the better availability and higher use of services among the richer governorates. | - With rolling out of UHIS, closely monitor the regional and income-related disparities in service capacity and service use <br> - Boost supply-side capacity, particularly in under-developed regions to ensure service capacity through both public and private sector |
| Strategic purchasing | - Explicit and costeffective benefit package | - Current benefit package is very broad and generous (a negative list), and such packages based on global experiences may lead to long waiting | - In the continuous benefit package improvement process, consider an explicit benefit package, with mechanisms to select services based on value and evolving needs. |



|  |  | - There are disparities in service capacity and quality across regions. Richer regions and urban regions have more health resources and better service availability. If service capacity gap remains, the UHIS may favors the richer and urban regions, leading to equity concerns. | is not included in the service fees reimbursed by UHIS, capital investment for quality improvement may require additional and continous government investment. |
| :---: | :---: | :---: | :---: |
| Procurement | - Centralized procurement for better bargaining power and better prices under volumebased contracts | - Estimating the demand from all public facilities, and conduct procurement and distribution of medicines, medical equipment, and supplies require a comprehensive system enabled by IT system, planning committee, functional supply chain, which takes time to develop in UHIA. | UPA could consider centralized procurement, and centralized price negotiation for high value equipment, frequently used medications and supplies to achieve value for money. The HTA capacity and volume-based procurement capacity needs to be built up over time. |

Source: WB staff analysis

## D. COVID-19 and Impact on Health Financing

To face the COVID-19 crisis, the government increased the health budget to control the pandemic, including on vaccination. With the prolonged pandemic and the launch of UHIS, more government spending on health is expected and needed.
127.The GoE has allocated funding for COVID-19 control and vaccination, but the rollout of the vaccination campaign has been relatively slow. In FY2020, a total of EGP2.8 billion budget was spent on COVID-19 control, equivalent to $0.05 \%$ of GDP (Table 6. 7). In FY2020-21, another EGP9. 3 billion is budgeted for COVID-19 control (equivalent to $0.146 \%$ of GDP), among which 2.4 billion is for COVID-19 vaccination (Table 6. 7). In addition, EGP 0.9 billion donations and EGP 0.03 billion loans and grants were received. The government expenditure on COVID-19 was largely on goods and services (39\%), assets ( $24.2 \%$ ) and health worker wage ( $15.7 \%$ ) (Table 6. 8). Support grants and social benefits accounted for the remaining $11.2 \%$. As of Jan 13, 2021, $25 \%$ of population in Egypt has been fully vaccinated against COVID-19, whereas another $10 \%$ are partially vaccinated. Though the vaccination rate is slightly higher than the Africa average, it is much lower than the global average. Vaccination is a globally recommended strategy, and with high vaccine coverage, many countries eased their measures on COVID control (such as travel restrictions, school closure, etc) to restore normal activities, Accelerating the roll out of vaccination is therefore also helpful to restore business and social activities.
128.Despite lower economic growth and budget constraints, health spending increased during COVID-19 due to re-prioritization of health. Economic growth declined from 3.6\% in FY2019/2020 to $3.3 \%$ in FY2020/2021 (July 1, 2020—June 30, 2021), affected by the ongoing impact of COVID-19. Despite the limited fiscal space, government spending on health care has significantly increased in 2020/21. With the prolonged COVID-19 impacts and the launch of UHIS, more government spending on health is expected and needed.
129.With the devastating COVID-19 impacts, improving health care system is widely considered a country priority, creating a favorable environment for the rolling out of UHIS. There is opportunity to retain the momentum of UHIS rolling out in Port Said, and accelerate the scaling up in phase 1 governorates, while preparing for phase implementation. Additionally, the supply side capacity enhancement for COVID19 control also leads to some improvement in public provider capacity.

Table 6.7. Government spending for COVID-19, EGP Billion

|  | FY2019-20 | FY2020-21 |
| :--- | :---: | :---: |
| COVID control | 2.8 | 7.0 |
| COVID vaccination | 0.0 | 2.4 |
| Total | 2.8 | 9.3 |

Source: Ministry of Health and Population

Table 6.8. Spending on COVID-19 control and vaccination
by funding sources and by spending category (FY2020-21)

| Source | Category of spending | Spending (billion EGP) | $\%$ of spending |
| :--- | :--- | :--- | :--- |
|  | Health workers wages <br> and compensation | 1.470 |  |
| Government <br> budget and | Purchasing goods and <br> services | Support grants and <br> own resources <br> social benefit | 3.609 |

## Source: MoHP

## E. Summary of Key findings and The Way Forward

130.Disease burden and health outcomes: Despite tremendous improvement in many maternal and child health outcomes and rapid increase in life expectancy, Egypt still has a high burden of stunting, burgeoning disease burden from NCDs and high prevalence of risk factors such as diabetes, hypertension, obesity as well as the challenges associated with rapid population growth.
131.Government health spending: Government spending on health is currently inadequate and inefficient, and therefore does not lead to desired health outcomes. Government spending under the functional classification of health remained stagnant at 1.5 percent GDP during the past 5 years and decreased in real terms since 2017. Despite the prioritization of primary care, investments have not resulted in higher utilization of primary care facilities. This suggests that the investment in infrastructure did not directly lead to improvements in service quality. The decreasing government spending on health human resources together with the low salary sale contributed to the loss of human resources in the public sector, leading to low quality of public facilities. While spending on prevention is relatively low, several recent large public health programs under the 100 Million Healthy Lives Campaign had very positive health benefits and good return on investment. In addition, there is insufficient focus of the public spending on key health concerns, such as malnutrition, family planning, and non-communicable diseases.
132.Budgeting methods: The current line-item budget does not link to clear performance, and does not provide sufficient flexibility or financial incentives for performance in public sector health facilities. There is need to move away from line-item budget to the alternatives, such as the globally commonly used: programbased budget for centrally administered public health programs, global budget for public hospitals, and
capitation-based budget for primary care. In addition, performance targets, monitoring and linking performance with payment are critical to ensure quality of care and efficiency.
133.OOP payment and financial burden: OOP payments remain the dominant source of financing, accounting for 62 percent of current health spending. More than 30 percent of households incur catastrophic health spending, and 7 percent are pushed below the poverty line due to OOP payments. Sixty-two percent of OOP payments are spent on medicines and products.
134.Health resource: Health resources in Egypt are not efficiently nor equitably distributed in the public sector. The health sector suffers from a human resources skill mismatch (over supply of pharmacists and dentists), under-staffing in remote and under-developed areas, and idle capacities in primary health care (PHC) and hospitals. Households with the least access to healthcare are located in Upper Egypt governorates, which have higher poverty rates and lower per capita public spending on health than other governorates.
135.Health service: Thirty percent of Egyptians use private pharmacies as the preferred choice of care, and most prefer to seek care at private facilities. This raises concerns about the quality of care at public facilities. At present, the private sector is developed without major regulations to align and contribute to public health goals.
136.COVID-19: there was rapid mobilization of government funding for COVID-19 control and vaccination. However, the progress on vaccination is slow. By January 17, 2022, only 29 percent of the population in Egypt has been fully vaccinated against COVID-19, whereas another 16 percent are partially vaccinated with the first dose. The slow vaccination coverage hinders the recovery of the economy.
137.UHIS: UHIS is designed to transform Egypt's health system, by providing health insurance coverage to all citizens, with the vulnerable groups being fully subsidized by the government. This includes the introduction of strategic purchasing, including linking payment to outputs and quality. The old system relies on financing inputs such as hospital beds, and it doesn't matter if the beds are used or remain unused, nor does it link to quality of care in a facility. Whereas UHIA only finances those accredited health facilities and is paying for outputs such as number of hospitalizations. This is likely to drive improvement in service and quality. To ensure fiscal sustainability and good outcomes, UHIS will need to resolve several challenges, including enrollment of citizens who are non-poor and working in the informal business sector, diversifying revenue sources, transforming public providers' autonomy, capacity, and quality to re-align resources to maximize output and reduce waste in health facilities, improving quality of care, and engaging private sector providers effectively.

Figure 6.57. Egypt Health System SWOT Analysis


Source: WB staff analysis

## The Way Forward

138.To support the government in implementing UHIS and transforming Egypt's health sector, this PER presents the following recommendations for the immediate-, medium-, and long-term.

## Immediate:

139.Explore innovative sources to expand more revenue generating streams to address the growing healthcare needs. UHIS already leverages multiple sources of innovative financing for health care. Forecasting and actuarial modelling exercises need to be carried out/updated to identify the expected future financing needs. Ideas to generate more revenues could range from the introduction of sugar tax ( not earmarked), increase tax rate for tobacco, and consolidate the fiscal space, to raise more fund for health. Notably, the Egyptian tax system is currently fragmented and complex (see Chapter 1 in Volume I of this review). Therefore, it is recommended that sugar tax should be non-earmarked, and flow to the general government revenue which could be allocated to health through budget. In addition, there should be a reprioritization of the health sector (reallocations from other sectors), particularly considering the comparative impact of health on economic recovery and growth after COVID-19.

## Box 6. 12. Taxing Sugar-Sweetened Beverages

Sugar-sweetened beverages (SSB) are a major source of excess sugar and energy in diets. There is strong evidence linking excess sugar and SSB consumption to a range of adverse health effects, including obesity, type 2 diabetes, and cardiovascular disease. Many countries are choosing to tax SSB as a fiscal policy for health, with the aim of increasing retail prices, raising public awareness, incentivizing non-price industry responses, and mobilizing government revenue. Egypt is considering introduction of a 5 percent ad valorem tax that would be applied to soft drinks of all kinds, whether they are soda soft drinks, or scented, sweetened or unsweetened soft drinks packed in bottles or other containers, whether they are locally produced or imported, with a minimum of 25 piasters.

Preliminary analysis shows that such a tax would yield excise revenue as high as EGP 13.2 billion in 2022, with SSB taxes adding as much as 1.7 percent of tax revenue; and the volumes of taxed beverages would be expected to decline by as much as 9 percent. Such taxes will not be regressive when the gains in health and productivity are taken into account.
140. Explore more efficient budgeting and budget management methods. A combination of programbased budget for large public health program, and global budget with performance incentives for public facilities could replace the current line-item budget, to better align budget with health system targets, and improve flexibility and efficient to utilize the budget.
141.Increase government spending for health. The currently inadequate spending on health care, the rapidly growing population, the high financial burden due to OOP, and the scaling up of UHIS, all call for an increase in government health spending in Egypt to boost its investment in human capital and be on par with other countries of similar economic potentials. Going forward, two factors will exert immense pressure requiring additional revenues, namely:
a) The acceleration of the rollout of UHIS and associated spending in governance, premium subsidy to the poor; as well as GAHC investment to boost public provider capacities.
b) The growing public health programs that fall outside the scope of UHIS, which are addressing important health burdens and are considered a priority for the GOE: (i) a protracted COVID epidemic that necessitates further expenditures on vaccinations, treatments and disease preparedness
for any future waves to avoid mortality and economic shocks for the economy at large; (ii) a renewed population strategy with a restructured family planning program at its core to address the high population growth rates and sub-optimal population characteristics that are impeding Egypt from achieving a demographic dividend; (iii) Public health programs to address the key disease budens like the 100 million healthy lives, Hayat Karima, School health, Ambulance services etc.; (iv) comprehensive national nutrition services, particularly to reduce stunting and malnutrition in the 1000 days of a child's life; and (v) preventive programs for a growing population whether routine or in preparedness for further disease outbreaks e.g. National Vaccination Program, new disease surveillance systems, etc.
142.Enhance efficiency, quality, and equity of government health spending. Government spending on health could benefit from more efficient allocation:
a) MOHP Spending on preventive care could be expanded, especially on centrally managed programs. The current spending on preventions is relatively low, which will result in higher burdens of medical spending under the UHIS in the future. Introduction of mandatory screening programs e.g., prostate, colon and breast cancers etc. have proven as solid worthwhile investments in many countries around the world. Further, the NCD management programs under the 100 Million Healthy Lives Campaign could be further expanded to tackle the NCD burden and avoid costly complications in future years.
b) GAHC spending on primary care centers and hospitals needs to focus on the spending categories that can improve quality. The low health worker salary scale in public sector and consumable/pharmaceutical supply chain management weaknesses have constrained the service quality despite investment to improve infrastructure. More detailed diagnostics are needed to precisely identify the bottlenecks of care quality, for public investment. Further, New compensation and non-tangible mechanisms needs to be developed immediately to halt the internal and external brain-drain of the health workforce.
c) Government spending needs to support health equity, to subsidize the poor and vulnerable population and the disadvantaged regions, such as upper Egypt. Currently, more budget resources are invested for the non-poor and more developed regions. This is understandable in the context of having most of the tertiary and specialized services and health workforce concentrated in urban and metropolitan centers. Therefore, a new model of deconcentrating the specialized and tertiary centers to fall outside the urban centers and spread out to most geographic regions is required. This could be gradually achieved through government mandates and moratoriums on specific services to discourage further growth in the large urban areas. On the contrary, more investments in primary health care facilities should be sought in urban settings to compensate for the service deficits in that category. Supply side interventions (e.g. budgeting decisions) will be a powerful tool in creating a change in demand on health care services and hence attain more equity to the population.
d) Investing on health system preparedness and response to future public health emergencies such as pandemic, to mitigate adverse consequences on the economy.
143.Conduct a comprehensive process evaluation in governorates that have already joined UHIS, followed by an impact evaluation of UHIS in governorates that are yet to join UHIS. Primarily, the aim is to measure the impact of introducing the new UHIS on health service utilization and health expenditures in governorates that have already introduced UHIS. The MOF has planned a process evaluation to launch soon, which can shed light on key operational challenges, assess procedures and functions, and gather population perspectives on the rollout of UHIS. Such information can help to tailor the rollout of UHIS in other governorates. At the same time, the government should consider designing an impact evaluation for
governorates that have yet to join UHIS to measure the impact before and after the rollout. This would involve collecting extensive baseline data. The evaluation could examine the effects of UHIS on increasing primary care and hospital utilization and its impact on healthcare expenditure and some intermediate health status indicators. In addition, it should aim to measure the impact of UHIS on financial status, including the impact on non-healthcare consumption, out-of-pocket (OOP) health expenditure and on financial distress from health shocks. The government may also consider testing several approaches to increasing enrollment among the non-poor informal workers. A recent randomized controlled trial in Indonesia found that the non-poor informal workers were more likely to enroll and continue to pay premiums if the government initially subsidized their premium contribution (i.e., for six months). ${ }^{78}$ Other approaches could be tested to find the most effective solutions in the Egyptian context. This should be coupled with focus groups discussions and qualitative research to better understand the barriers to enrollment.
144.Establish strong data collection and performance monitoring mechanism, as well as build capacity for policy analysis and evaluation to inform policy making.
a) Establishing a routine health system performance indicator monitoring mechanism and link performance to financing. With the ongoing reforms, and the IT system development under UHIS, many new data collection mechanisms become available, such as electronic medical records, claims data, pharmaceutical data, household surveys, and facility administrative data. These should aim to collect data on disease burden and health needs, service availability and quality, service utilization, government spending, and out-of-pocket spending, to enable better analysis of health system efficiency and effectiveness to achieve health sector goals. Moreover, understanding the rationale behind the behaviors and challenges of service provision and utilization are also critical to improve health system responsiveness. Currently, MOF is developing automated KPIs to closely monitor the performance of UHIS system. In the future, both institution-data and patient-centered data (such as patient satisfaction) should be used to measure the health system performance. On the health spending front, the new unified public finance law has institutionalized the shift towards program and performance-based budgeting.
b) Conduct National Health Account (NHA) and household surveys more regularly and frequently. The previous NHA was conducted in 2008, and many household health surveys were outdated. New NHA and HIECS survey are already underway. A new round of the NHA has been conducted in 2021/2022 and will be ready soon. CAPMAS is about to announce the results of the Egyptian Family Health Survey and also plans to increase the scope of the HIECS. These should be conducted regularly to inform health policy.
c) Improve disease surveillance. With lessons learned during COVID-19, strengthen the data system for disease surveillance, capacity planning, and emergency response. Utilize the MOHP database, 100 Million Healthy lives campaign database for better disease surveillance and management.

## Medium Term:

145. The scaling up of UHIS implementation is critical to establish an effective and sustainable model of Universal Health Coverage in Egypt. This requires strong institutional capacity, increasing government investment, and innovative solutions to tackle the challenges of implementation, through:

[^39]a) Investment to build up institutional capacity at implementing agencies (UHIA, GAHC, GAHAR, UPA) and establish monitoring and evaluation (M\&E) mechanisms to monitor progress and performance, and to generate lessons and learning to inform mid-term adjustment and future reforms.
b) Expand enrollment of the informal non-poor population. Globally, it's hard to track and collect premiums from a large group of informal workers, even when it is mandated. To ensure high participation, the government must strengthen the beneficiary identification mechanism and premium collection enforcement mechanism through collaboration with the Ministry of Social Solidarity and Tax Authority.
c) Private providers play an important role in service delivery. Therefore, to provide good financial protection, a large network of private providers needs to be contracted by UHIA. It's important to have an effective contracting strategy with the private providers, set appropriate fee schedule, and provide financial incentives for private providers for quality health care.
d) Regulations should be adjusted to license private providers to deliver primary care packages. The restriction of primary care to public providers have limited the access to primary care. Allowing private providers to deliver primary care is likely to improve the service accessibility, and improve quality of care through introducing healthy competition.
e) Functional IT system. UHIS relies on good and interconnected IT systems at UHIA, GAHC, health facilities, and GAHAR. Based on the IT system, data analytics capacity needs to be strengthened for evidence-based management and reform.
f) Update the benefit package to ensure the service coverage matches the disease burden and health care needs, while not covering unnecessary or low value services.
g) Health technology assessment (HTA) capacity should be developed to inform the regular review of UHIA benefit package, procurement decisions, as well as enhancing the transparency and evidence base for health care decisions.
h) Contracting of private pharmacies. As the majority of OOP payments are spent on the purchase of medicines and medical products, contracting of private pharmacies under UHIS and expanding the basic drugs package are both critical to effectively reducing OOP spending.
i) Improve quality of care at public facilities. UHIS financial coverage is likely to promote use of health services. This requires a matching supply-side capacity improvement. UHIS implementation needs to be coupled with continuous public facility clinical quality improvement funded by the government budget. In addition, strategic purchasing also requires significant provider capacity to internalize the incentive. Preparing providers for this change in financial transfers requires substantial investment in information technology in health facilities, in planning and M\&E capacity, financial management and in accounting systems.
j) Explore and pilot innovative provider payment methods to improve the efficiency and performance of UHIS. Payment methods commonly used globally include DRG payment and global budget for hospital care, risk-adjusted capitation for primary care, and pay for performance (usually for below $10 \%$ of total fund amount). These could be gradually explored under UHIS.
k) Strengthening GAHAR's capacities to enforce quality improvement strategies for UHIS. While GAHAR has a strong role in accreditation, it will benefit from further capacity expansion on quality monitoring and enforcement of quality improvement initiatives at health facilities.

## Long Term:

## 146.Update Health Workforce Planning to address population needs and incentivize staff performance

a) Regional demand-driven HRH planning including pipeline approaches. Following good global experiences, demand for physicians, nurses, pharmacist and other professions should be planned based on (a) the served population using international guidelines, (b) the patient activity in each specialty, and (c) the case mix within each subspecialty. The doctor to nurse ratio and skill mix in a team should be optimized based on efficiency analysis. The pipeline training of health care professionals needs to be aligned with future demand projections. Under the UHIS model, GAHC and facilities should have more autonomy with workforce management, therefore the workforce planning should be coordinated at facility, regional and national levels.
b) Introduce incentives to serve in rural areas and upper Egypt for better equity. To solve the issue of under-supply of HRH in remote or rural areas, as well as primary care settings, incentives could be considered to encourage service in those regions. Moreover, capacity building and career development also needs improvement. This is crucial for balanced and equitable health system development.
c) Restructure compensation to be linked to staff performance. As the single largest spending category in the budget, the rigidity of current staff compensation structures disconnects with performance. In alignment with the plan to introduce performance management under UHIS, linking staff performance to compensation, in the form of performance bonus could be a useful tool for UHIA and health facilities to improve staff performance.

Box 6. 13. Egypt's recent initiatives to improve medical staff compensation and way forward
In its efforts to improve the work conditions of the medical workforce, the GOE has launched a number of initiatives over the past few fiscal years to upgrade their compensation. These include the following adopted measures: i) Under the new UHIS scheme, base pays have seen considerable increases (up to 8 folds) for some grades, in addition to a new enhanced and realistic performancebased scheme that is showing early evidence of its ability to retain and positively motivate the health workforce; ii) Dedicated top-up incentives for the workforce involved in the various public health initiatives under the 100 million healthy lives initiative; and iii) a slight increase in the performance payments for the variable portion of the health workforce, as well as boosting the pay for the freshly graduated house-officers cadre in line with the new reforms in the immediate post-medical education program.

Going forward, this effort can be continued through the following recommended measures : i) maintain and enhance the compensation program under the UHIS as it expands in further governorates, with special attention to be given to compensate for high inflation rates; ii) Further boost the performance-based incentives for those working at PHCs, especially in areas that are geographically challenging e.g. Upper Egypt and Border Governorates; iii) Decrease the lead time for actual payments for performance payments under the 100 million healthy lives to enhance the effectiveness of its incentivization (from 3-4 months down to a regular monthly hand-outs); and iv) Institutionalize a co-sharing scheme for treating out-of-pocket patients, so as receive treatment inside public facilities (especially hospitals); This would provide where motivation to medical staff (both financially and reputationally) as well as an additional source of income stream to the health facilities. Similar programs have shown remarkable results in Turkey, Jordan and Taiwan.

Annex 6. 1. Scenarios for Declining Fertility Rate and implications for per capita economic growth
Based on projections conducted by the UN, if the current population trend continues, the total fertility rate is expected to drop to 2.9 by 2030, and the population will reach 120.8 million. Under a 3.5 percent annual economic growth assumption, GDP per capita is expected to grow slightly from $\$ 3,548$ in 2020 to LE56,000 $\left(\$ 3,553^{79}\right)$ in 2030 under the baseline scenario (Table A. 6. 1) ${ }^{80}$. Under an alternative scenario with more ambitious population policy measures, the total fertility rate will reduce to 2.1 by 2030 , and the population will be 117 million in 2030. This would result in a higher GDP per capita of LE60,000 $\left(\$ 3,807^{1}\right)$ in 2030. Based on World Bank projection, under the moderate decline scenario, the total saving on public expenditure on health, housing, and education from 2020 to 2030 will be more than EGP12.5 billion (Table A. 6. 1).

Table A. 6. 1. Projected population and GDP in 2030 , by fertility scenario, at 3.5 percent constant economic growth

|  | Default <br> scenario | Moderate decline <br> scenario | Accelerated decline <br> scenario |
| :--- | :---: | :---: | :---: |
| Total fertility rate (children per women) | 2.9 | 2.5 | 2.1 |
| Population in 2030 (million) | 120.8 | 119.1 | 117.3 |
| GDP in 2030 (trillion LE) | 6.8 | 6.9 | 7 |
| Per capita GDP in 2030 (LE) | 56,101 | 58,135 | 60,019 |
| Cumulative potential gain in GDP relative to default |  | 308 | 569 |
| scenario (billion LE) | - | $4,250.0$ | $8,791.4$ |
| Cumulative projected potential savings on public expenditure from decline in fertility $(2020-2030)($ LE million, 2017 prices) | $9,826.2$ |  |  |
| Health | - | $4,758.4$ | $7,686.4$ |

Source: World Bank projection $2021{ }^{81}$
Note: Default scenario assumes the historical population trend continues. Moderate decline scenario and accelerates decline scenario are hypothetical scenarios for modeling purpose.

[^40]Annex 6. 2. Indicators of maternal and child health care in primary care units by governorate in 2019

| Governorate | Percentage of health services coverage for new pregnant women (\%) | Average number of visits to a primary care unit during pregnancy | Births attended by a health care professional physician or nurse. (\%) | Births in health institutions (\%) |
| :---: | :---: | :---: | :---: | :---: |
| Cairo | 11.7 | 2.5 | 96.1 | 94.4 |
| Alexandria | 40.4 | 1.0 | 95.5 | 93.3 |
| Port Said | 26.1 | 2.3 | 98.3 | 97.9 |
| Suez | 16.4 | 2.7 | 79.4 | 66.0 |
| Ismaillia | 44.9 | 3.8 | 95.2 | 90.1 |
| Damietta | 36.4 | 3.5 | 98.4 | 92.9 |
| Dakahlia | 52.5 | 3.0 | 96.0 | 90.6 |
| Sharqia | 55.0 | 2.9 | 93.7 | 80.5 |
| Qaliobia | 56.7 | 3.4 | 95.7 | 88.9 |
| Kafr ElSheikh | 59.1 | 3.1 | 98.8 | 96.9 |
| Gharbia | 61.1 | 2.8 | 97.4 | 94.9 |
| Monofia | 62.2 | 1.9 | 97.2 | 92.6 |
| Behera | 54.6 | 3.1 | 95.4 | 90.8 |
| Giza | 31.8 | 3.0 | 97.6 | 94.1 |
| Bani Suef | 64.7 | 2.7 | 91.9 | 72.6 |
| Fayoum | 71.0 | 2.5 | 91.7 | 80.3 |
| Menia | 69.5 | 2.4 | 84.5 | 75.2 |
| Assiut | 61.4 | 2.8 | 89.1 | 77.0 |
| Sohag | 63.9 | 2.3 | 95.4 | 90.3 |
| Qena | 60.2 | 1.4 | 97.1 | 95.4 |
| Aswan | 56.5 | 2.1 | 98.9 | 97.6 |
| Luxor | 60.9 | 0.9 | 99.2 | 97.1 |
| Matrouh | 29.4 | 1.6 | 88.9 | 86.5 |
| New Valley | 40.8 | 1.3 | 99.5 | 96.1 |
| Red Sea | 27.5 | 1.8 | 97.9 | 97.4 |
| North Sinai | 36.4 | 2.7 | 98.5 | 95.8 |
| South Sinai | 29.0 | 3.8 | 56.6 | 58.7 |
| Total | 50.9 | 2.6 | 93.9 | 86.8 |

Source: MoHP Statistical Yearbook

## References

Banerjee, A., Finkelstein, A., Hanna, R., Olken, B. A., Ornaghi, A. and Sumarto, S. (2021), "The Challenges of Universal Health Insurance in Developing Countries: Experimental Evidence from Indonesia's National Health Insurance". American Economic Review, Vol. 111, No. 9. https://www.aeaweb.org/articles?id=10.1257/aer. 20200523

Central Agency for Public Mobilization and Statistics (CAPMAS) (2021), "Egypt in Figures - Vital Statistics". https://www.capmas.gov.eg/Pages/StaticPages.aspx?page id=5035
---------------- "Health Service Statistics Bulletin". https://www.capmas.gov.eg/Pages/Publications.aspx?page id=5104\&YearID=23361
----------------- "Household Income, Expenditure, and Consumption Survey", various issues. https://www.capmas.gov.eg/Pages/Publications.aspx?page id=5109\&Year=23629

Dong D. (2018), "Global Experiences of Hospital Global Budget Reform", World Bank.
Dredge, R. (2004), "Hospital Global Budgeting", World Bank. https://documents1.worldbank.org/curated/en/777571468780577904/pdf/315020HNP0Hospital0budgeti ng0Dredge.pdf

Egypt National Population Strategy 2015-2030.
El-Saharty, Sameh, Nassar, Heba, Hamza, Mariam M. and Zhang, Yi (2021), "The Economic Impact of Population Growth in Egypt". World Bank Policy Brief.

Institute for Health Metrics and Evaluation (IHME) (2021). https://www.healthdata.org/
----------------- (2019). "Global Burden of Disease". https://www.healthdata.org/gbd/2019
Ministry of Health and Population. "Programs data".
$\qquad$ "Statistical Yearbook", various issues.

Organization for Economic Co-operation and Development (OEDC) (2016), "Health System Characteristics Survey". $\underline{\text { https:/ /qdd.oecd.org/subject.aspx?Subject=hsc }}$

Rocco, Lorenzo, Tanabe, Kimie, Suhrcke, Marc, and Fumagalli, Elena (2011), "Chronic diseases and labor market outcomes in Egypt". World Bank.

Schneider, P., (2007), "Provider payment reforms: lessons from Europe and America for South Eastern Europe". World Bank Policy Note. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/753031468101062693/provider-payment-reforms-lessons-from-europe-and-america-for-south-eastern-europe

The Demographic and Health Survey Program (2014), "Egypt Demographic and Health Survey". https://dhsprogram.com/pubs/pdf/fr302/fr302.pdf
---------------- (2015), "Egypt Health Issues Survey". $\underline{\text { https://dhsprogram.com/pubs/pdf/FR313/FR313.pdf }}$
World Bank (2021), "World Development Indicators". https://databank.worldbank.org/source/world-development-indicators
$\qquad$ "Policy Note on Performance-Based Incentives".
World Health Organization (WHO) (2018), "Global Health Expenditure Database (GHED)". https:// apps.who.int/nha/database
----------------- (2018), STEPwise approach to NCD risk factor surveillance survey (STEPS). https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/steps


[^0]:    ${ }^{1}$ During the course of preparation of this PER, the Ministry of Planning and Economic Development has revised the nominal GDP series starting FY2016-17. This PER uses the old definition to ensure consistency and comparability with historical series.
    ${ }^{2}$ This builds on the previous commitment set in the 1953 education act to universalize the first 9 years of formal schooling.
    ${ }^{3}$ Initially, these resources were delivered to grades 10-12 and were then expanded to also serve grades 4-9.
    ${ }^{4}$ Many private schools typically begin with the national curriculum, but eventually earn accreditation and offer alternative diplomas to the public system, which also allows them to circumvent high-stakes examinations for their students (Samir 2018).
    ${ }^{5}$ The Al-Azhar track ( 1.6 million students) mirrors the public system but focuses on Islamic studies and is classified under the youth, culture, and religious affairs sector. Al-Azhar education is supervised by the Supreme Council of the Al-Azhar institution.
    ${ }^{6}$ Education in Egypt is public for 12 years of schooling, covering the primary ( 6 years), preparatory ( 3 years), and secondary levels (3 years). Prior to the secondary level, students are divided into a general track or one of four technical (vocational) tracks.

[^1]:    ${ }^{7}$ At the end of the preparatory level, students are sorted into either the technical or general track based on the results of a high-stakes exam (E'daadiya Amma). Under the technical track, students enter either the industrial, commercial, agricultural or hoteling sub-track and, for the majority, this represents the end of the education cycle. For general track students, placement into a post-secondary program or a standard four-year minimum higher education institution depends on the results of another high-stakes exam at the end of grade 12 (currently under reform), referred to as Thannawiyya Amma (Assaad 2013; Assaad and Krafft 2015).

[^2]:    ${ }^{8}$ Egypt does not participate in TIMSS 4th grade assessments but does participate in both math and science at the 8th grade.
    ${ }^{9}$ The Low International Benchmark level for 8th grade math and science indicates that students had some understanding of whole numbers and basic graphs for mathematics and limited understanding of scientific principles and concepts and limited knowledge of science facts.

[^3]:    ${ }^{10}$ Al-Azhar education is classified under the youth, culture, and religious affairs sector and not the education sector. Al-Azhar education is supervised by the Supreme Council of the Al-Azhar institution. The institution itself is officially independent from MOETE, but is ultimately under the supervision of the Prime Minister's office. Approximately 1.6 million students are enrolled in the Al-Azhar track, of which 900,000 are at the primary level.
    ${ }^{11}$ Education Service Authorities have different mandates and are made up of the General Authority for Education Buildings (GAEB), the General Agency for Literacy and Adult Education, the Curriculum and Instructional Materials Development agency (CCIMD), the Professional Academy for Teachers (PAT), the National Center for Examinations and Educational Evaluation in Egypt (NCEEE), the National Center for Educational Research and Development, and the Regional Center for Adult Learning.

[^4]:    ${ }^{12}$ EMIS data is divided into 5 chapters: Chapter 1-5-year growth rate of education statistics by level; Chapter 2 - schools, classrooms and students; Chapter 3 - results from national public examinations; Chapter 4 - Teaching and non-teaching staff at schools; Chapter 5 - Education indicators.
    ${ }^{13}$ Economic Classification in Egypt has the following categories: (1) Wages and compensation; (2) goods and services;(3) interest charges; (4) support, grants and social benefits; (5) other expenditures; (6) capital investments.
    ${ }^{14}$ Applicants must have a degree in a relevant field of study and will be trained in modern teaching methods. These contracts limit instruction time to less than 24 hours per week at a remuneration of EGP20 per class (USD1.3 per class).

[^5]:    ${ }^{15}$ STR is a ratio calculated by divided the total number of enrolled students by the total number of teachers, by governorate and education level.
    ${ }^{16}$ Although common for STRs to drop between primary and secondary education due to the increase in specializations, the drop is much less pronounced when compared to high learning outcome countries (OECD 2021)
    ${ }^{17}$ SCR is a ratio calculated by dividing the total number of students by the total number of usable classrooms, by governorate and education level.

[^6]:    ${ }^{18}$ This method is not aligned with international best practices.

[^7]:    ${ }^{19}$ Pre-primary operations are typically much smaller than other levels of education the ratio of teaching to non-teaching staff is much higher.
    20 This section utilizes the Household Income, Expenditure and Consumption Survey (HIECS 2018), which collects data covering geographic areas, household composition, enrollment dynamics and disaggregated household expenditure on a sample of 26,000 households. To fill in some gaps, the section also refers to analyses from the Egypt Labor Market Panel Survey (ELMPS 2018), now its fourth edition of producing longitudinal data, covering over 15,000 households and 61,000 individuals.

[^8]:    ${ }^{21}$ For the purposes of Section 3, socioeconomic status is proxied by dividing families into total expenditure quintiles (SES1 to SES5). For all graphs, SES is used as an acronym for socioeconomic status households

[^9]:    ${ }^{22}$ Selection into faculties/fields of study in higher education is based on students' track in general secondary education (literary vs. science) as well as their scores on the secondary school examination. Students who want to pursue higher education complete a "preferences" form, listing all faculties/department they would like to attend, up to a certain number. However, whether these students attend their preferred faculties depends on whether they meet the minimum acceptable score set by MOHESR for each faculty. In general, high prestigious faculties such as Medicine, Engineering, and Pharmacy tend to have very high scores whereas less prestigious faculties such as Commerce and Law require very low scores. Students with scores below the minimum accepted by any universities can attend above intermediate or higher institutes (Abdelkhalek \& Langsten 2019).
    ${ }^{23}$ The overrepresentation of females in humanities and social science could be attributed to several factors including secondary education tracking, gender expectations, and gender stereotypes. Specifically, anecdotal evidence shows that female students are less likely than their male counterparts to enroll in the science track in secondary school, the main pathway to STEM majors at the university level. This is a result of the low expectations of teachers and parents for female students. It is also linked to out-of-pocket costs that go to private tutoring and adversely impact female students branching to the literary or technical tracks at the secondary level.

[^10]:    ${ }^{24}$ Enterprise. How Egypt is positioning itself as an educational hub for international students. December 16, 2019. https://enterprise.press/stories/2019/12/16/how-egypt-is-positioning-itself-as-an-educational-hub-for-international-students-8512

[^11]:    ${ }^{25}$ During the same period, total number of teaching staff (including supporting staff) has increased from 109,865 to 128,181, number of Public Universities and Al Azhar increased from 24 to 28, Private Universities from 20 to 26, and Private Higher Institutes from 138 to 152 (CAPMAS 2019 and 2020a).
    ${ }^{26}$ Private higher education sector in Egypt is dominated by Private Higher Institutes. These institutes target students with lower scores on the secondary school exit examination and offer 4 -year degrees equivalent to public universities. In 201920, there were 732,371 students enrolled in private higher education institutions, out of whom 65 percent were enrolled in Private Higher Institutes, 28 percent in Private Universities and 7 percent in other private institutions.
    ${ }^{27}$ Student financial aid is very limited in private institutions.
    ${ }^{28}$ Official data on enrollment in Private Universities and private Technical Institutes shows substantial disparities in access to private tertiary education across governorates. Specifically, these institutions are only available in less than half of the Egyptian governorates (CAPMAS, 2020a). Furthermore, most private institutions in Egypt are considered institutions of "last resort", that is they provide opportunities for students who are not qualified to attend public institutions (Barsoum 2014). As a result, there are limited affordable options in the private sector for students attending public institutions, especially 4 -year universities.
    ${ }^{29}$ Egypt's higher education sector is highly centralized, with higher education institutions having very limited financial and institutional flexibility. Specifically, the Supreme Council of Universities, led by the MOHESR, has a far-reaching authority over all institutions in the sector that includes approving the location of new institutions, faculty appointments, program offerings and curricula in addition to setting the standards for certification of degrees, institutional accreditation, and student admissions. This strict governance structure of the sector limits the ability of institutions to respond effectively to the rapid changes in both demand for higher education and labor market needs (OECD 2010; Abdelkhalek \& Langsten 2019).

[^12]:    ${ }^{30}$ Labor force participation rate represents the proportion of individuals who are economically active out of the total work age population. This includes individuals who are employed or actively looking for employment.
    ${ }^{31}$ Prime working age population constitutes the core demographic group of the workforce. It represents adults between the ages of 25 and 54.

[^13]:    ${ }^{32}$ Assaad and Barsoum (2019)
    ${ }^{33}$ Assaad et al. (2020)
    ${ }^{34}$ Routine occupations include occupations that have well-defined rules or sequences such clerical, sales and machine operator occupations. Cognitive occupations consist of occupations that require abstract problem-solving skills such as managerial, professional and technical occupations.
    ${ }^{35}$ El-Hamidi (2020)
    ${ }^{36}$ According to the 2019 Labor Force Survey, 48 percent of recent graduates (15-29 year-olds) with degrees in Arts, Humanities, Social Science, and Education were unemployed, which is the highest unemployment rate among all recent tertiary graduates.

[^14]:    ${ }^{37}$ Skills requirements may also vary within the same category of occupations. However, majority of occupations within the same category tends to have similar educational and skills requirements.

[^15]:    ${ }^{38}$ Currently, there is no available data on research output, funding, and staff capacity by university in Egypt.

[^16]:    ${ }^{39}$ Analysis of tertiary spending is based on the functional classification of the national budget, which includes 33 higher education entities: 29 universities (including university branches), Al Azhar University, MOHESR, Supreme Council of Universities, and Sadat Academy for Management Sciences. It should be noted, however, that the constitutional allocation for higher education goes beyond the functional classification to include spending on other entities such as defense and public order, state-owned entities, and university hospitals.
    ${ }^{40}$ The 2014 Egyptian Constitution mandates a 2 percent minimum level of spending on higher education.

[^17]:    ${ }^{41}$ As a share of total education spending, expenditure on tertiary education has increased steadily over the last five years, reaching 27 percent in FY2020. This share is one of the highest in the MENA region, among countries with available data, which signals the high priority given to tertiary education in the education budget (Figure 5. 24).
    ${ }^{42}$ As a share of GDP, Egypt total spending on education is lower than most MENA countries with available data.
    ${ }^{43}$ Real spending is calculated using 2010 constant prices.
    ${ }^{44}$ Between 2016 and 2020, annual inflation rate ranged between 5 and 30 percent, with an average of 14 percent. Data on Consumer Price Index (CPI) is used to adjust for inflation, with 2010 as the base year (IMF 2020).
    ${ }^{45}$ Examples of own resources include revenues from university programs and other revenue-generating activities such as sales of services.

[^18]:    ${ }^{46}$ E-JUST was established in collaboration between the governments of Egypt and Japan in 2010.
    ${ }^{47}$ The new technological universities mainly target students who attended technical and vocational education and a small share of students who completed general secondary education. Enrollment in some of these universities started in 201920
    ${ }^{48}$ MOHESR's investments are part of a strategic plan to expand access to tertiary education. During the four-year period between 2019 and 2022, MOHESR is expected to spend EGP 4.6 billion on establishing 9 new technological universities and EGP 3.2 billion on establishing 15 national non-profit universities, according to the approved investment plan.
    ${ }^{49}$ This is due to the high cost of attending these universities and the lack of a comprehensive student financial aid system. For example, in 2021-22, tuition for national non-profit universities ranged between EGP 31,000 and EGP 105,000. https://www.elwatannews.com/news/details/5666629
    ${ }^{50}$ This could be done through increasing staff wages and other recurrent spending on public universities to increase its competitiveness and to discourage "cream skimming" of high-talented staff from these universities.

[^19]:    ${ }^{51}$ This category includes salaries and wages for both teaching and non-teaching staff. Available data from MOF shows that non-teaching staff accounts for 40 percent of total spending on salaries and wages in 2019-20. This share is the same across all public universities.
    ${ }^{52}$ A small share of spending on salaries and wages goes to base salaries. In 2019-20, for example, spending on base salaries took up almost one third ( 32 percent) of total spending on wages, ranging between 11 percent in E-JUST and 47 percent in Asuit University. In contrast, staff benefits such as rewards/incentives, cash benefits, and in-kind benefits accounted for majority of spending on salaries and wages ( 59 percent) during the same year.

[^20]:    ${ }^{53}$ This includes all teaching staff except for teaching assistants. Also, available data doesn't distinguish between teaching staff who are currently on the job and those who are on leave for study, work, or personal reasons. Therefore, these ratios might underestimate density within university classrooms.
    ${ }^{54}$ The small STR in the faculties of Medicine, especially in Ain Shams and Cairo Universities, could be driven by the large number of teaching staff working in university hospitals.

[^21]:    ${ }^{55}$ Data Envelopment Analysis (DEA) is a commonly used approach to assess the efficiency of utilizing public resources in the education sector. DEA is based on a construction of an efficiency frontier that outlines the optimal combination of outputs (e.g., graduation and completion rates) that can be produced by a given set of inputs (e.g., tertiary spending). DEA assigns an efficiency score of 0 to 100 to education institutions based on their input-output ratios, with 100 representing the most efficient institutions, that is institutions that achieve the maximum level of output given their input. There are two main types of DEA analyses: a) an input-oriented analysis which assesses whether the output achieved can be increased given the level of inputs and b) an output-oriented analysis which examines whether the input could be reduced give the level of output (see for example, Jill Johnes 2006).
    ${ }^{56}$ Number of graduates is the only outcome indicator used in the DEA analysis. There is no available data on other key higher education outcomes indicators such as completion rate, retention rate, and on-time graduation rate.
    ${ }^{57}$ The DEA analysis doesn't take into account differences across universities in the quality of graduates.

[^22]:    ${ }^{58}$ The socio-economic gap in higher education is driven by substantial disparities in access to general secondary education, which represents the main pathway to higher education in Egypt. Specifically, many poor families decide to enroll their children in technical/vocational secondary education at the end of the preparatory level, dramatically limiting their opportunities to pursue higher education.

[^23]:    ${ }^{59}$ A more detailed discussion is included in Chapter 4 on basic education in this public expenditure review.
    ${ }^{60}$ Open University is a specific type of programs offered by universities for non-traditional students, i.e., older students who didn't attend university immediately after completing secondary education.

[^24]:    ${ }^{61}$ Public universities are independent budget entities, that is they receive their funding directly from the Ministry of Finance. In contrast, funding for public technical institutes, technological universities, and national non-profit universities flow through the MOHESR.

[^25]:    ${ }^{62}$ OECD (2020), Resourcing Higher Education: Challenges, Choices and Consequences, Higher Education, OECD Publishing, Paris, https://doi.org/10.1787/735e1f44-en

[^26]:    ${ }^{63}$ The government launched a new strategy to bend the population growth curve in November 2014-the Egypt National Population Strategy 2015-2030 (ENPS 2015-2030). Accompanying it was the First Five-Year Population Implementation Plan 2015-2020 (EPIP 2015-2020). ENPS 2015-2030 cross-references Article 41 of the Egypt's 2014 Constitution, which states that "the State shall implement a population program aimed at striking a balance between population growth and available resources; and shall maximize investments in human resources and improve their characteristics with the goal of achieving [the country's] sustainable development" (unofficial translation from Arabic).

[^27]:    ${ }^{64} \mathrm{WHO}$. Global database on the implementation of nutrition action

[^28]:    ${ }^{65}$ Metropolitan governorates: Cairo, Alexandria, Port Said, and Suez; Upper Egypt: Assiut, Beni Suef, Qena, Menia, Sohag, Luxor, Aswan, Fayoum, and Giza; Lower Egypt: Ismallia, Monofia, Qalyoubia, Dakahlia, Sahrqia, Behera, Damietta, and Gharbia; Border governorates: Matrouh, New Valley, Red Sea, North Sinai, and South Sinai.

[^29]:    ${ }^{66}$ IHME. Global Burden of Disease (2019)

[^30]:    ${ }^{67}$ Women, however, may be more likely to underreport smoking due to cultural reasons and associated stigma.

[^31]:    ${ }^{68}$ Results based on a cost-effectiveness analysis conducted by the World Bank and MOHP
    ${ }^{69}$ Rocco, Lorenzo, Kimie Tanabe, Marc Suhrcke, and Elena Fumagalli. Cbronic diseases and labor market outcomes in Egypt. The World Bank, 2011.
    ${ }^{70}$ Note: the 100 Million Healthy Lives Campaign covers NCD screening cost but does not cover NCD treatments. NCD treatments are covered under UHIS.

[^32]:    Source: MoHP Statistical Yearbook

[^33]:    ${ }^{71}$ Egyptian law permits dual practice with no restrictions, meaning that a physician can practice in public and private facilities simultaneously.

[^34]:    ${ }^{72}$ The 2001 Abuja Declaration of the African Union committed member states to devote at least 15.0 percent of their budgets to health.
    ${ }^{73}$ Government transfers accounted for 23 percent of current health spending, while social health insurance contributions represented 5 percent of current health spending in 2019.

[^35]:    ${ }^{74}$ WHO 2019 https://www.who.int/news/item/22-09-2019-countries-must-invest-at-least-1-more-of-gdp-on-primary-health-care-to-eliminate-glaring-coverage-gaps.

[^36]:    ${ }^{75}$ Wolfe, P.R. and D.W. Moran, Global budgeting in the OECD countries. Health Care Financing Review, 1993. 14: p. 55. ${ }^{76}$ OECD, OEDC Health System Characteristics Survey 2016.

[^37]:    ${ }^{1}$ OECD, OEDC Health System Characteristics Survey 2016. ${ }^{2}$ Schneider, P., Provider payment reforms: lessons from Europe and America for South Eastern Europe. Policy Note (Washington DC: World Bank), 2007.
    ${ }^{3}$ Dredge, R., Hospital Global Budgeting. 2004.
    ${ }^{4}$ Dong D., Global Experiences of Hospital Global Budget Reform, World Bank, 2018

[^38]:    ${ }^{77}$ UHIS is in the very early phase. When data become available, a process evaluation and an impact evaluation are needed to better assess the implementation progress, challenges, and impacts of UHIS. The World Bank has an ongoing technical assistance (TA) program to support various in-depth analysis of UHIS, introduction of global best practices on UHIS implementation, as well as support various operation aspects of UHIS. Specifically, the TA areas include: 1) support UHIS process evaluation, 2) support the update of UHIS cost and actuarial study, 3) support development of UHIS key performance indicators and UHIA M\&E framework, 4) support development of Business processes, organizational structure, and data dictionary for the UHIS, and 5) organize global knowledge exchange seminars on various UHIS topics and bring policy makers and UHIS implementers from countries with good experiences to share their practices.

[^39]:    ${ }^{78}$ Banerjee, A., Finkelstein, A., Hanna, R., Olken, B. A., Ornaghi, A., \& Sumarto, S. (2021). The Challenges of Universal Health Insurance in Developing Countries: Experimental Evidence from Indonesia's National Health Insurance. American Economic Review, 111(9), 3035-63.

[^40]:    ${ }^{79}$ Using 2020 exchange rate of 1USD=15.8 EGP
    ${ }^{80}$ El-Saharty, Sameh, Heba Nassar, Mariam M. Hamza and Yi Zhang. 2021. "The Economic Impact of Population Growth in Egypt". Policy Brief. Washington DC. The World Bank.
    ${ }^{81}$ El-Saharty, Sameh, Heba Nassar, Mariam M. Hamza and Yi Zhang. 2021. "The Economic Impact of Population Growth in Egypt". Policy Brief. Washington DC. The World Bank.

