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Middle East, North Africa, Afghanistan & Pakistan Economic Update

From Divide to Opportunity:
AI, Jobs, and Growth



WORLD BANK GROUP



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*The Office of the
Chief Economist of
the Middle East,
North Africa,
Afghanistan &
Pakistan Region*

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Executive Summary

Introduction

The conflict that began in the Persian Gulf in February 2026 has imposed a profound human toll across the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region and delivered the largest geopolitical and energy shocks in decades. The effective closure of the Strait of Hormuz disrupted a route through which around one-fifth of globally traded oil and liquefied natural gas is normally transported. Gulf oil production fell from about 26 million barrels per day before the conflict to about 16 million in March. Tanker traffic through the strait and from several Gulf exporters fell to a fraction of its pre-conflict level.

The initial shock triggered increased volatility in energy markets, with oil prices fluctuating in response to news of escalation and easing tensions. Volatility notwithstanding, the impact on the global economy has been relatively contained, with the latest World Bank Group projections of global growth revised downward only slightly, from 2.6 percent in January to 2.5 percent in June.

Several factors helped cushion the global effects of such a large energy supply shock: The world entered 2026 with overproduction; some Gulf economies redirected their exports through alternative routes; producers outside the region increased output; inventories were drawn down; and global demand for oil, particularly in East Asia, declined.

The shock has had a much larger impact within the MENAAP region, through production and export quantity disruptions. For hydrocarbon exporters affected by the closure of the Strait of Hormuz, lower export volumes have translated into substantial economic losses. GDP in the Gulf Cooperation Council (GCC) economies is projected to shrink by 4.3 percent in 2026, a contraction comparable to that experienced during the COVID-19 pandemic. Qatar's economy is projected to contract by 20.9 percent, its weakest performance in more than five decades. In Iraq and the Islamic Republic

of Iran, GDP is forecast to decline by 12.4 and 7.7 percent, respectively. Oil-importing economies in the region have remained comparatively resilient, with growth projected at 4.3 percent in 2026, up from 3.9 percent in 2025. Reflecting these differing trajectories, regional output is projected to contract by 2.1 percent in 2026, after expanding by 3.3 percent in 2025.

This time is different: There is a reversal of fortunes for oil exporters in MENAAP

The contrast with 2022 is instructive. After the invasion of Ukraine by the Russian Federation, higher oil prices lifted hydrocarbon revenues and supported growth across the Gulf. This time, higher prices are not benefiting the Gulf countries, because the binding constraint is volume rather than price. The Strait of Hormuz disruptions curtailed oil and gas production and shipments. The resulting output losses track closely with each country's reliance on the strait as its sole export corridor. Bahrain, Iraq, Kuwait, and Qatar, which have few near-term alternatives, recorded the largest GDP contractions. In contrast, Oman, Saudi Arabia, and the United Arab Emirates were partly shielded by their access to other routes.

The conflict's impact on the region extends beyond hydrocarbons to setbacks in tourism, aviation, and logistics. Common to it all is heightened uncertainty, which weighs on financial markets, hurts business sentiment, and dampens investment opportunities. Higher inflation forecasts in high-income economies are contributing to elevated global interest rates, narrowing financing space for governments and firms in MENAAP.

Inflationary pressures are also on the rise across much of the region. In several oil-importing economies, rising transport and shipping costs are feeding into food inflation. At the same time,

some GCC economies are experiencing unusually large gaps between food and headline inflation, reflecting disruptions to food supply chains and trade routes. For example, food inflation exceeded 12 percent year-on-year in June in Qatar, while overall inflation remained just above 2 percent; in Bahrain and Oman, food inflation surpassed 7 percent, compared with headline inflation of around 3 percent. Higher food prices are placing disproportionate pressure on fragile and conflict-affected economies, where households spend a larger share of income on necessities and governments have more limited fiscal buffers.

The conflict magnifies existing fragility

In fragile and conflict-affected economies, the economic and political repercussions of the shock are eroding already limited resilience and coping capacity. Afghanistan, Lebanon, the Syrian Arab Republic, the West Bank and Gaza, and the Republic of Yemen entered 2026 with damaged infrastructure, large numbers of displaced people, weak labor markets, and declining humanitarian support. Disruptions to trade, fuel supplies, food markets, and aid flows translate quickly into lower living standards, particularly in economies where poverty is already increasingly concentrated. While global poverty is declining, MENAAP is the only region where poverty continues to rise. Food insecurity remains particularly acute in the West Bank and Gaza and the Republic of Yemen, with significant pressures also evident in Afghanistan, Djibouti, Lebanon, and Pakistan. A stronger-than-usual predicted El Niño weather pattern in late 2026 could further amplify price pressures on food and hurt the poor.

The region can leverage new opportunities for long-term growth

Were the conflict to subside by the end of 2026, World Bank Group macroeconomic models project that regional growth, excluding the Islamic Republic of Iran, would rebound sharply, to 7.8 percent in 2027, driven by a recovery in hydrocarbon production, the normalization of trade routes, and base effects. However, this rebound would largely reflect the restoration of lost production in oil-rich countries rather than stronger

productivity or higher long-term growth prospects. A key challenge for policy makers is, therefore, moving beyond emergency responses toward building resilience. Protecting vulnerable households, maintaining essential services, restoring productive capacity, and investing in more resilient energy and transport infrastructure will be critical to ensuring that a temporary shock does not leave lasting losses in human capital and living standards.

Even as the conflict weighs on the regional outlook, new opportunities continue to emerge. Some developing oil importers, including Morocco and Tunisia, are expanding high-technology exports, a trend consistent with a gradual move toward more knowledge-intensive activities and greater participation in global technology value chains. Morocco and Tunisia have become the region's leading exporters of AI-related products. Several Gulf economies, in particular Saudi Arabia and the United Arab Emirates, are also investing heavily in digital and data infrastructure. These trends remain too small to offset the immediate costs of the conflict, but they highlight that the region's long-term growth prospects are not confined to hydrocarbons. Chapter 2 of this report examines how MENAAP can position itself to capture these opportunities and ensure that the gains from AI-driven growth are broadly shared.

AI offers an uneven promise for MENAAP

AI is no longer a future technology—it is already reshaping labor markets, firms, and public services in real time. Its diffusion carries opportunities but also raises concerns—about immediate job losses, biases in AI decision-making, data privacy, cybersecurity, and regulatory gaps. For the MENAAP region, the question is no longer whether AI will matter but how quickly it will diffuse across the region and whether its gains will be broadly shared.

The capacity to harness AI's benefits while managing its risks is deeply uneven across the region. MENAAP is not experiencing one AI transition—it is experiencing several, at very different speeds.

Positioning themselves as producers of AI technology, Saudi Arabia and the United Arab Emirates are the region's only countries in the global top 25 for both AI model development and high-performance compute capacity. Middle-income economies such as the Arab Republic of Egypt, Jordan, Morocco, Pakistan, and Tunisia combine technical talent and growing digital ecosystems with significant readiness gaps. In fragile and conflict-affected economies, AI could be transformational in addressing skill shortages and delivering public services. Yet they face constraints so basic—intermittent electricity, thin connectivity, and limited institutional capacity—that limit the physical foundations necessary for AI adoption. Whether this divide narrows or widens depends on a set of reinforcing factors, including the health of the private sector; the quality of regulation; and the capacity to close structural gaps in localization, usage, and foundational capital.

The private sector is ill-equipped for AI adoption

Limited private sector dynamism is a critical constraint on AI diffusion in the region, where firms invest and innovate far less than in income peers. Only 16 percent of firms introduced a new product or service in the past 3 years, versus 29 percent in other emerging market and developing economies (EMDEs). Just 24 percent invested in physical capital and fewer than 1 in 5 provide formal worker training—well below the corresponding rates of 37 percent and 30 percent, respectively, in EMDEs outside the region. The large footprint of state-owned enterprises—which account for an estimated 20–50 percent of value added across the region—suppresses competition and reduces the incentive for private firms to innovate. These problems are compounded by corruption and political instability, which 41 percent of firms in low-income economies and 49 percent in middle-income economies in the region identify as major constraints. A private sector that chronically underinvests in capital, people, and new products is ill-positioned to fully seize the opportunities that AI technologies offer. An enabling environment for the private sector to thrive is a precondition for an effective AI-led growth strategy.

Regulatory weakness is holding back AI adoption

Regulatory weakness is a demonstrated drag on AI adoption. MENAAP's largest preparedness gaps are the absence of adaptable legal frameworks governing digital business models and the state's limited capacity to enforce them. Concerns about data privacy, algorithmic accountability, and regulatory uncertainty are outlined in national AI strategies and consistently identified by private sector firms as significant constraints. Economies across the region are at different stages of drafting regulatory frameworks, but the region overall lags in translating strategy into enforceable rules. The policy objective is not to regulate more but to regulate well: clear, predictable frameworks for data governance, cross-agency data sharing, procurement, liability, and ethical use reduce uncertainty for firms and enable safe scaling. Regulation is not a brake on AI diffusion—its absence is.

AI can boost regional productivity, but three structural gaps stand in the way

AI promises to raise the productivity of workers and firms across the region. Near-term automation threatens less than 10 percent of jobs in the region. In contrast, AI has the potential to increase productivity in 13–20 percent of jobs in MENAAP. This potential is far from guaranteed, however. The gains from AI diffuse unevenly across income and skill levels—both globally and in MENAAP.

Gaps in localization, usage, and foundational capital help explain why the productivity gains from AI are not materializing for the region's economies.

The localization gap is sizable. It reflects the systematic underrepresentation of the region's local languages, data, and institutional contexts in the leading global AI systems. Arabic accounts for less than 1 percent of frontier model training data, despite being spoken by over 500 million people; other regional languages such as Persian and Urdu are also dramatically underrepresented. Global frontier and regional models are improving in Modern Standard Arabic (MSA). However, dialectal Arabic remains a blind spot. Even the

most sophisticated AI models lose accuracy across Arabic dialects compared with MSA. This matters because many customer-facing and public-service interactions—from call centers and retail services to voice-based applications—take place in dialect. Narrowing the localization gap will require more representative linguistic and institutional data as well as models and applications tailored to the region’s linguistic diversity.

The problem extends well beyond language. To be applicable in local health systems, legal frameworks, and labor markets, AI requires locally relevant data and context. JobMatch.ps, an AI-powered job-matching platform in the West Bank and Gaza, illustrates the cost of this gap. Initially trained on European labor market data, the model significantly underperformed, because the model did not reflect local occupational structures, credential systems, and labor market dynamics. A model is only as useful as the data it is built on.

The usage gap marks the divide between access to AI and its productive adoption. It is evident across individuals, firms, and governments. At the individual level, per capita use of AI tools in most MENAAP economies trails comparator economies. At the firm level, adoption remains shallow. In Jordan, for example, 96 percent of AI-adopting firms use it to generate images, video, speech, audio, or text, but less than 5 percent integrate it into production processes or decision-making systems. At the government level, readiness to deploy AI for public service delivery varies widely across the region. Realizing productivity gains from AI requires intensive use and a fundamental reorganization of tasks—a transformation that has yet to take hold across much of the region.

The foundational capital gap includes both human capital and infrastructure. AI talent is growing but concentrated in GCC economies and subject to significant brain drain from middle-income countries to Gulf and OECD countries. Broader cognitive skills—adaptive reasoning, problem-solving, and creative thinking—remain weak across the region, limiting augmentation potential for the wider labor force. Also, in some middle-income and fragile economies, reliable electricity and broadband remain prerequisites that have not yet been met.

Infrastructure constraints do not make AI adoption an all-or-nothing proposition. “Small AI”—affordable, purpose-built tools designed to operate on basic mobile devices, with low-bandwidth connections and intermittent power—offers a practical near-term pathway for constrained economies. A farmer can receive a crop disease diagnosis through an offline mobile application; a nurse can access clinical decision support on a basic smartphone without a server connection. Solutions like these are not interim workarounds—they are a distinct and deployable category of AI applications suited to agriculture, health, and education in settings in which frontier infrastructure does not yet exist. Small AI does not eliminate the need for foundational investment; it expands immediate opportunities while those foundations are being built.

AI presents an opportunity for regional collaboration

MENAAP’s heterogeneity is a latent opportunity. Saudi Arabia and the United Arab Emirates, the region’s most advanced AI ecosystems, have made progress in AI infrastructure, model development, investment, and governance. Their capabilities create opportunities for regional collaboration. Middle-income economies can contribute talent, local data, sector knowledge, and application development. Fragile economies can adopt proven, locally adapted tools—including small AI—while building toward more sophisticated use.

Regional collaboration is one of MENAAP’s most important, untapped opportunities. No single country needs to build every layer of the AI stack. Shared compute capacity, common language datasets, research partnerships, and coordinated governance frameworks would allow countries to benefit from capabilities developed elsewhere in the region. Collaboration is particularly important for localization: Pooling data, expertise, and investment in Arabic, Persian, Urdu, and other local language models would lower the fixed costs of developing locally adapted applications. Across all groups, the objective should be the same: to ensure that AI becomes a tool for broad-based productivity and better services rather than another force widening existing divides.

Abbreviations

ACLED	Armed Conflict Location and Event Data
ADNOC	Abu Dhabi National Oil Company
AFG	Afghanistan
AI	artificial intelligence
AIOE	AI Occupational Exposure Score
AIS	Automatic Identification System
API	application programming interface
ARE	United Arab Emirates
ASJP	Automated Similarity Judgement Program Database
AUI	Anthropic AI Usage Index
AUS	Australia
AUT	Austria
BEL	Belgium
BHR	Bahrain
BRA	Brazil
BTU	British thermal unit
CHE	Switzerland
CME FedWatch	Chicago Mercantile Exchange FedWatch Tool
COK	Cook Islands
COVID-19	coronavirus disease 2019
CPI	Consumer Price Index
CRFM	Center for Research on Foundation Models
CYP	Cyprus
CZE	Czechia
DEU	Germany
DGA	Digital Government Authority
DJI	Djibouti
DNK	Denmark
DOE	developing oil exporters
DOI	developing oil importers
DZA	Algeria
EAP	East Asia and Pacific region
ECA	Europe and Central Asia region
EGX 30	Egyptian Exchange 30 Index
EGY	Arab Republic of Egypt
EMDEs	emerging market and developing economies
ERF	Economic Research Forum
ERP	Enterprise Resource Planning
ESP	Spain
EST	Estonia
EV	electric vehicle
Exaflop	10 ¹⁸ floating-point operations per second
FAO	Food and Agriculture Organization
FE	fixed effects
FIN	Finland
FRA	France

FRED	Federal Reserve Economic Data
FY	fiscal year
GASTAT	General Authority for Statistics
GBR	United Kingdom
GCC	Gulf Cooperation Council
GDP	gross domestic product
GenAI	generative artificial intelligence
GEP	<i>Global Economic Prospects</i>
GFC	Global Financial Conditions
GPU	graphics processing unit
GRC	Greece
GSL	Global School Leaders
GTMI	GovTech Maturity Index (World Bank)
HAI	Stanford Institute for Human-Centered Artificial Intelligence
HELM	Holistic Evaluation of Language Models
HIC	high-income country
HPC	high-performance compute
HPL	high-performance Linpack
HRV	Croatia
IACE	Institut Arabe des Chefs d'Entreprises
ICT	information and communications technology
IEA	International Energy Agency
IFC	International Finance Corporation
ILO	International Labour Organization
ILOSTAT	International Labour Organization Statistics Database
IMF	International Monetary Fund
IND	India
IPC	Integrated Food Security Phase Classification
IPT	Integrated Petroleum Trading Group
IRG	Internationally Recognized Government
IRI	International Research Institute for Climate and Society
IRL	Ireland
IRN	Islamic Republic of Iran
IRQ	Iraq
ISCO-08	International Standard Classification of Occupations (2008 revision)
ISIC Rev4	International Standard Industrial Classification, Revision 4
ISL	Iceland
ISR	Israel
IT	information technology
ITA	Italy
ITU	International Telecommunication Union
IXPs	internet exchange points
JOR	Jordan
JPN	Japan
KIIs	key informant interviews
KOS	Kosovo
KWT	Kuwait
LAC	Latin America and the Caribbean region
LBN	Lebanon

LBY	Libya
LCE	labor cost equivalent
LDND	Levenshtein distance normalized divided
LIC	low-income country
LLMs	large language models
LMIC	lower-middle-income country
LNG	liquefied natural gas
LTU	Lithuania
LUX	Luxembourg
LVA	Latvia
M bbl/day	million barrels per day
MAR	Morocco
MBZUAI	Mohamed bin Zayed University of Artificial Intelligence
MENA	Middle East and North Africa region
MENAAP	Middle East, North Africa, Afghanistan, and Pakistan region
MEU	<i>Middle East, North Africa, Afghanistan, and Pakistan Economic Update</i>
MEX	Mexico
MMLU	Massive Multitask Language Understanding
MPO	Macro Poverty Outlook
MSA	Modern Standard Arabic
MSCI Emerging Markets Index	Morgan Stanley Capital International Emerging Markets Index
MSR	Montserrat
n.a.	not available
NAC	North America
NASK	National Research Institute of the Ministry of Digital Affairs in Poland
NCA	National Cybersecurity Authority
NCAI	National Center for Artificial Intelligence
NDB	National Data Bank
NDMO	National Data Management Office
NIC	National Information Center
NIU	Niue
NLD	Netherlands
NLP	natural language processing
NOR	Norway
O*NET	Occupational Information Network
OECD	Organisation for Economic Co-operation and Development
OMN	Oman
OOMCO	Oman Oil Marketing Company
OPEC+	Organization of the Petroleum Exporting Countries Plus
PA	Palestinian Authority
PAK	Pakistan
PDPL	Personal Data Protection Law
PE	private equity
Petaflop	10 ¹⁵ floating-point operations per second
PIF	Public Investment Fund
PISA	Programme for International Student Assessment
PKR	Pakistani rupee
PPP	purchasing power parity
PRT	Portugal

PSDI	Public Service Delivery Index (World Bank)
PSE	West Bank and Gaza
PSO	Pakistan State Oil
QAT	Qatar
R&D	research and development
RCT	randomized control trial
RHS	right-hand side
Rmax	maximum achieved performance (Linpack benchmark, floating-point operations per second)
ROW	rest of the world
S&P Global	Standard & Poor's Global
SAMAI	One Million Saudis in AI Initiative
SAP	systems, applications, and products in data processing
SAR	South Asia region
SAU	Saudi Arabia
SDAIA	Saudi Data and Artificial Intelligence Authority
SGP	Singapore
SMS	short message service
SOBs	state-owned banks
SOC	Standard Occupational Classification
SOEs	state-owned enterprises
SPI	statistical performance indicators
SSA	Sub-Saharan Africa region
STEM	science, technology, engineering, and mathematics
SUMED	Suez–Mediterranean Pipeline
SVK	Slovak Republic
SVN	Slovenia
SWE	Sweden
SYP	Syrian pound
SYR	Syrian Arab Republic
Teraflop	10 ¹² floating-point operations per second
TFP	total factor productivity
TIP	targeted instruction program
TKL	Tokelau
TUN	Tunisia
TVET	technical and vocational education and training
UAE	United Arab Emirates
UCDP	Uppsala Conflict Data Program
UMIC	upper-middle-income country
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
URLs	uniform resource locators
US	United States
US\$	United States dollar
USA	United States of America
USAID	United States Agency for International Development
VC	venture capital
WFP	World Food Programme

WLF	Wallis and Futuna
WTO	World Trade Organization
WUI	World Uncertainty Index
y/y	year-on-year
YEM	Republic of Yemen

International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.



CHAPTER 1

MACROECONOMIC OUTLOOK

KEY MESSAGES

- Following the start of the Persian Gulf conflict on February 28, the effective closure of the Strait of Hormuz—through which more than a fifth of globally traded oil and liquefied natural gas normally passes—cut Gulf tanker traffic by more than half and reduced oil production from about 26 to 16 million barrels per day in March.
- Despite the largest disruption to Gulf energy exports in decades, global economic effects were relatively contained. Brent crude rose above US\$100 in March but did not settle higher, and the 2026 global growth forecast was revised down by only 0.1 percentage point between January and June. A pre-existing oil surplus, rerouting outside the strait, higher production elsewhere, inventory drawdowns, and sharply lower demand from East Asia helped absorb the shortfall.
- Economic losses stemming from the conflict are concentrated in the region, but their ultimate scale remains highly uncertain and will depend on how the conflict evolves. Under the baseline assumption that disruptions persist through the end of 2026 without sustained further escalation, the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region is projected to contract by 2.1 percent in 2026, after growing 3.3 percent in 2025. Because the shock hit quantities, higher prices could not compensate exporters for oil and gas they could not ship. As a result, Gulf Cooperation Council (GCC) economies are projected to contract by 4.3 percent, comparable to their downturn during the COVID-19 pandemic, and other developing oil exporters by 5.4 percent. This reverses the 2022 pattern, when higher oil prices lifted exporters and weighed on importers.
- Access to export routes outside the Strait of Hormuz has largely determined who is most severely affected. By June, Oman and the United Arab Emirates were operating close to capacity, while Saudi Arabia

Continued

KEY MESSAGES (continued)

redirected crude to the Red Sea. In contrast, dependence on the strait left Bahrain, Iraq, Kuwait, and Qatar much more exposed, resulting in production cuts.

- The projected contractions are exceptional by historical standards: GDP is projected to contract by 20.9 percent in Qatar, its weakest growth in more than five decades, and by 14.6 percent in Kuwait, its weakest growth in more than three decades. Iraq and Bahrain are projected to contract by 12.4 percent and 2.9 percent, respectively, with Iraq recording its weakest growth in more than two decades. Declines in tourism, aviation, and logistics have added to the losses.
- Developing oil importers have remained comparatively resilient. Growth in this group of countries is projected to rise from 3.9 percent in 2025 to 4.3 percent in 2026, although higher food prices and reduced fiscal space are creating mounting pressures. Artificial intelligence (AI)-related exports are expanding rapidly in Morocco and Tunisia, supporting growth.
- Afghanistan, Lebanon, the Syrian Arab Republic, the West Bank and Gaza, and the Republic of Yemen entered the shock with depleted buffers, large numbers of displaced people, and collapsing humanitarian financing. While the effects of the conflict are likely to outlast the oil shock across the region, the long-term consequences will be particularly taxing where it compounds existing fragilities.
- MENAAP is the only region in the world in which poverty remains above pre-pandemic levels and continues to rise. Pakistan accounts for nearly half of the region's extreme poor.
- Were the conflict to subside by the end of 2026, regional growth, excluding the Islamic Republic of Iran, could rebound to a projected 7.8 percent in 2027. That rebound would largely reflect the restoration of hydrocarbon production from a depressed base, not stronger productivity or higher potential growth. Damaged infrastructure, weaker investment, and depleted fiscal buffers would continue to weigh on the outlook, underscoring the need to protect vulnerable households, rebuild infrastructure, strengthen economic resilience, and diversify beyond hydrocarbons.

The recent conflict is reversing economic fortunes across MENAAP

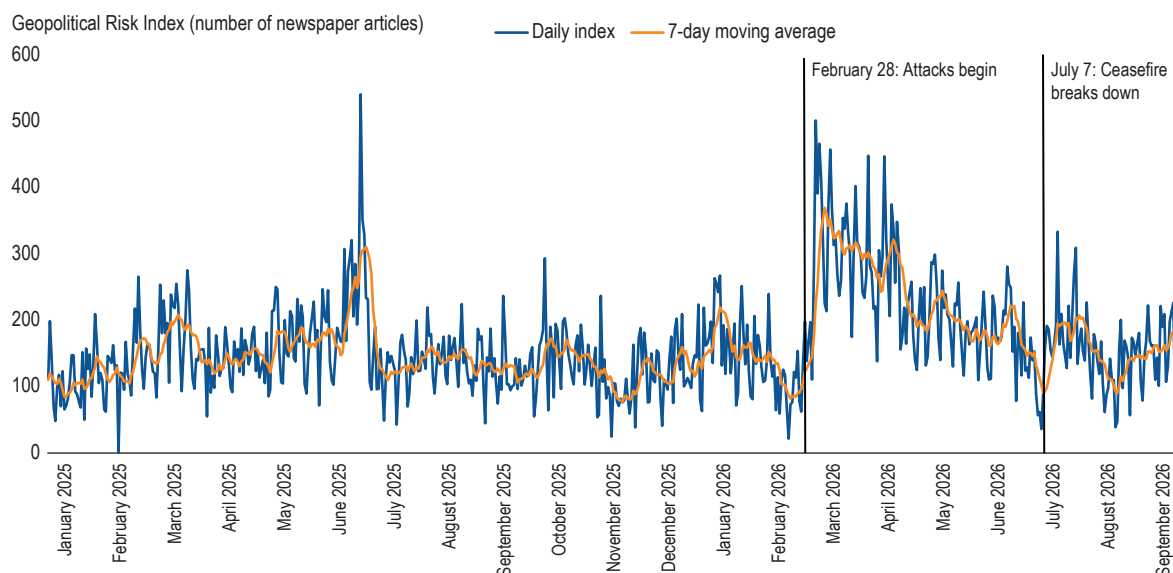
The conflict that erupted in the Persian Gulf on February 28, 2026, has upended livelihoods across the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) region; destroyed homes and infrastructure; and imposed enormous human costs. This chapter examines its economic consequences, which arrive on top of fragilities that were already entrenched in many parts of the region, including chronic low growth and stalled progress in poverty reduction. The conflict's costs press hardest on households with the thinnest buffers, who are least able to absorb a lost wage or a higher food bill and slowest to recover once the shock recedes.

The regional conflict has produced a global energy shock

Measures of geopolitical risk rose rapidly following the military escalation and remained highly volatile in the following months (figure 1.1). Spikes in geopolitical risk indexes typically accompany major international crises. In the current episode, market participants continue to reassess the probability of further escalation and potential disruptions to global trade and energy supplies. Continued uncertainty amplifies the direct effects of the conflict by discouraging investment, delaying spending decisions, and increasing the risk premium demanded by investors.

The conflict's footprint broadened rapidly beyond the Islamic Republic of Iran and Lebanon to affect a broad set of economies across the region, including

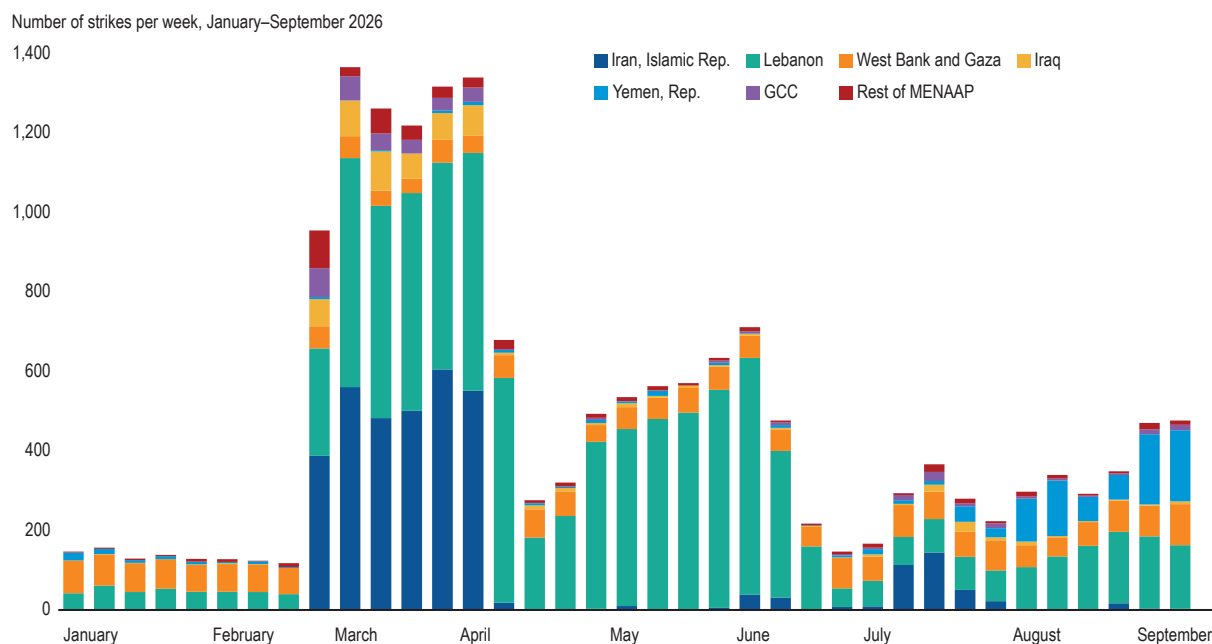
FIGURE 1.1 Geopolitical risk rose in the aftermath of the Middle East conflict and remains volatile



Source: World Bank Group calculations based on Caldara and Iacoviello (2022).

Note: The Geopolitical Risk Index counts the number of articles related to adverse geopolitical events, such as war threats and military buildups, in 10 prominent newspapers. For a description of the methodology, refer to <https://www.matteoiacoviello.com/gpr.htm>. The latest observation is September 21.

FIGURE 1.2 Conflict has spread across the region



Source: Armed Conflict Location and Event Data (ACLED).

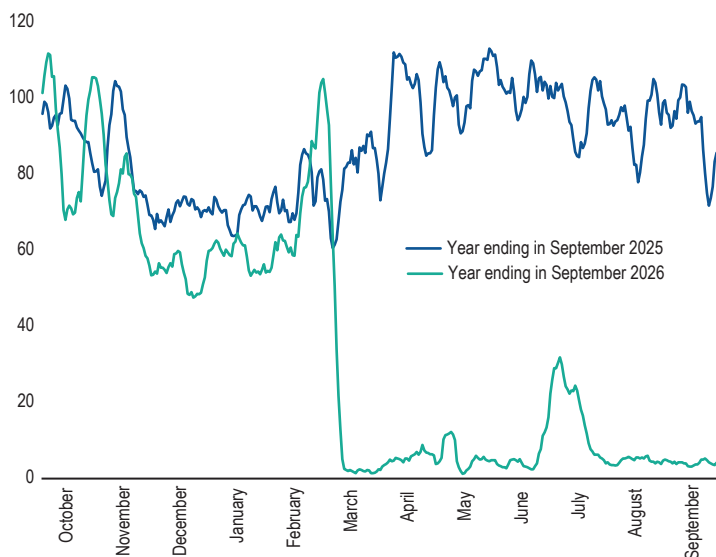
Note: Strikes are defined as “explosions/remote violence” events, including “air/drone strikes” and “shelling/artillery/missile attacks.” GCC refers to the sum of strikes on the six members of the Gulf Cooperation Council: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. The latest observation is the week of September 10–16. GCC = Gulf Cooperation Council; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

Iraq, the Gulf Cooperation Council (GCC) countries, West Bank and Gaza, and the Republic of Yemen (figure 1.2). Weekly incident counts show repeated cycles of escalation, which result in elevated and persistent uncertainty about the conflict.

Disruptions to the Strait of Hormuz transformed a regional conflict into a global energy and trade shock. The Strait is a critical maritime chokepoint through which 27 percent of global oil and 20 percent of liquefied natural gas (LNG) exports typically flow.

FIGURE 1.3 The closure of the Strait of Hormuz transformed a regional conflict into a global energy and trade shock

Number of ships traversing the Strait of Hormuz (7-day average)



Source: International Monetary Fund, PortWatch.

Note: Estimates are based on Automatic Identification System data, which rely on self-reporting by vessels. The latest observation is September 20, 2026.

Tanker and cargo traffic through the strait, based on Automatic Identification System (AIS) data that rely on self-reporting by vessels, fell to near zero in early March, with intermittent partial resummptions that tracked news of escalation and de-escalation (figure 1.3).¹ Recent reports and market intelligence indicate that shipping volumes have gradually rebounded in recent months, albeit remaining below pre-conflict levels and at substantially higher transportation, insurance, and security costs.

Global energy prices rose sharply following the disruption to Gulf exports and are expected to remain elevated for the rest of 2026. Brent crude oil exceeded US\$100 per barrel in March 2026, before falling to around US\$70 in June, as tensions eased, rising again as the conflict intensified

¹AIS-based estimates should be interpreted with caution because vessel self-reporting became less reliable during periods of heightened conflict. As a result, AIS data may understate actual vessel traffic through the Strait of Hormuz, particularly in recent months. Recent reporting suggests that a larger share of pre-conflict oil exports has resumed transit through the Strait than is captured in the AIS data, though shipping activity remains subject to elevated risks, intermittent disruptions, and higher operating costs: https://www.wsj.com/world/middle-east/middle-east-oil-exports-rebound-as-irans-chokehold-on-hormuz-breaks-down-4ffde655?mod=hp_lead_pos4

in August. Oil futures curves, which summarize market-implied prices for future delivery, shifted upward with each military escalation (figure 1.4, panel a). The latest set of futures prices points to a gradual decline in oil prices but to levels above those expected before the conflict.

Natural gas markets show a sharper regional divergence, reflecting segmented markets in Europe and North America. European gas prices increased steeply, and futures suggest that they will remain high into 2027, reflecting Europe's greater exposure to disrupted LNG supplies from the Gulf (figure 1.4, panel b). By contrast, US natural gas prices rose only modestly, supported by abundant domestic production and limited reliance on imported LNG from the Gulf.

The global effects of the energy shock have been relatively contained

Historically, major Middle East conflicts, including the previous wars in the Gulf, have generated large and persistent oil price shocks. By that standard, the 2026 conflict is unusual. The current conflict removed a larger volume from export markets than most of the previous episodes, yet the price response proved comparatively contained so far.²

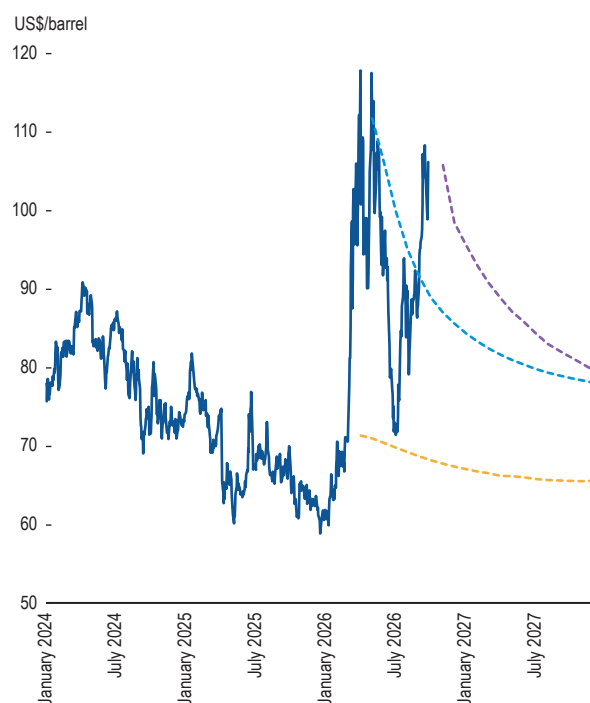
Oil markets absorbed the disruption along several margins, ranging from a pre-existing supply surplus to rerouting, higher non-Gulf output, inventory drawdowns, and weaker demand for hydrocarbons, especially in East Asia (box 1.1).

Consistent with oil market developments, revisions to the global growth outlook were modest. Between the January and June 2026 editions of *Global Economic Prospects* (World Bank 2026a, 2026b), the forecast for global annual growth in 2026 declined by only about 0.1 percentage point, from 2.6 to 2.5 percent (figure 1.5, panel a). The forecast for advanced economies also fell by about 0.1 percentage point. The forecast for emerging

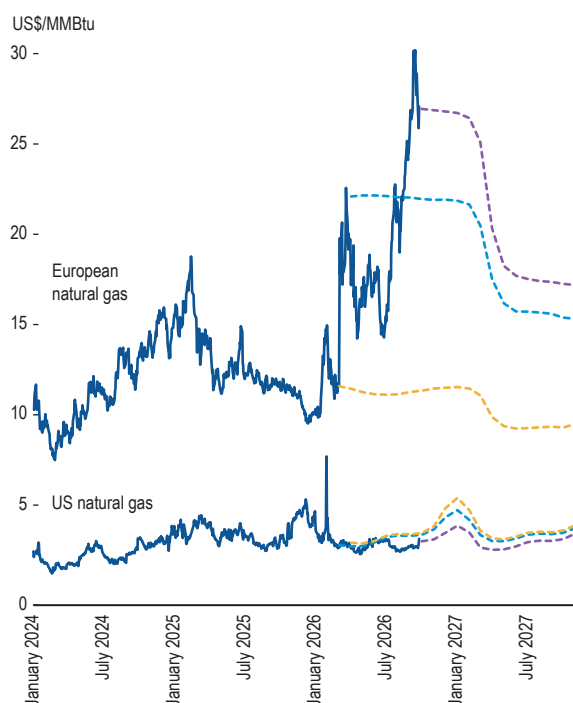
²Current prices remain well below earlier peaks. Brent crude reached a record US\$147.50 a barrel in 2008 and averaged above US\$110 in 2011 and 2012. The adjustment has also been more gradual: Prices quadrupled within a year after the 1973–74 embargo.

FIGURE 1.4 Oil and gas prices rose sharply at the start of the conflict, and futures markets indicate they will stay above pre-conflict levels for the rest of the year

A. Brent crude prices, January 2024–September 2026



B. Natural gas prices, January 2024–September 2026



— Spot — February 23, 2026 - - March 20, 2026 - - September 24, 2026

Sources: Investing.com; Oilprice.com.

Note: Solid lines indicate the spot price of Generic Brent Crude (panel a) and Generic US Natural Gas and European Natural Gas (Title Transfer Facility). The dotted lines show the futures prices as of respective dates, with contract expiration dates on the horizontal axis. MMBtu = million British thermal units; US = United States.

BOX 1.1 How did the global oil market absorb the Strait of Hormuz shock?

The disruption to the Strait of Hormuz removed an estimated 15.2 million barrels of oil per day from normal export flows between April and June 2026 (figure B1.1.1).^a The International Energy Agency characterized the disruption as the largest supply disruption in the history of the global oil market.

Five factors helped cushion this unprecedented disruption in oil supply:^b

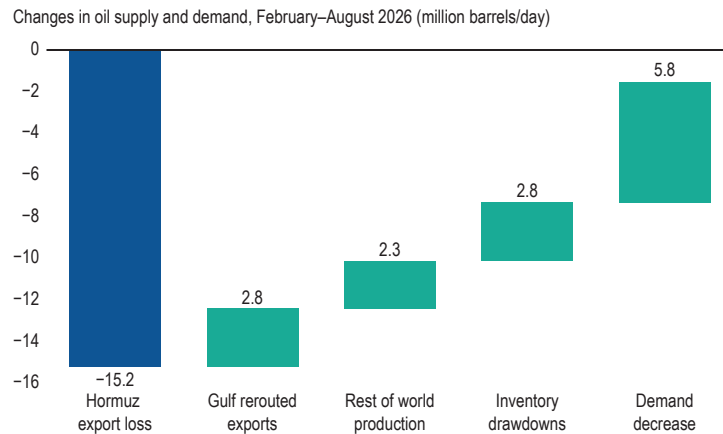
- Some Gulf exports were rerouted, as Saudi Arabia and the United Arab Emirates used pipelines and ports outside the Strait of Hormuz to maintain some exports. These alternative routes restored

an estimated 2.8 million barrels per day to global markets.

- Production outside the Gulf provided an additional buffer. Non-Gulf producers increased supply by around 2.3 million barrels per day, led by Brazil, Kazakhstan, the República Bolivariana de Venezuela, and the United States.
- Inventories absorbed much of the remaining shortfall. Commercial and strategic stocks were drawn down by about 2.8 million barrels per day during the adjustment period.
- Global oil demand fell by an estimated 5.8 million barrels per day relative to pre-conflict levels.

BOX 1.1 How did the global oil market absorb the Strait of Hormuz shock? (continued)

FIGURE B1.1.1 Rerouting, additional production, inventory drawdowns, and lower demand cushioned the oil shock



Source: International Energy Agency (<https://www.iea.org/commentaries/oil-markets-strain-to-plug-the-gap-left-by-middle-east-supply-shortfall>).

Note: Includes provisional data. Gulf producers include Bahrain, the Islamic Republic of Iran, Iraq, Kuwait, the Neutral Zone, Qatar, Saudi Arabia, and the United Arab Emirates. Rerouted exports are volumes exported via bypasses including Saudi Arabia's Red Sea ports, United Arab Emirates' Habshan–Fujairah pipeline, Iraq via Türkiye and the Syrian Arab Republic, and the Islamic Republic of Iran's Jask Oil Terminal. Inventory drawdowns represent oil released from observed oil stocks. Demand is measured by total inland deliveries plus fuels used by refineries and ships and may not exactly match consumption.

The largest margin of adjustment came from the decline in global demand, particularly in Asia. Higher prices reduced consumption, while government fuel conservation measures, industrial fuel switching, and temporary demand management policies further contributed. At the same time, changes in the energy mix made demand more responsive. Renewables supplied a growing share of electricity generation during the decade preceding the conflict in Organisation for Economic Co-operation and Development countries and a group of large emerging market and developing economies, whose share increased from about one-quarter of electricity generation in 2015 to more than 40 percent in the first five months of 2026. More than half of the decline in energy demand came from East Asia, an important

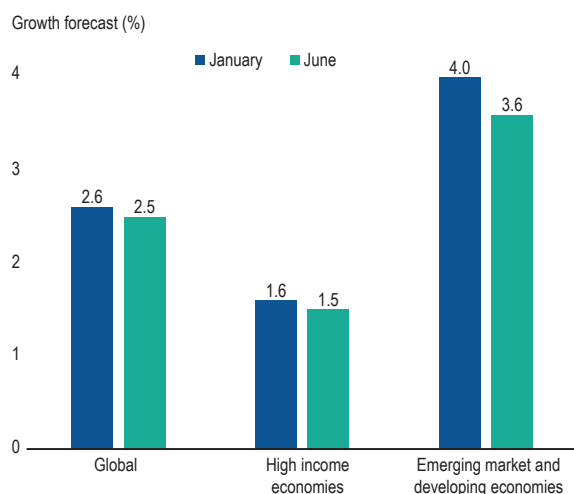
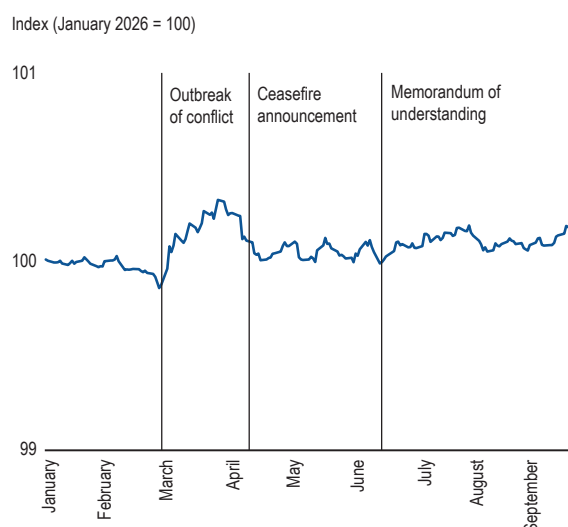
market for Gulf exporters, with China accounting for the largest individual contribution. Electric vehicle (EV) adoption also reduced the growth in demand for transport fuel. The global share of EVs in new car sales rose from close to zero in the early 2010s to roughly one-quarter in 2025. China led this shift, with EVs accounting for more than half of new car sales there by 2025.^c

These structural changes did not eliminate exposure to the shock. Transport, aviation, shipping, petrochemicals, and much of industry remain dependent on hydrocarbons. Gas also remains important for power generation in Europe and several economies in the Middle East, North Africa, Afghanistan, and Pakistan region.

^aThe world entered the conflict with an important initial buffer. In January and February 2026, global oil supply exceeded demand by about 2.2 million barrels per day.

^bTogether, these adjustments absorbed most of the estimated shortfall; the remaining difference reflects pre-existing global oil supply surplus, timing, measurement, and other market adjustments not separately identified here.

^cOil accounts for less than 30 percent of global energy demand, down from 46 percent half a century ago, and the energy needed to produce a unit of global GDP has fallen by more than a third since 1990.

FIGURE 1.5 Global growth forecasts changed only modestly, and financial conditions remained broadly stable**A. January and June World Bank Group forecasts for 2026****B. Global financial conditions index, 2026**

Sources: January 2026 *Global Economic Prospects* (World Bank 2026a); June 2026 *Global Economic Prospects* (World Bank 2026b); Goldman Sachs.

Note: The Global Financial Conditions Index aggregates country-level Goldman Sachs indexes using GDP weights at average 2010–19 prices and market exchange rates. The underlying indexes summarize interest rates, credit spreads, equity prices, and exchange rates. Higher values indicate tighter financial conditions. The latest observation is September 21.

market and developing economies was revised downward by around 0.4 percentage points.

Global financial conditions remained broadly stable. The Global Financial Conditions Index tightened briefly after the escalation but subsequently moved back toward its earlier range. Equity markets, sovereign bond markets, and credit conditions were also stable (figure 1.5, panel b). The resilient global environment reduced the likelihood of large spillbacks to MENAAP through weaker global demand or sharply higher external borrowing costs.

The conflict's economic losses are concentrated in MENAAP

In contrast to global growth forecasts, which changed little, the outlook for MENAAP deteriorated sharply, driven by downgrades in the Persian Gulf countries. Excluding the Islamic Republic of Iran, regional GDP is now forecast to decline by 1.3 percent in 2026, down from the 1.8 percent growth projected in April (figure 1.6). The downgrade is concentrated among hydrocarbon exporters in the Gulf. GCC economies are projected to contract by 4.3 percent, following growth of

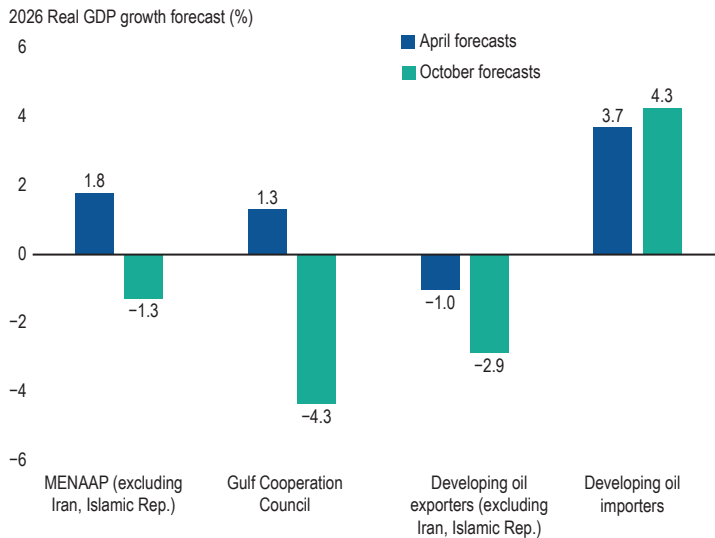
1.3 percent projected in April. Developing oil exporters are projected to contract by 5.4 percent, driven by large contractions in the Islamic Republic of Iran and Iraq, while Algeria and Libya, both oil and gas exporters not directly affected by the conflict, are expected to grow more robustly, supported by higher hydrocarbon prices. The October forecast for developing oil importers is 4.3 percent, up from 3.7 percent in the April forecast.

The extent of revisions in regional forecasts is generated by a macroeconomic model in which the assumptions about the conflict's duration are critical. The April Economic Update forecasts were based on the expectation that the conflict would end within 3 months. The most recent projections assume that the conflict will continue throughout 2026.

The conflict affects the region's economies through several interconnected channels (figure 1.7). Disruptions to shipping through the Strait of Hormuz reduce hydrocarbon export flows and raise commodity prices, freight charges, and insurance costs. These pressures increase production and import costs across the region, contributing to higher

inflation and lower real household incomes. Heightened uncertainty reduces investor confidence, hurting tourism and foreign direct investment,

FIGURE 1.6 Growth projections for 2026 have been revised down further for the Persian Gulf economies since April



Source: World Bank Group estimates from the *World Bank Macro Poverty Outlook April 2026* (World Bank 2026c), and *October 2026* (World Bank forthcoming-a). <https://www.worldbank.org/en/publication/macro-poverty-outlook>

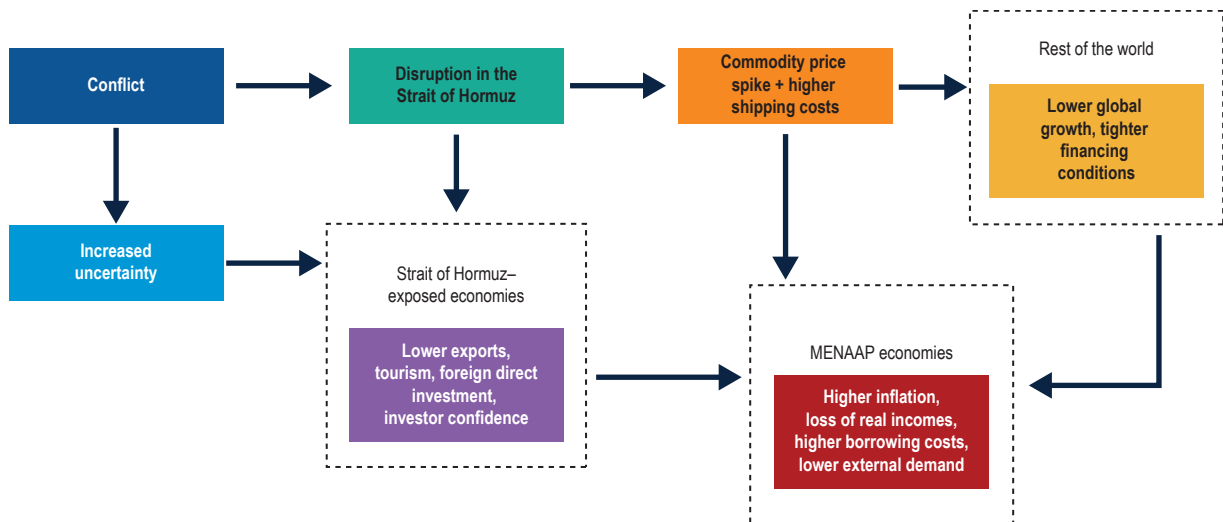
Note: Regional averages represent average growth estimates across constituent countries, weighted by real GDP. Country groupings are as follows: Gulf Cooperation Council: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates; developing oil exporters: Algeria, Iraq, and Libya; and developing oil importers: Afghanistan, Djibouti, the Arab Republic of Egypt, Jordan, Morocco, Pakistan, and Tunisia. All 17 countries listed are also included in the collective MENAAP average. The Islamic Republic of Iran, Lebanon, the Syrian Arab Republic, West Bank and Gaza, and the Republic of Yemen are excluded from aggregates due to data limitations. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; MPO = Macro Poverty Outlook.

particularly in economies closest to the conflict and most dependent on regional transport routes. The shock also extends beyond MENAAP. Higher energy and shipping costs can slow global activity and tighten international financing conditions. These external effects have knock-on effects on the region through weaker demand for MENAAP exports and higher borrowing costs.³

The conflict impact materializes in different ways across MENAAP economies. Exposure depends on various factors, such as physical proximity to the Persian Gulf; economic dependence, especially for hydrocarbon exports, on the disrupted shipping routes; and pre-existing vulnerabilities. The Islamic Republic of Iran and Lebanon are most directly affected by hostilities, destruction, and displacement. GCC economies and Iraq, whose hydrocarbon exports transit the Strait of Hormuz, are exposed to export disruptions, damage to production capacity from strikes, losses in tourism and aviation revenues, and heightened uncertainty that could weaken investor confidence. Energy infrastructure—including oil and gas fields, production

³The conflict can cause a global economic slowdown through increased inflationary pressures, supply chain disruptions, and increased uncertainty. The strength of each effect varies across countries, depending on their reliance on imported energy, exposure to disrupted shipping routes, and access to international finance (World Bank 2026d).

FIGURE 1.7 Conflict affects the region's economies through multiple channels



Source: World Bank Group.

Note: FDI = foreign direct investment. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

facilities, refineries, and power and desalination plants—as well as airports, ports, and other critical public and commercial assets, were also targeted in attacks.

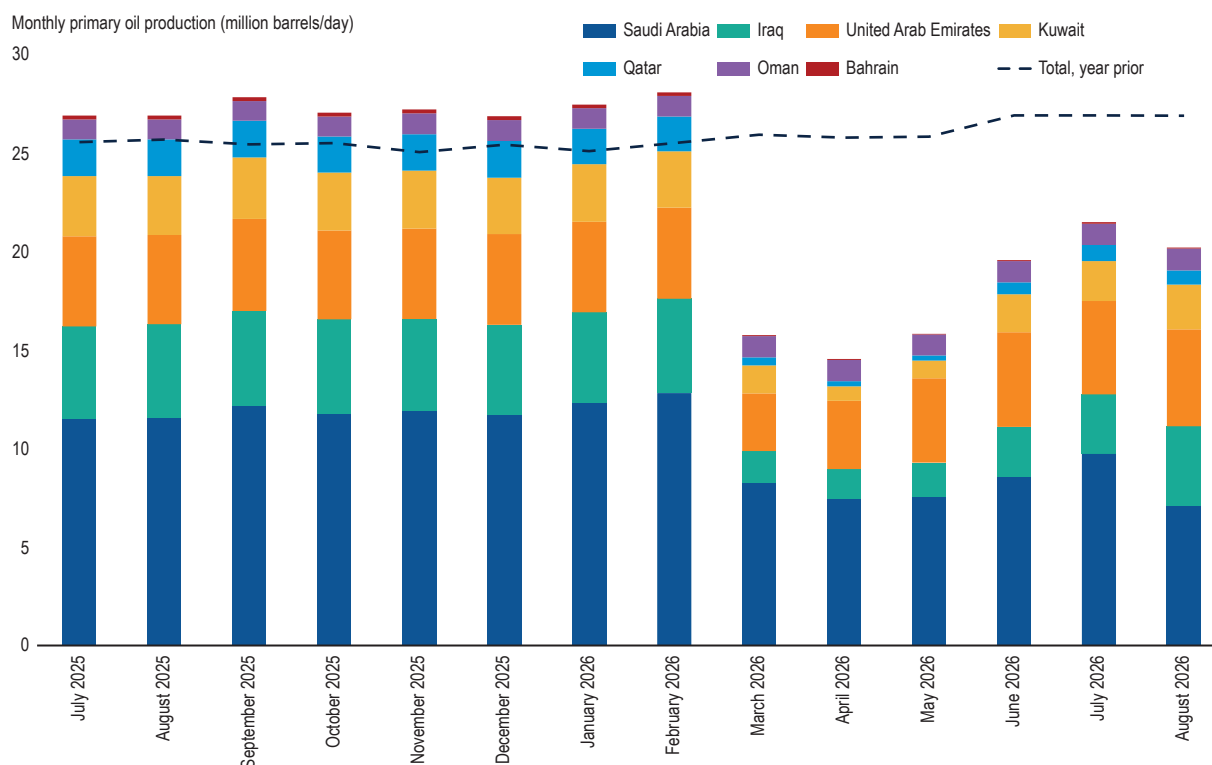
Oil-importing countries—Djibouti, the Arab Republic of Egypt, Jordan, Morocco, Pakistan, and Tunisia—remain exposed through economic channels, including rising inflationary pressures from higher oil and other commodity prices, loss of fiscal space, a decline in remittances from the Gulf economies, and increased costs of borrowing, mainly because of higher insurance risk premia as the conflict persists. Oil exporters outside the Persian Gulf, including Algeria and Libya, may benefit from higher prices but remain exposed to regional insecurity and domestic constraints. In economies experiencing persistent fragility—such as Afghanistan, the Syrian Arab Republic, the West Bank and Gaza, and the Republic of Yemen—the

conflict compounds long-standing displacement and institutional weaknesses.

Disruptions to oil and gas production and exports in the Gulf have been severe

Gulf oil production fell sharply after the conflict began. Monthly primary oil production in the Gulf averaged about 26 million barrels per day in the months preceding the conflict, broadly in line with its level a year earlier (figure 1.8). Production dropped to about 16 million barrels per day in March and remained near that level through May, before recovering partially in June. The decline was broad-based across Gulf producers, with Iraq and Saudi Arabia accounting for the largest share in absolute terms. The disruption also extended to natural gas. Average monthly natural gas production in Qatar fell by about 67 percent between March and July 2026 relative to the same period in 2025. The declines reflected direct damage

FIGURE 1.8 Oil production in the GCC and Iraq fell sharply after February and remained well below pre-conflict levels in August 2026



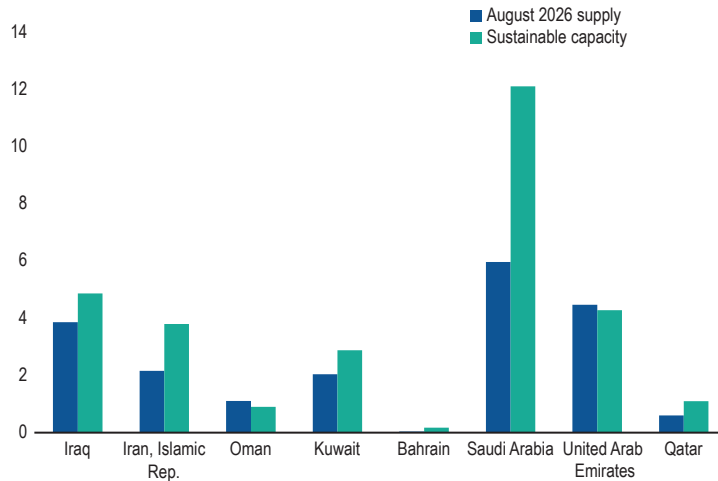
Source: International Energy Agency's Monthly Oil Data. (www.iea.org/data-and-statistics/data-product/monthly-oil-data-service-mods-supply-demand-balances-and-stocks).

Note: GCC = Gulf Cooperation Council.

and operational disruptions as well as the need to curtail production when storage filled and normal export routes became unavailable.

FIGURE 1.9 Most Gulf producers were operating below sustainable capacity by August 2026

Crude supply and capacity (million barrels/day)

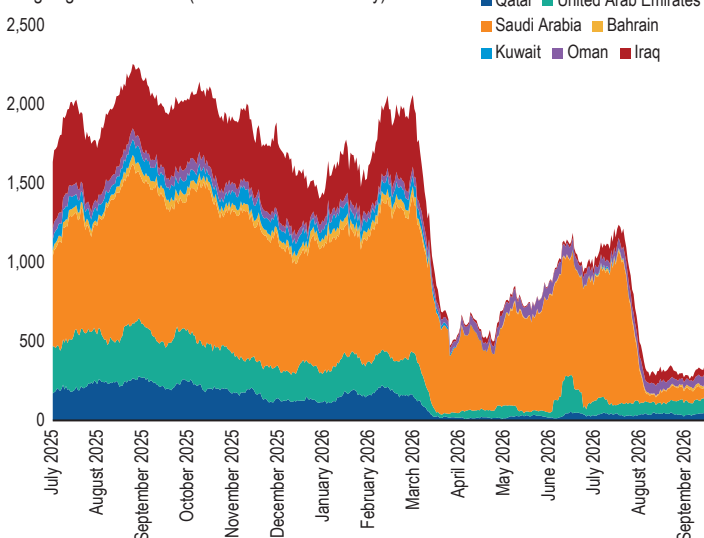


Sources: International Energy Agency's Oil Market Report and Monthly Oil Data.

Note: August 2026 production figures are estimates and projections. Sustainable capacity is the production level that can be reached within 90 days and sustained for an extended period, as estimated by the International Energy Agency. The capacity estimate for the United Arab Emirates is from the May 2026 Oil Market Report. Capacity for Bahrain and Qatar are approximated by February 2026 production.

FIGURE 1.10 Tanker traffic by the Gulf countries fell by more than half since the start of the conflict

Outgoing tanker volume (thousand metric tons/day)



Source: International Monetary Fund PortWatch.

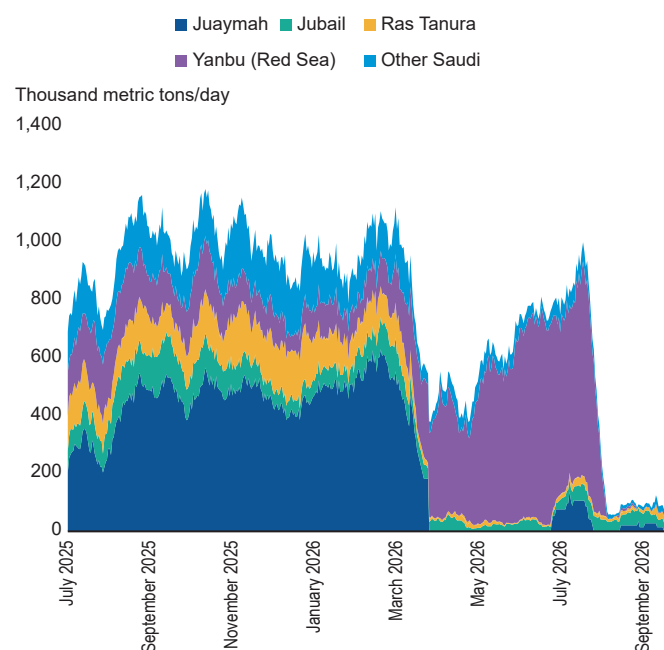
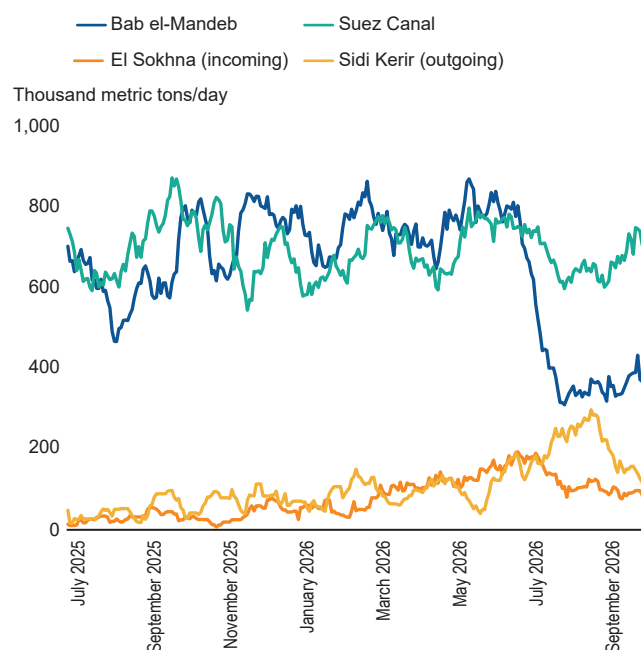
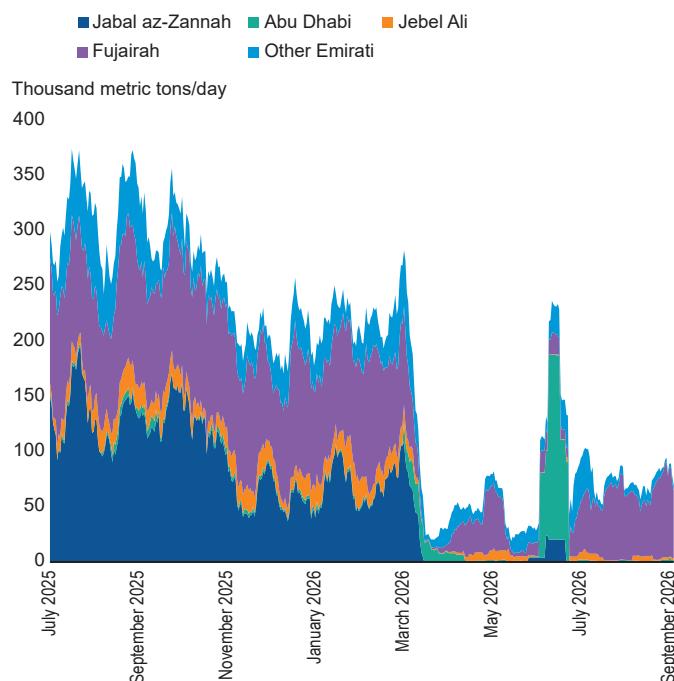
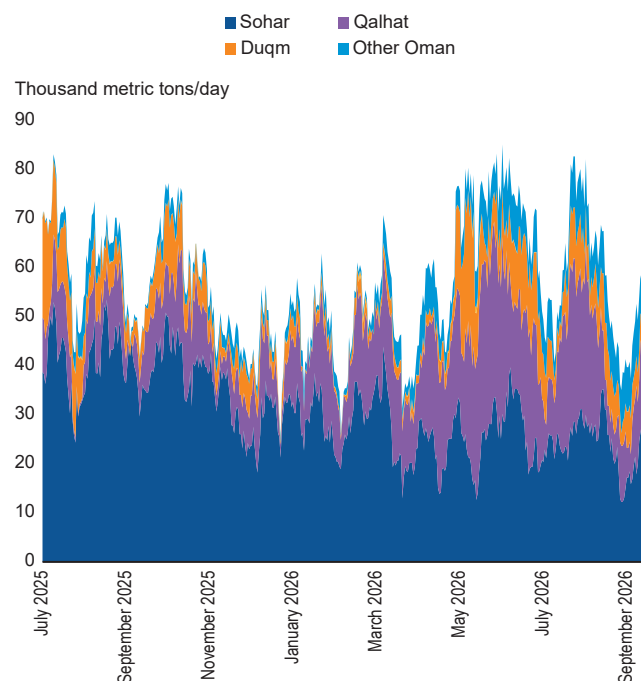
Note: Figure includes 14-day rolling averages of daily outgoing tanker shipments by volume. Estimates are based on Automatic Identification System data, a system that allows vessels to self-report their identity, position, and other characteristics. Latest data are for September 18, 2026.

Production had not returned to capacity in most Gulf economies after the initial shock. By August 2026, crude supply had begun to recover, but it remained well below sustainable production capacity in all but two of the Gulf exporters (figure 1.9). Saudi Arabia produced about 6 million barrels per day, against capacity of roughly 12.0 million (50 percent utilization rate). Kuwait, the Islamic Republic of Iran, Iraq, and Qatar also operated at only about 55–70 percent of estimated capacity. Production in the United Arab Emirates was slightly above previously estimated sustainable capacity, reflecting both the use of export infrastructure outside the Strait of Hormuz and the greater production flexibility available following its withdrawal from OPEC+ production arrangements in May 2026. Oman produced more than the International Energy Agency's estimate of sustainable capacity. Operational disruptions, storage constraints, and limited access to export routes prevented several producers from using capacity fully. Countries able to maintain production or reach ports outside the strait, therefore, experienced smaller supply losses.

Export volumes fell even more abruptly than production. Tanker traffic from the Gulf countries dropped from roughly 1.5–2.0 million metric tons per day before the conflict to about 500,000 metric tons per day in late March (figure 1.10). Exports recovered only gradually in the following months, remaining well below their pre-conflict range. The composition of traffic also changed. Saudi Arabia accounted for most of the initial recovery; tanker movements from Bahrain, Kuwait, Iraq, Qatar, and the United Arab Emirates remained limited. A renewed decline in August reduced total traffic to around 300,000 metric tons per day.

Alternative routes reduced, but did not eliminate, export losses in some countries

The ability to bypass the Strait of Hormuz differed substantially across Gulf exporters. Saudi Arabia was able to redirect crude through its East–West Pipeline to terminals at Yanbu on the Red Sea (figure 1.11, panel a). Before the conflict, Saudi tanker exports generally ranged between 0.8 and 1.2 million metric tons per day and were concentrated at Gulf terminals,

FIGURE 1.11 Gulf countries are rerouting their oil and gas where possible**A. Saudi tanker traffic, by port, July 2025–September 2026****B. Tanker traffic through selected locations, July 2025–September 2026****C. United Arab Emirates tanker traffic, by port, July 2025–September 2026****D. Oman tanker traffic, by port, July 2025–September 2026**

Source: International Monetary Fund PortWatch.

Note: Figures are 14-day rolling averages of daily outgoing tanker shipments by volume. Estimates are based on Automatic Identification System data, a system that allows vessels to self-report their identity, position, and other characteristics. Among ports shown in panels a and c, only Yanbu and Fujairah are located outside of the Persian Gulf. The latest observation is September 18.

including Juaymah, Jubail, and Ras Tanura. Yanbu accounted for only a small share. This pattern reversed after the disruption. Loadings at Gulf terminals fell to nearly zero in April, and exports from Yanbu increased. As a result, total Saudi tanker traffic recovered from about 0.2 million metric tons per day in April to close to 0.9 million metric tons per day by July. The East–West Pipeline restored a substantial share of Saudi export capacity, although total volumes remained below earlier peaks.

Alternative routes were also exposed to disruption. Saudi loadings fell again in August, as attacks on Red Sea shipping intensified. Tanker traffic through Bab el-Mandeb declined from around 0.8 million metric tons per day to close to zero, limiting the value of rerouting cargoes toward the Red Sea. At the same time, traffic at the Egyptian terminals connected by the SUMED pipeline increased. Tanker traffic at El Sokhna and Sidi Kerir roughly doubled from earlier ranges, consistent with a shift from maritime transit toward pipeline transfer between the Red Sea and the Mediterranean Sea (figure 1.11, panel b). These adjustments kept some cargo moving, albeit at higher cost and over more complex routes. Traffic through alternative routes, however, became increasingly uncertain as attacks around the Red Sea intensified, illustrating that rerouting options were themselves vulnerable to disruption. The East–West Pipeline shut down operations on September 11, following renewed attacks on Saudi Arabia’s energy infrastructure, and reopened on September 22.

The United Arab Emirates also benefited from infrastructure located outside the strait. Tanker traffic from Emirati ports fell sharply in March, but exports through Fujairah, which is connected to Abu Dhabi’s oil fields by pipeline and lies outside the Strait of Hormuz, continued (figure 1.11, panel c). By contrast, loadings from Abu Dhabi, Jabal az-Zannah, and Jebel Ali declined to very low levels. A temporary surge in June was not sustained, but the continued use of Fujairah prevented exports from stopping altogether. Pipelines and ports outside the Gulf provided an important margin of adjustment.

Oman was the least directly exposed. Its principal export terminals are located on the Arabian Sea and

the Gulf of Oman rather than inside the Persian Gulf. Traffic through Duqm and Qalhat, therefore, did not require passage through the Strait of Hormuz. Sohar is located close to the strait and was more exposed to the disruption (figure 1.11, panel d). Total tanker traffic from Omani ports increased in the months after the conflict started but has been volatile. Iraq also expanded the use of alternative export corridors, including overland routes, which partially mitigated export losses, but overall hydrocarbon exports remained well below pre-conflict levels.

Rerouting limited export losses, but the costs of operating longer, less secure corridors may outlast the disruption itself. Evidence from earlier episodes in the Red Sea suggests that war risk insurance premia and diverted shipping patterns persist well after attacks subside (box 1.2).

Financial markets in MENAAP have not amplified the shock

MENAAP sovereign spreads have not increased persistently. Sovereign bond spreads widened across most economies in March but subsequently narrowed (figure 1.12, panel a). By early September, spreads in Egypt, Iraq, Jordan, Kuwait, Morocco, Oman, Pakistan, Saudi Arabia, and Tunisia were below their February 27 levels, with the largest declines in Egypt, Iraq, Pakistan, and Tunisia. This pattern suggests that global and regional investors did not interpret the initial conflict shock as a long-lasting deterioration in sovereign creditworthiness.

Two qualifications temper this picture. Spreads in Bahrain, Qatar and the United Arab Emirates remain above their pre-conflict levels, so the improvement is not regionwide. More fundamentally, narrower spreads need not mean lower borrowing costs. Because sovereign yields equal the risk-free benchmark plus the country spread, tighter global financial conditions that result in higher US Treasury yields can increase the cost of external borrowing even when MENAAP spreads narrow.

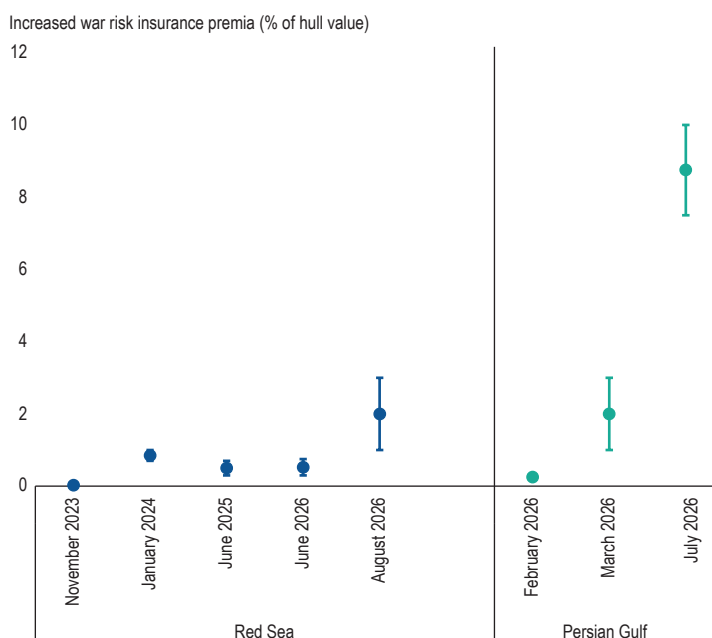
Equity markets recovered relatively rapidly from their initial decline. The broad emerging-market index was above its January level by September;

BOX 1.2 The effects of maritime route disruptions tend to be persistent

Disruptions to maritime routes raise costs quickly but unwind slowly. Shipping and insurance costs rose sharply following the outbreak of conflict and have remained elevated. War risk insurance premia increased across the shipping routes affected by conflict (figure B1.2.1). The rise was especially large for traffic through the Strait of Hormuz, where premia increased several-fold. Premia also rose for routes through the Red Sea. The war risk insurance premia rose from almost zero in 2023 to about 1 percent of cargo value in early 2024,

following Houthi attacks on ships passing through Bab el-Mandeb. It remained elevated, even after the intensity of attacks declined substantially in 2025. These patterns suggest that shipping costs rise quickly when security risks increase but normalize more slowly after peace returns. Higher insurance costs raise the effective cost of trade even when freight volumes begin to recover, increasing import costs and consumer prices, reducing exporters' margins, and adding to delivery delays and supply chain uncertainty.

FIGURE B1.2.1 Shipping costs through the Red Sea and Persian Gulf rise with war risk insurance premia and stay elevated after conflicts subside



Sources: S&P Global; Reuters.

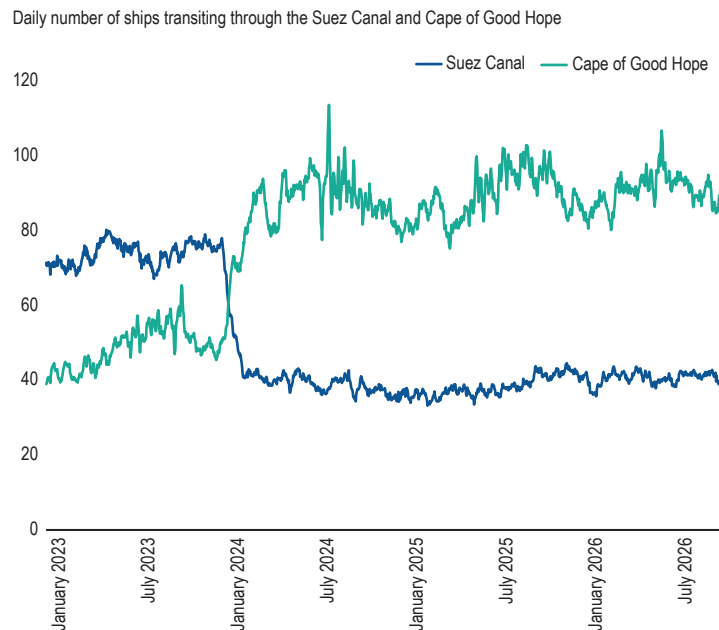
Note: Values are from articles from S&P Global and Reuters that reference additional war risk insurance premia traveling through select bodies of water. Whiskers represent the minimum and maximum extent of that range; dots represent the midpoint.

Higher war risk insurance premia raised the cost of travel through the Suez Canal and contributed to the shift in shipping traffic away from it and toward the Cape of Good Hope after the initial Houthi attacks in late 2023. The number of vessels transiting the Suez Canal fell after the attacks and has remained well below their 2023 level since (figure B1.2.2). Disruptions to traffic through the Suez Canal reduced an important source of foreign-currency earnings for the Arab Republic of Egypt, with estimated losses

of US\$16.5 billion over the period from November 2023 through July 2026, adding to existing external financing pressures. Over the same period, traffic around the Cape of Good Hope increased markedly and stayed elevated. The longer route around the cape increases sailing distances, fuel use, and delivery times. The two series show a persistent rerouting of maritime trade rather than a temporary interruption, lasting well beyond the point at which conflict subsides.

BOX 1.2 The effects of maritime route disruptions tend to be persistent (*continued*)

FIGURE B1.2.2 Traffic through the Suez Canal has not recovered from earlier disruptions



Source: International Monetary Fund, PortWatch.

Note: Values are 14-day rolling averages of transit calls through selected chokepoints. Estimates are based on Automatic Identification System data, a system that allows vessels to self-report their identity, position, and other characteristics.

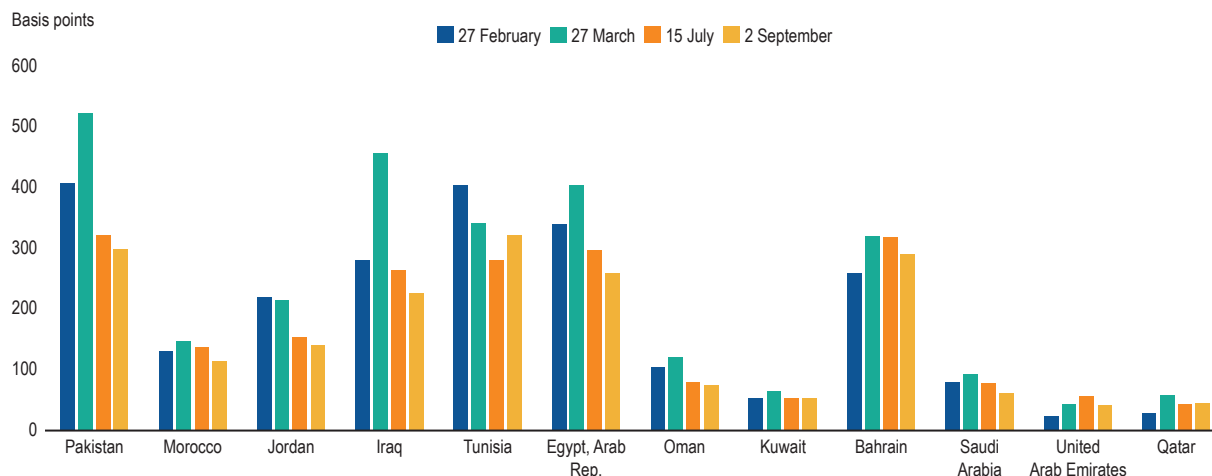
Egyptian equity prices increased particularly strongly (figure 1.12, panel b). Equity prices in Pakistan and the United Arab Emirates fell sharply in March before recovering to near their January levels. The dispersion suggests that domestic earnings prospects continued to matter alongside the regional security shock and that markets priced the conflict as a large but potentially temporary disturbance.

This resilience remains conditional. A renewed increase in energy prices could keep inflation higher for longer and delay monetary easing in high-income economies. Persistent high benchmark yields would raise debt service and refinancing costs across MENAAP, particularly for governments with large financing requirements or short debt maturities. A prolonged conflict could also widen sovereign risk premia if fiscal balances deteriorate, reserves decline, or growth forecasts weaken

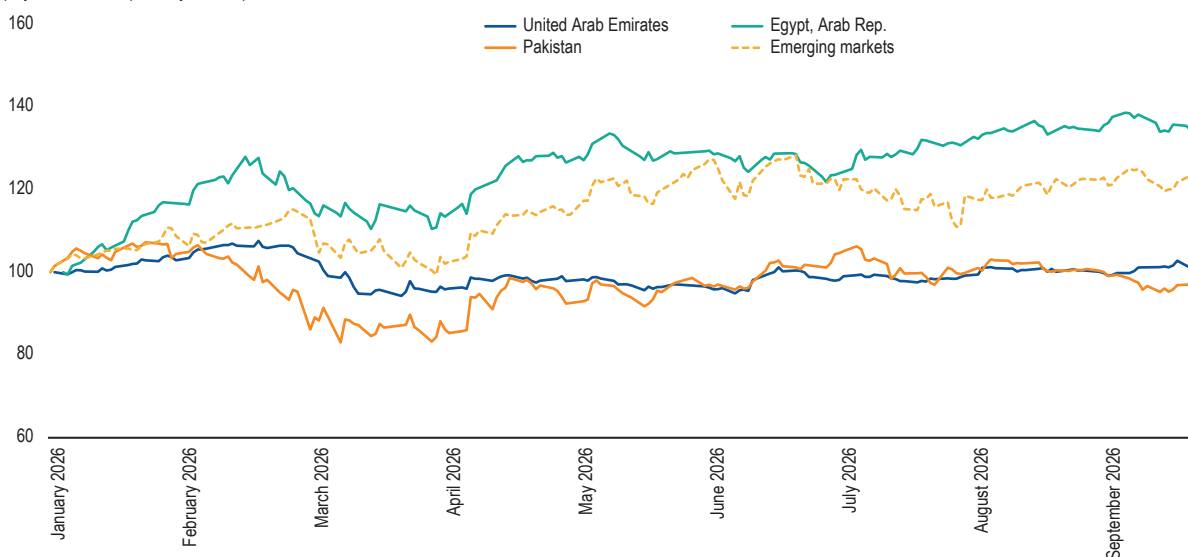
further. Financial markets have remained calm, but the combination of higher inflation expectations and rising yields in high-income countries has narrowed the margin for adverse surprises.

Inflation pressures increased, but unevenly

Inflation has risen in MENAAP since the conflict began, although the increase has varied considerably across countries. In the GCC, headline inflation edged up from about 1.5 percent in early 2026 to roughly 2.5 percent by July (figure 1.13, panel a). The rise was steeper among developing oil exporters, where inflation climbed from near zero at the start of the year to more than 5 percent by midyear, after falling through most of 2025. Among developing oil importers, inflation rose in the opening months of the conflict before easing to about 4 percent.

FIGURE 1.12 Financial markets have stayed calm**A. Sovereign bond spreads in selected countries in the region, February 27–September 2, 2026****B. Equity market indexes in selected countries in the region, January–September 2026**

Equity market index (January 1 = 100)



Sources: Bloomberg; Haver Analytics.

Note: The equity markets represent the Abu Dhabi Securities Exchanges (United Arab Emirates), EGX 30 (Arab Republic of Egypt), and the Karachi Stock Exchange (Pakistan), alongside the MSCI Emerging Markets Index. Market values are indexed to January 1, 2026. The latest observation is September 23, 2026. EMDEs = emerging market and developing economies; MSCI = Morgan Stanley Capital International.

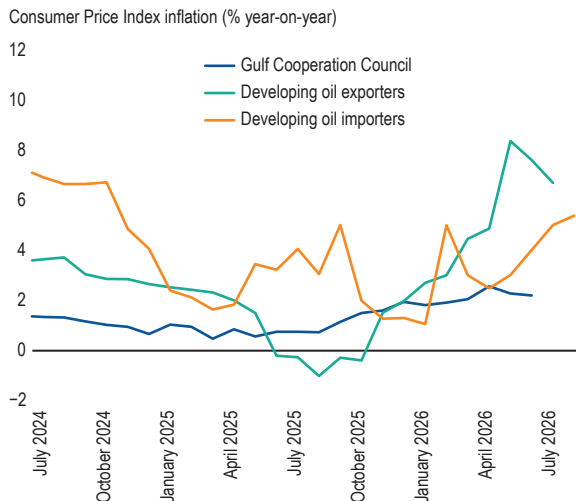
The largest increases occurred in economies with substantial pre-existing macroeconomic imbalances. In the Islamic Republic of Iran, inflation rose from about 32 percent in mid-2024 to 89 percent by August 2026 (figure 1.13, panel b). In Lebanon, inflation increased sharply in the first months of the conflict before declining but remained above 15 percent. Inflation also rose in Pakistan, reaching about 11 percent by midyear. Inflation in Egypt

remained broadly stable, albeit at levels well above the regional aggregates.

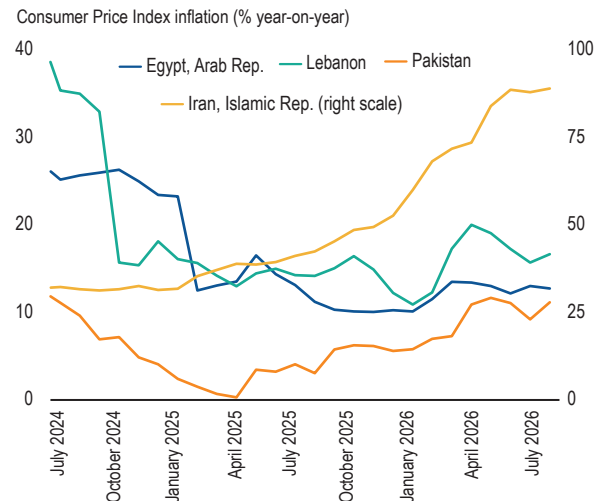
Policy and pricing decisions have muted the inflation response. Fuel prices remain administered or subsidized in much of the region. Governments have also used price controls, tax reductions, and other measures to cushion households from the increase in international prices. These policies can delay or

FIGURE 1.13 Inflation has increased since the conflict began, with large differences across economies

A. Consumer Price Index inflation, across economy groups



B. Consumer Price Index inflation, in selected high-inflation economies



Source: Haver Analytics.

Note: Gulf Cooperation Council includes Bahrain, Kuwait, Oman, Qatar, and Saudi Arabia. The United Arab Emirates is not included in GCC inflation due to data limitations. Developing oil exporters include Algeria, Iraq, and Libya. Developing oil importers include Djibouti, the Arab Republic of Egypt, Jordan, Morocco, Pakistan, Tunisia, and the West Bank and Gaza. Groups are aggregated by their median inflation.

reduce the measured inflation response, but they transfer part of the shock to public budgets. Firms may also initially absorb higher transport and input costs through lower margins, particularly where weak demand limits their ability to raise prices. Both channels delay adjustment rather than prevent it. If energy and shipping costs remain elevated, the inflationary effects will become more persistent.

Inflation expectations have risen

Inflation forecasts for 2026 for the region and the global economy have been revised upward. Consensus forecasts were broadly stable before the conflict across the GCC and Iraq, developing oil importers, and advanced economies and began rising in March (figure 1.14, panel a). By September, the forecast for the GCC and Iraq had increased from about 1.8 to 2.7 percent and for developing oil importers from 5.3 to 6.6 percent, with the range of individual forecasts widening as well (figure 1.14, panel b). The same pattern is evident in advanced economies, where the consensus forecast increased from about 1.9 to 2.8 percent (figure 1.14, panel c).

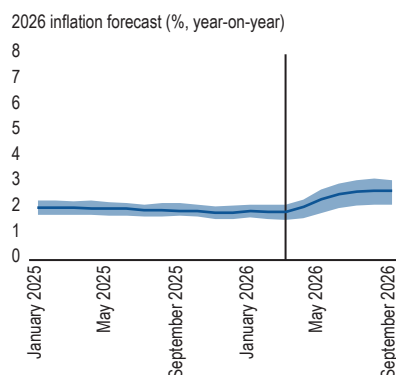
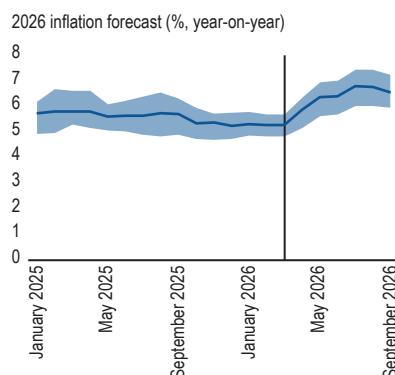
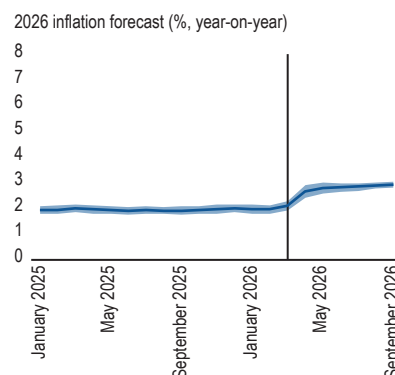
Higher expected inflation globally can slow monetary easing and keep interest rates elevated. It

can also affect wage and price setting if firms and households begin to expect the energy shock to persist. The increase in the dispersion of forecasts for developing oil importers points to greater uncertainty about the extent and timing of passthrough.

Regional risk premia remained contained, but global financing conditions became less favorable

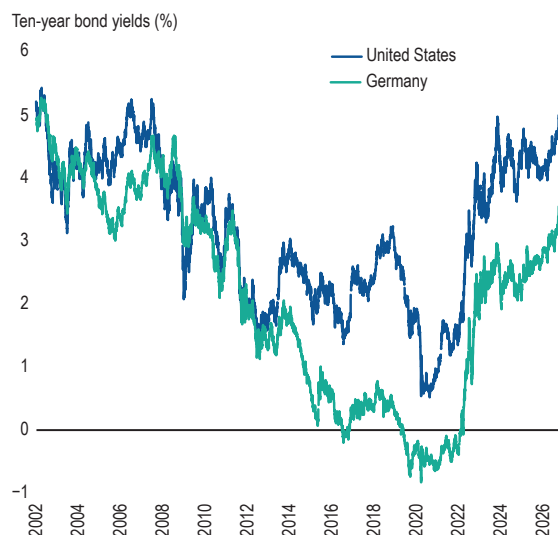
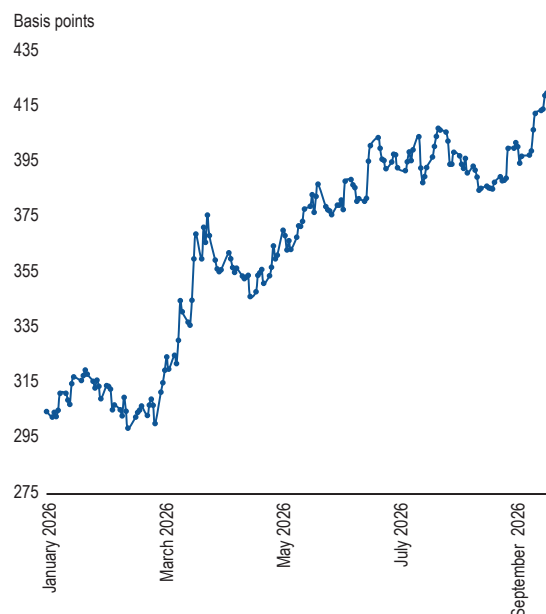
Higher energy and transport costs in the rest of the world could also make inflation more persistent and global financing conditions more restrictive, ultimately hurting the region's economies. Higher rates abroad can tighten financing conditions in MENAAP by raising the benchmark against which sovereign and corporate borrowing is priced, reducing the relative attractiveness of emerging-market assets and increasing the attractiveness of safer high-income securities. Countries with large refinancing needs, limited reserves, or weak fiscal positions are particularly exposed.

Advanced-economy yields have already moved in that direction. Yields on 10-year US Treasuries increased to about 4.7 percent in September, while

FIGURE 1.14 Consensus inflation forecasts for 2026 have increased for all economies since the conflict began**A. GCC economies and Iraq, January 2025–September 2026****B. Developing oil importers, January 2025–September 2026****C. High-income countries, January 2025–September 2026**

Source: Focus Economics.

Note: Dark blue lines show the average consensus forecast across country groups. The blue areas show the average interquartile range of countries in each group. The vertical line marks the beginning of the conflict. GCC + Iraq: Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates; developing oil importers: the Arab Republic of Egypt, Jordan, Morocco, Pakistan, and Tunisia; high-income group includes 20 economies, all of which are outside the MENAAP region. GCC = Gulf Cooperation Council; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

FIGURE 1.15 Yields and expected policy rates in high-income countries have moved higher**A. US and German 10-year government bond yields, January 2002–September 2026****B. Market-implied US federal funds rate, January–September 2026**

Sources: Bundesbank; CME Group FedWatch; FRED.

Notes: Panel b is the expected US federal funds rate after the December 6, 2026 Federal Open Market Committee meeting. The latest observation is September 23 for both panels.

German 10-year yields rose above 3.0 percent (figure 1.15, panel a). Both are near the upper end of their ranges since the Global Financial Crisis. Long-term yields reflect several forces, including expected policy rates, inflation expectations, growth prospects,

fiscal borrowing, and term premia. The increase, therefore, does not identify the contribution of the conflict alone. However, the rise in energy prices adds to concerns that inflation will remain above central bank targets for longer.

Market expectations for US monetary policy moved the same way. The policy rate expected after the December 2026 meeting of the Federal Open Market Committee rose by roughly 100 basis points between January and September, with a particularly sharp adjustment around the initial escalation (figure 1.15, panel b). The repricing indicates that investors came to expect less monetary easing, or tighter policy, than previously anticipated. Expectations remained volatile over the following months but did not return to their pre-conflict level.

Food prices have risen faster than headline inflation

Food prices show a clearer response to the disruption. Food inflation in the region's economies accelerated from an average rate of close to zero in January to around 6 percent by July (figure 1.16, panel a). Among developing oil exporters, food inflation increased even more sharply, peaking at almost 9 percent in May before easing somewhat. Higher energy prices raise the cost of producing, processing, and transporting food, and the disruption of maritime routes increases freight and insurance costs.

Some GCC economies are experiencing unusually large gaps between food and headline inflation. In Qatar, for example, food inflation exceeded 12 percent in June, while overall inflation remained just above 2 percent; in Bahrain and Oman, food inflation surpassed 7 percent, more than twice the headline inflation rate of around 3 percent (figure 1.16, panel b). The widening gaps are consistent with disruptions to food supply chains and trade routes, including the sharp decline in agricultural shipments through the Strait of Hormuz (figure 1.16, panel c).

Food insecurity could worsen where conflict and climate risks overlap

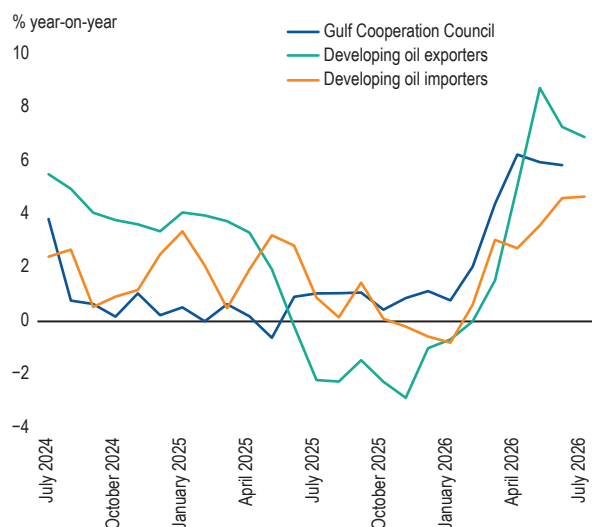
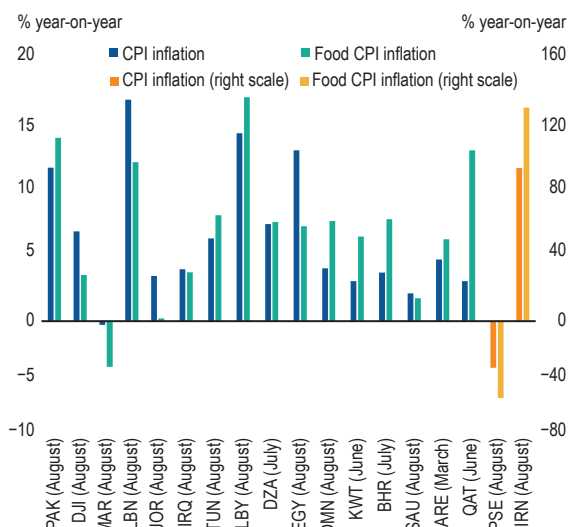
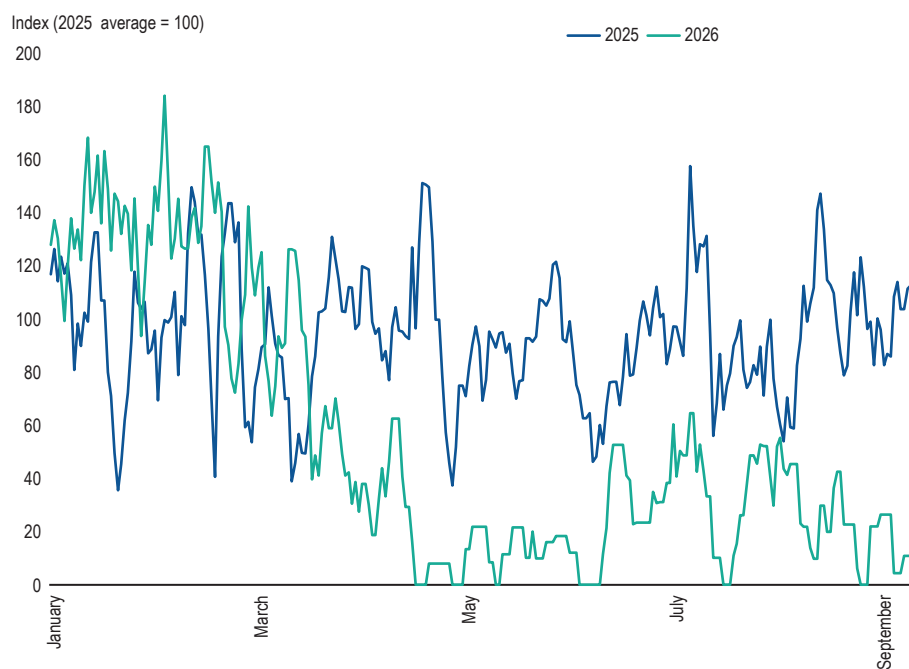
Food insecurity is among the most immediate risks to household welfare. Disruptions to energy, fertilizer, grain, and shipping markets raise agricultural input and logistics costs. Weaker growth and higher prices reduce households' ability to afford food, and

declining humanitarian funding limits assistance. Because food accounts for a far larger share of poorer households' spending, these increases translate into welfare losses well above their weight in headline inflation.

The greatest pressures are concentrated in fragile economies. Integrated Food Security Phase Classification (IPC) projections indicate that crisis-or-worse conditions affect particularly large shares of the populations in Gaza and the Republic of Yemen (figure 1.17, panel a). Significant shares of the population are also affected in Afghanistan, Djibouti, Lebanon, and Pakistan. Because population coverage differs across the IPC assessments, cross-economy comparisons should be interpreted with caution. Within countries, the burden falls on the poor: Gallup survey data show that in many economies of the region more than one-third of respondents lacked sufficient money to buy food during the previous year, with substantially higher rates among poorer households (figure 1.17, panel b).

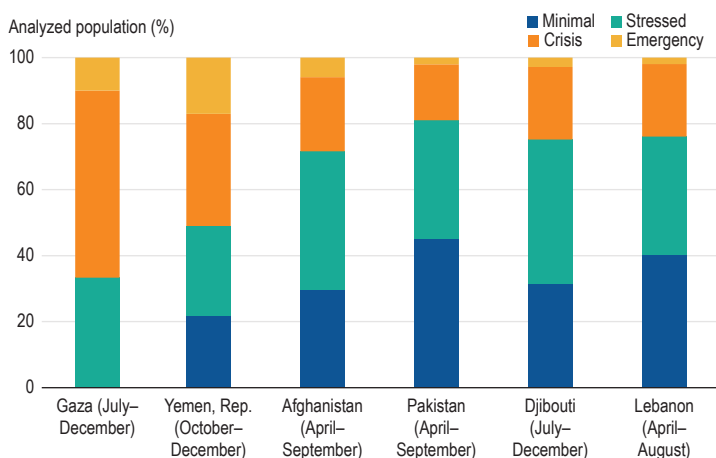
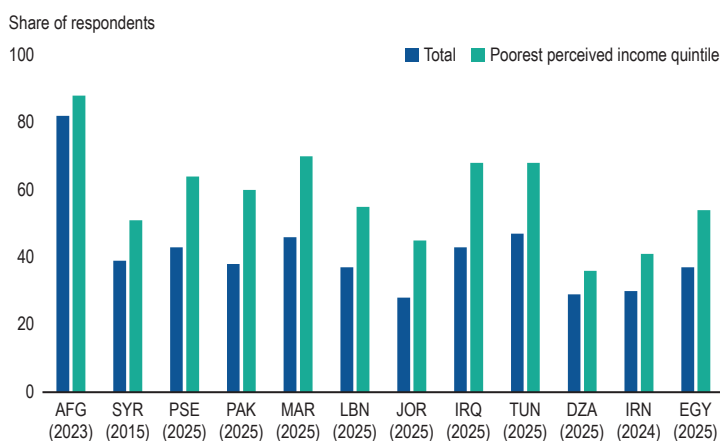
The distributional effects could be substantial even where headline inflation remains moderate. Poorer households in developing MENAAP economies generally devote 35–50 percent of total expenditure to food, compared with 15–35 percent among the richest households. An illustrative 3–6 percent increase in food prices could reduce total consumption among households in the bottom quintile by around 1–5 percent. Estimated losses among households in the top quintile are smaller, at about 0.5–3.6 percent (figure 1.18). The regressive pattern appears across all economies shown, although its magnitude varies with household consumption patterns.

Weather risk compounds the exposure of poor households. Global cereal availability remains relatively comfortable, and grain and fertilizer prices remain below their 2022 peaks. But shocks that could disrupt the global availability of food, including a stronger-than-usual El Niño weather pattern, threaten the livelihoods of poor people across the world, including in MENAAP (box 1.3).

FIGURE 1.16 Food inflation has spiked since the conflict began**A. Food and beverage CPI inflation, by economy group, July 2024–July 2026****B. Overall CPI inflation and food and beverage CPI inflation in selected economies, 2026****C. Volume of inbound shipments of agricultural products through the Strait of Hormuz to destinations inside the Persian Gulf, January–September 2026**

Sources: Haver Analytics; World Trade Organization, Strait of Hormuz Trade Tracker (<https://datalab.wto.org/Strait-of-Hormuz-Trade-Tracker>).

Note: In panel a, the developing oil importers include Djibouti, the Arab Republic of Egypt, Jordan, Morocco, Pakistan, Tunisia, and the West Bank and Gaza. Developing oil exporters include Algeria, Iraq, and Libya. Prices in Libya were not seasonally adjusted. Values are group medians. Panel b shows CPI and food and beverage CPI inflation for the latest month in which both are available. The month of data for each country are indicated in parentheses. In panel c, figures are for discharged, Automatic Identification System traceable vessels only. Agricultural products include all grain-, oilseed-, pulse-, and sugar-related commodities. Shipments are measured by discharge date. Some cargoes shown after February 28 reflect vessels that had already passed through the Strait of Hormuz and arrived before the closure but were discharged only afterward. CPI = Consumer Price Index. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

FIGURE 1.17 Acute food insecurity remains widespread in fragile and low-income MENAAP economies**A. Level of food insecurity in selected economies, 2026 projections****B. Ability to afford food in selected economies**

Sources: Integrated Food Security Phase Classification and World Bank Group calculations using Gallup data.

Note: In panel a, Integrated Food Security Phase Classification analyses cover 100 percent in Afghanistan, 96.5 percent in Djibouti, 100 percent in Lebanon, 20.8 percent in Pakistan, 98.6 percent in Gaza, and 29.7 percent in the Republic of Yemen. Data in panel b are based on positive responses to the question "Have there been times in the past 12 months when you did not have enough money to buy food that you or your family need?" International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

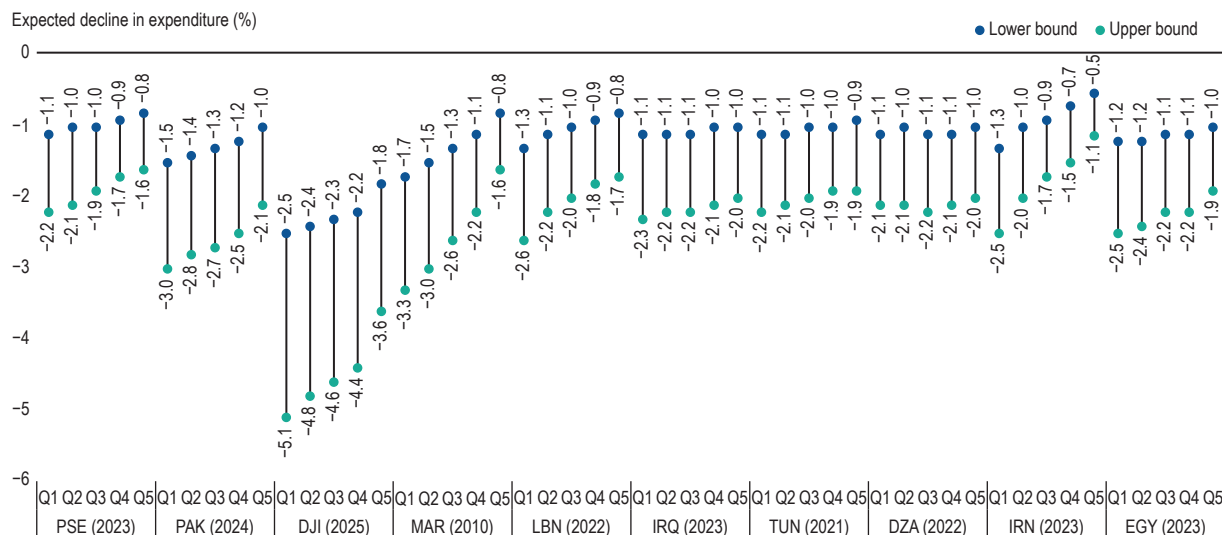
Fiscal space is being squeezed

Governments face simultaneous demands to cushion households from higher prices and respond to conflict-related humanitarian needs. Jordan has provided food price support. Egypt responded with measures to stabilize markets and protect households, including subsidized staples, anti-price-manipulation enforcement and expanded cash transfers. Pakistan has introduced targeted fuel and farm assistance. Afghanistan, the Islamic Republic of Iran, and Lebanon have expanded shelter, food, cash, and reception services for displaced people and returnees.

Fuel price developments since the onset of the conflict highlight the differing approaches governments have taken to shielding households from higher energy costs. Retail gasoline and diesel prices increased in most MENAAP economies, but the magnitude of passthrough varied widely. Gasoline price increases were 40 percent or higher in Lebanon, Pakistan, the Syrian Arab Republic, and the United Arab Emirates (figure 1.19, panels a and b). Domestic prices of gasoline also increased in Egypt, Jordan, and Qatar while remaining broadly unchanged in Oman and Saudi Arabia. Diesel prices rose, on average, by more than 80 percent in Lebanon and nearly 70 percent in the United Arab Emirates and have exceeded 40 percent in Pakistan and the West Bank and Gaza since the start of conflict. These differences largely reflect the extent to which governments rely on administered pricing mechanisms, fuel subsidies, and other measures to cushion consumers from international price shocks. Increases in prices have fueled protests in some MENAAP countries, including the Syrian Arab Republic and Pakistan (figure 1.19, panels c and d).

The heterogeneity in fuel price passthrough underscores an important fiscal tradeoff. Countries that allow prices to adjust more fully transmit a larger share of the shock to households and firms, increasing inflationary pressures. Countries that limit the pass-through with subsidies or price controls can contain the immediate impact on consumer prices but often do so at the expense of higher fiscal costs or losses borne by state-owned energy companies, which may have implicit state guarantees.

Across MENAAP, governments have relied on administered fuel prices, subsidies, price controls, food price stabilization measures, and targeted support programs to cushion households from the shock. Similar policy responses have been observed globally during the 2026 energy crisis (Gentilini et al. 2026). These measures highlight the tension between protecting households and preserving fiscal space. Explicit fuel and electricity subsidies remain above the global median in many MENAAP economies (figure 1.20, panel a). Higher international energy prices will weaken fiscal accounts in countries that implement price subsidies, even as administered prices limit the immediate effect on measured inflation. General government debt

FIGURE 1.18 Higher food prices have reduced purchasing power most among poorer households

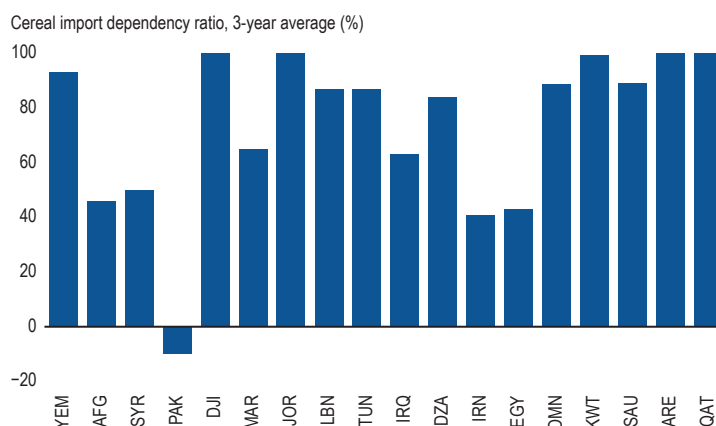
Source: World Bank Group calculations based on scenario analysis.

Note: Figure illustrates and includes only first-order effects before accounting for policy buffers, behavioral adjustments, or second-round effects on wages, other prices, and employment. Declines in expenditure are disaggregated by household consumption per capita quintiles, such that Q1 represents individuals with the lowest levels of consumption. The household budget survey in Lebanon 2022 did not cover the whole country. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

BOX 1.3 A strong El Niño could compound food insecurity among poor households in MENAAP

The MENAAP region's exposure to global food markets is structural. Cereal import dependence exceeds 80 percent across much of the region and approaches 100 percent in Djibouti, Jordan, Kuwait, Qatar, and the United Arab Emirates (figure B1.3.1). Food also

accounts for a large share of the Consumer Price Index—often above 30 percent, and approaching 50 percent in Afghanistan (figure B1.3.2). Disruptions to global food markets or regional trade routes, therefore, transmit quickly to domestic prices.

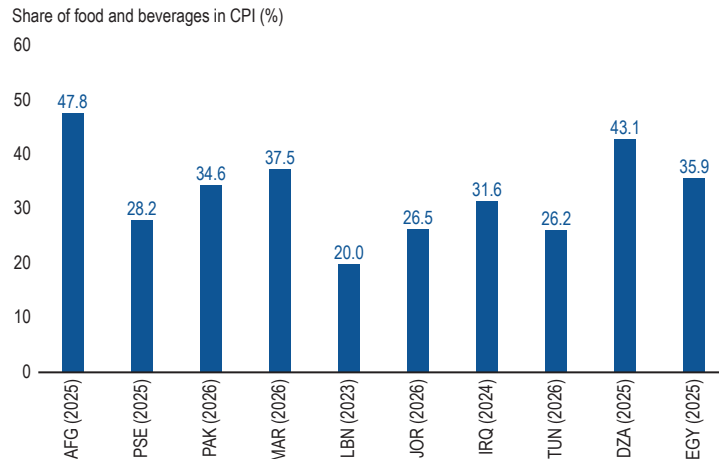
FIGURE B1.3.1 MENAAP has a high dependence on cereal imports

Source: Food and Agriculture Organization.

Note: Estimates for West Bank and Gaza are not available. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

BOX 1.3 A strong El Niño could compound food insecurity among poor households in MENAAP (continued)

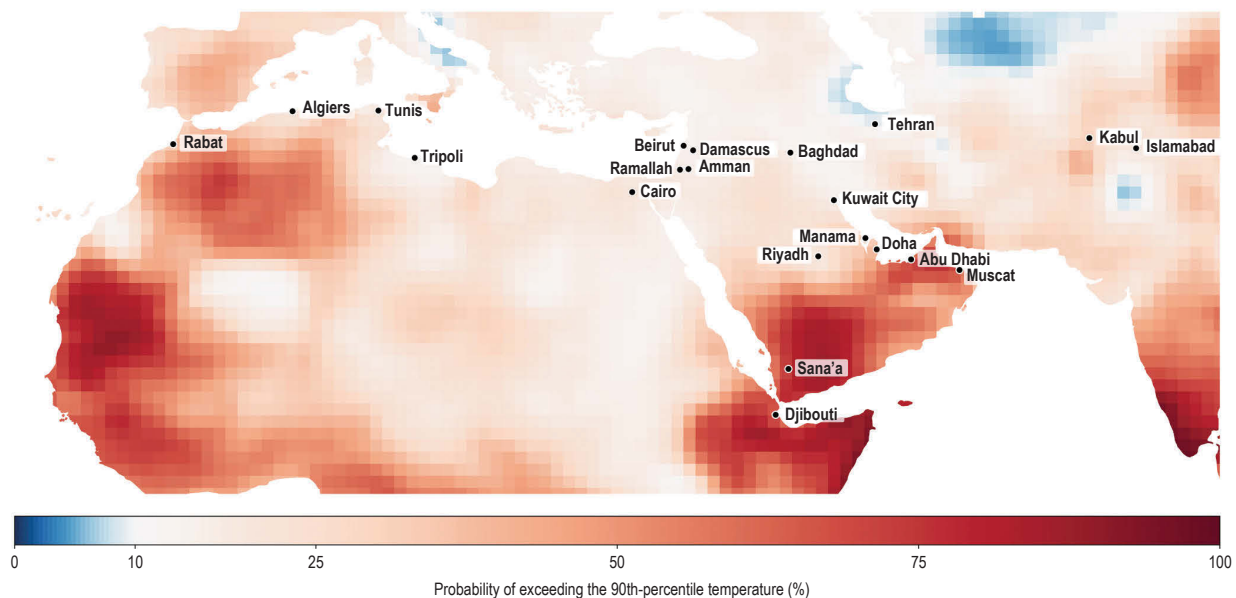
FIGURE B1.3.2 Food accounts for a substantial share of the consumer basket



Source: International Monetary Fund.

Note: CPI = Consumer Price Index. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

MAP B1.3.1 MENAAP is expected to be exceptionally warm, October–December 2026



Source: International Research Institute for Climate and Society.

Notes: Pixels are colored by the likelihood of exceeding 90th-percentile average temperature for the season and geography. Pixels with a 10 percent chance of achieving average temperatures above the 90th percentile are light grey, pixels with greater than a 10 percent chance are red, and those with under a 10 percent chance are blue. Each pixel represents a grid of 1 degree latitude by 1 degree longitude.

BOX 1.3 A strong El Niño could compound food insecurity among poor households in MENAAP (continued)

A stronger-than-usual El Niño weather pattern is forecast for late 2026, bringing heat stress, erratic rainfall, drought, localized flooding, and crop losses. Pakistan is directly exposed through changing monsoon conditions, and Afghanistan has already experienced greater heat stress alongside rising localized flood risk. The Arab Republic of Egypt, Iraq, and Tunisia warrant monitoring given existing water stress. Country-level effects are difficult to predict, however, and past El Niño episodes have proved unreliable guides to the timing or location of droughts and floods.

Much of the region can expect an exceptionally warm October–December (map B1.3.1). The entire populations of Djibouti, the United Arab Emirates, and

the Republic of Yemen live in areas with more than a 50 percent chance of exceeding the 90th-percentile seasonal temperature, as do 84 percent of the population in Oman, 28 percent in Morocco, 20 percent in Saudi Arabia, and 5 percent in Algeria—about 8 percent of the regional population in total.

How far such shocks reach domestic prices depends on exchange rates, reserves, supplier diversification, and fiscal capacity. Currency depreciation amplifies imported food inflation, particularly where inflation expectations are not well anchored. Strategic stocks and diversified suppliers provide a buffer. Subsidies can reduce passthrough but are difficult to sustain in highly indebted economies.

exceeds 80 percent of GDP in Egypt, Jordan, and Tunisia and 130 percent of GDP in Lebanon (figure 1.20, panel b). Algeria, Djibouti, Iraq, Morocco, and Pakistan also face significant debt or financing pressures. Subsidies can be regressive and wasteful (World Bank 2026e); targeted transfers are generally more efficient and can help preserve fiscal space.

Uncertainty could continue to weigh on investment after trade normalizes

Uncertainty is another channel through which the conflict may have lasting effects. Global economic policy uncertainty remains well above its pre-pandemic range. It rose sharply around recent trade policy announcements and remained elevated after the escalation of armed conflict in the Middle East. Firms facing uncertainty about security, transport routes, energy costs, and demand may postpone investment even when current financing remains available. Households may, likewise, defer major purchases and increase precautionary saving.

Cross-country evidence bears this out. EMDEs with higher average uncertainty tend to record weaker investment and private consumption growth

(figure 1.21). The relationship is stronger for investment, which is costly to reverse and particularly sensitive to uncertainty about future returns. Uncertainty could, therefore, slow the recovery in productive capacity, tourism, construction, and private sector employment even after oil exports and shipping recover.

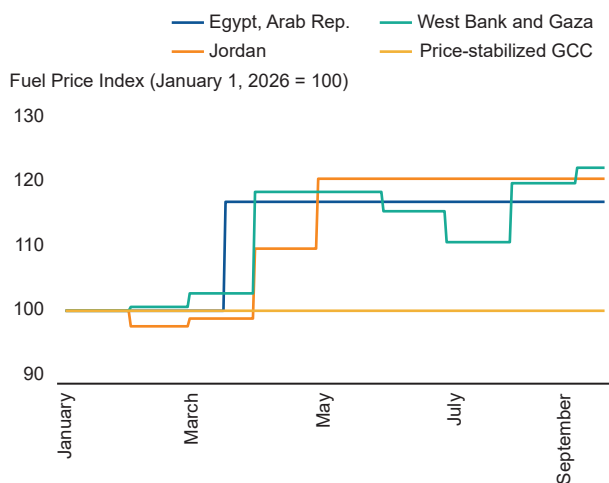
Conflict ripple effects: Air travel has recovered unevenly, while tourism remains vulnerable

The consequences of uncertainty extend beyond investment. Tourism and air travel have also been affected, particularly in economies that depend heavily on regional connectivity and visitor flows.

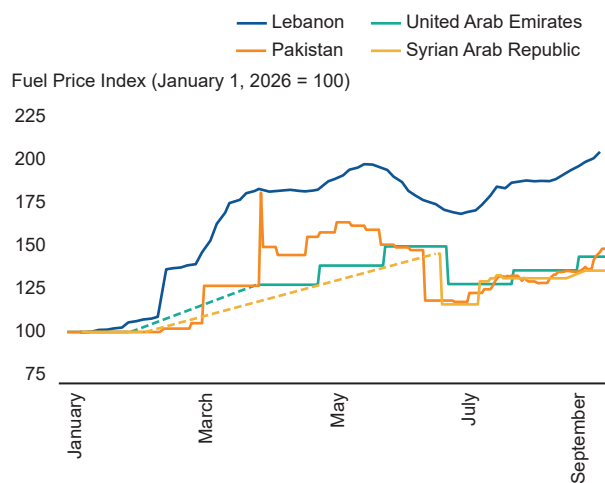
Security concerns have affected tourism and air travel, transmitting the conflict beyond the energy sector. This channel has become increasingly important for GCC economies, where tourism, aviation, accommodation, and hospitality feature prominently in diversification strategies. Tourism receipts are substantial in several MENAAP economies, reaching more than 10 percent of GDP in some cases and exceeding the global average across much of the region

FIGURE 1.19 Fuel prices increased after the conflict began, with fuel-related protests recorded in some economies

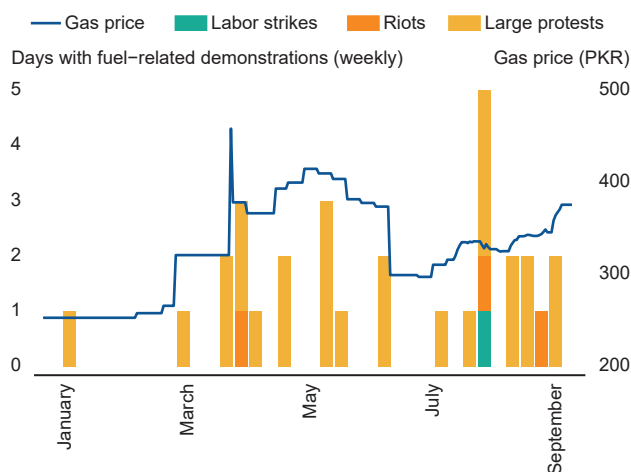
A. Fuel prices in price-stabilizing economies, January–September 2026



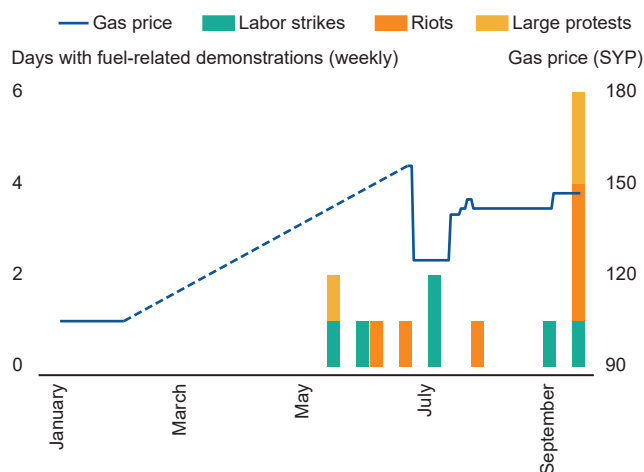
B. Fuel prices in selected countries in MENAAP, January–September 2026



C. Fuel prices and fuel-related demonstrations in Pakistan, January–September 2026



D. Fuel prices and fuel-related demonstrations in the Syrian Arab Republic, January–September 2026

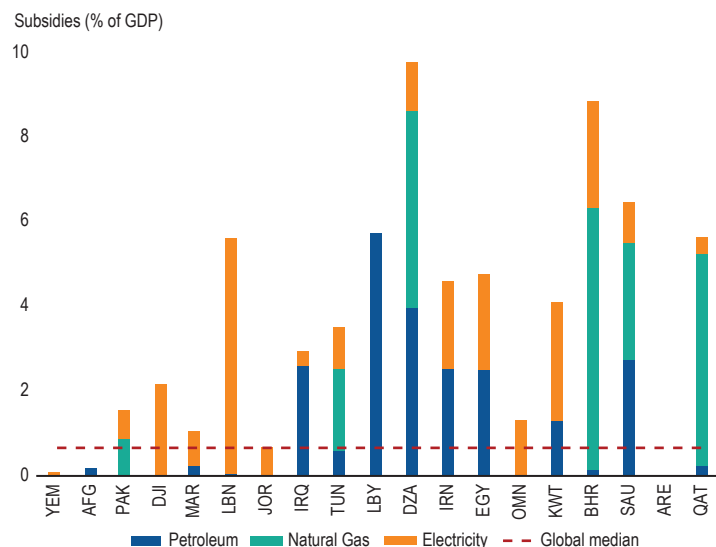


Sources: Ministry of Petroleum and Mineral Resources, Arab Republic of Egypt; Oman Oil Marketing Company; Qatar Energy; Aramco; Integrated Petroleum Trading Group; Abu Dhabi National Oil Company; Pakistan State Oil Group; The Fuel Price; Armed Conflict Location and Event Data.

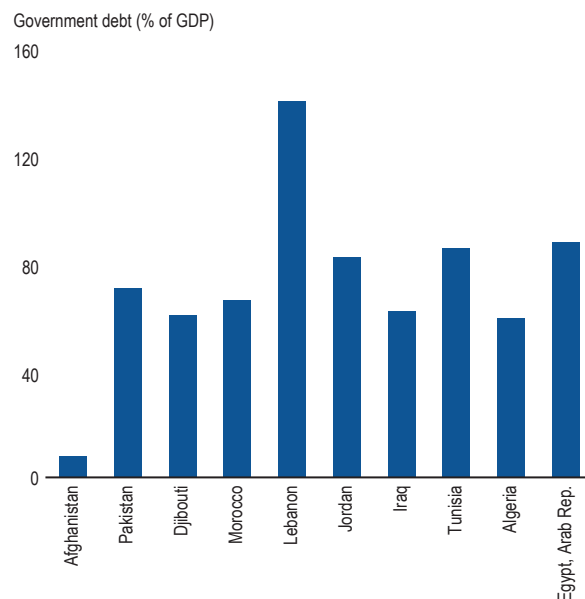
Note: In panel a, fuel prices represent the price of regular grade gasoline, as measured in local currency, indexed to its value on January 1, 2026. Price-stabilized GCC countries include Bahrain, Kuwait, Oman, Qatar, and Saudi Arabia; in all of these countries, local currency-denominated fuel prices did not change in 2026. In panels b and d, dashed lines for the Syrian Arab Republic and the United Arab Emirates represent gaps in data. In panels c and d, fuel prices are unindexed and expressed in local currency. Fuel-related demonstrations include labor strikes, riots, and protests with a crowd size of more than 1,000 individuals. Fuel-related events were initially selected using a set of keywords in the "Notes" section, including gas, fuel, petrol, and diesel. Events were subsequently manually whitelisted to include only events related to the price or provision of fuel. Riots are distinguished from protests largely through their use of violence, while protests are classified as nonviolent events. Multiple entries of a single event type in a single day are consolidated into a measure of days with fuel-related demonstrations. GCC = Gulf Cooperation Council.

FIGURE 1.20 High energy subsidies expose budgets to rising prices, and debt is elevated in several MENAAP economies

A. Explicit fossil fuel subsidies in selected economies in the region, 2024



B. General government debt in selected economies in the region

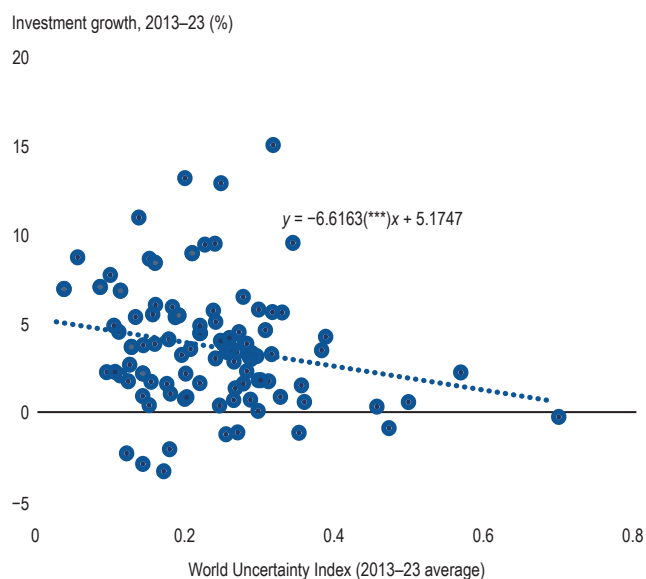


Source: International Monetary Fund Fossil Fuel Subsidies dataset; International Monetary Fund World Economic Outlook; Macro Poverty Outlook.

Note: Fuel subsidy data include only explicit subsidies, defined as the amount by which the financial cost to supply a fuel exceeds the price paid by the fuel user. The global median figure is the median of all fossil fuel subsidies across countries, which include coal subsidies. Coal subsidies make up a negligible part of explicit fossil fuel subsidies in MENAAP. In panel b, Djibouti's debt as a percent of GDP comes from Macro Poverty Outlook estimates, figures for all other countries come from the International Monetary Fund's World Economic Outlook. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

FIGURE 1.21 Globally, elevated uncertainty is associated with weaker investment and consumption growth

A. Investment growth and uncertainty



B. Private consumption growth and uncertainty

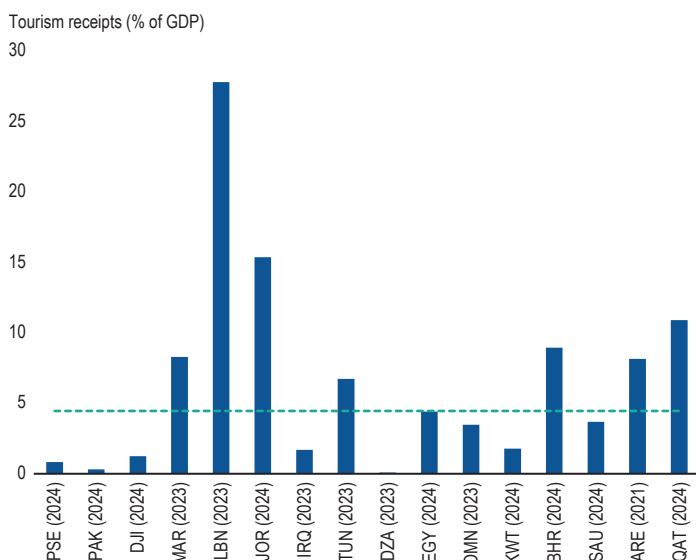


Sources: Ahir, Bloom, and Furceri (2022); World Development Indicators.

Note: The World Uncertainty Index is computed by counting the frequency of the word 'uncertain' and its variants in the Economist Intelligence Unit country reports. More information can be found at worlduncertaintyindex.com. Asterisks refer to the statistical significance of the regression coefficient. ** = significant at the 5 percent level. *** = significant at the 1 percent level.

(figure 1.22). These economies are highly exposed when conflict changes travel plans, disrupts flight schedules, or raises the perceived risk of visiting the region.

FIGURE 1.22 Tourism exposure is high in some MENAAP economies



Sources: UN Tourism; World Development Indicators.

Note: The dashed line represents the global average of tourism as a percent of GDP. Values represent the most recent values of total annual visitors' expenditure, expressed as a percent of GDP. Expenditure values are from UN Tourism, using the indicator "inbound – expenditure – balance of payments – total – visitors." GDP figures are from World Development Indicators for the same year as the most recent UN Tourism figures for that country. Countries for which data were not available after 2020 were excluded. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

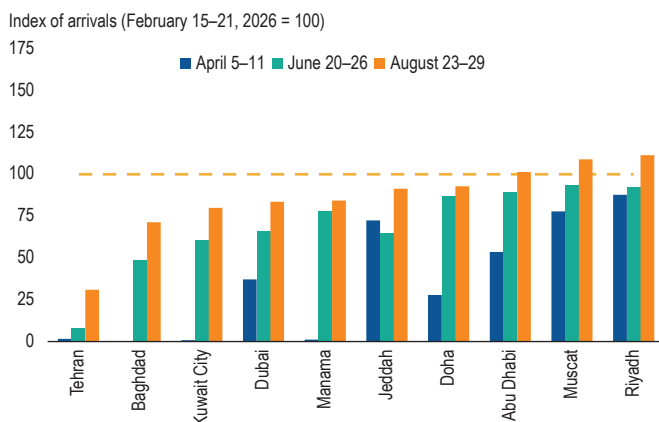
The initial disruption was sharp. Flight arrivals fell sharply in April 2026 and remained below pre-conflict levels at several Gulf airports in late June (figure 1.23, panel a). The largest declines occurred in countries most directly exposed to the conflict and to interruptions in regional airspace. Lower seat capacity reflected flight cancellations, route adjustments, and weaker travel demand. The decline affected both international tourism and the regional aviation networks that connect the Persian Gulf to Asia, Europe, and other MENAAP economies.

More recent flight data point to a partial but uneven recovery. Arrivals fell sharply in April at major Gulf airports, including those serving Doha, Dubai, Kuwait City, Manama, and Riyadh. By late June, traffic had recovered across much of the region. By late August, arrivals at several airports, including Abu Dhabi, Muscat, and Riyadh, exceeded their levels in the week immediately preceding the conflict. Doha, Dubai, Kuwait City, and Manama also recorded substantial recoveries, although arrivals remained below their pre-conflict benchmarks.

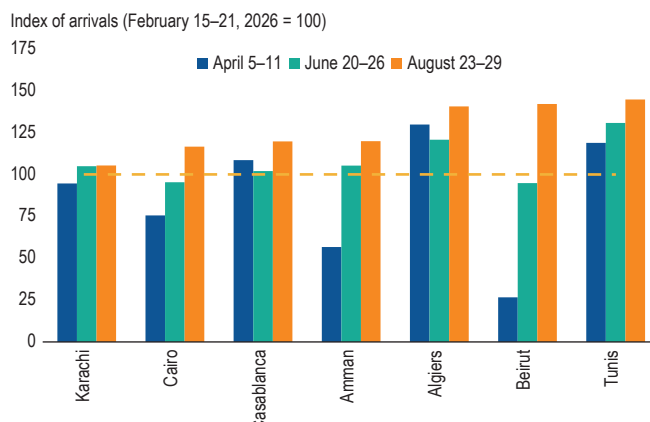
The recovery was stronger outside the Gulf. Arrivals in Algiers, Amman, Beirut, Cairo, Casablanca, and

FIGURE 1.23 Flight arrivals have recovered in parts of MENAAP but remain below pre-conflict levels in several Gulf countries

A. Cities in the Gulf



B. Cities in the region outside the Gulf



Source: FlightAware.

Note: The index week (February 15–21) is before the start of the current conflict in the Islamic Republic of Iran. The airports are as follows: Baghdad International Airport (Baghdad, Iraq); Bahrain International Airport (Manama, Bahrain); Beirut–Rafic Hariri International Airport (Beirut, Lebanon); Cairo International Airport (Cairo, Arab Republic of Egypt); Casablanca Mohammed V International Airport (Casablanca, Morocco); Dubai International Airport (Dubai, United Arab Emirates); Hamad International Airport (Doha, Qatar); Houari Boumediene Airport (Algiers, Algeria); Imam Khomeini International Airport (Tehran, Iran, Islamic Rep.); Jinnah International Airport (Karachi, Pakistan); King Abdulaziz International Airport (Jeddah, Saudi Arabia); King Khalid International Airport (Riyadh, Saudi Arabia); Kuwait International Airport (Kuwait City, Kuwait); Muscat International Airport (Muscat, Oman); Queen Alia International Airport (Amman, Jordan); Tunis–Carthage International Airport (Tunis, Tunisia); and Zayed International Airport (Abu Dhabi, United Arab Emirates).

Tunis were at or above their pre-conflict levels by late August (figure 1.23, panel b). By contrast, air traffic to Tehran remained severely depressed, and Baghdad had only partially recovered. The pattern suggests that, while the initial shock to regional travel was broad, its persistence has depended on proximity to hostilities, airspace restrictions, and travelers' perceptions of continuing risk.

The recovery in flights should not be interpreted as a sign of full recovery in tourism. Flight arrivals include business travel, transit passengers, returning residents, and other movements that do not translate one-for-one into visitor spending or hotel demand. Tourism receipts may, therefore, remain weak even after flight volumes improve. This distinction is especially important for GCC economies that serve as international aviation hubs, where a rebound in transit traffic may overstate the recovery in visitors staying and spending in the destination. A re-escalation of the conflict can also affect flights and tourist arrivals.

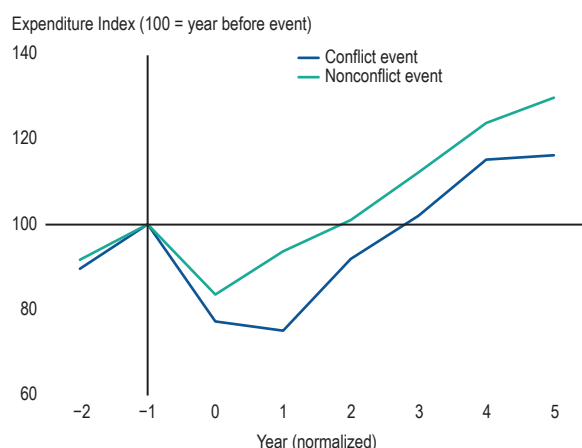
Historical experience suggests that conflict-related tourism shocks are deeper and more persistent than other tourism downturns. Following a

conflict event, real travel expenditure falls to about three-quarters of its pre-event level and remains below that benchmark for 2–3 years (figure 1.24, panel a). Visitor arrivals show a similar pattern, declining by about one-quarter in the event year and recovering to their pre-event level only after about 3 years (figure 1.24, panel b). Tourism also recovers more slowly after conflict than after other adverse events. Five years after the initial decline, both expenditure and arrivals remain well below the corresponding paths following nonconflict shocks. These differences are consistent with the persistence of security concerns, travel advisories, disrupted air connectivity, and reputational effects.

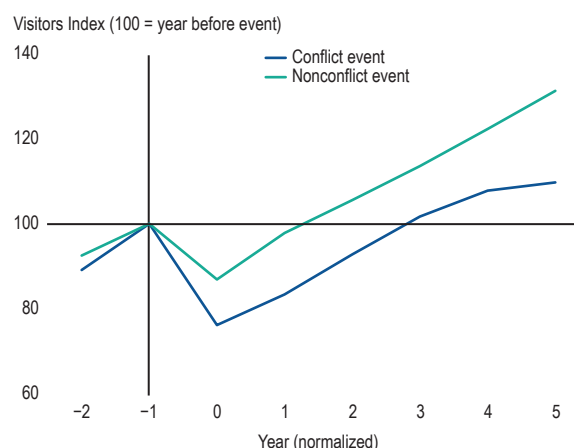
A prolonged tourism slowdown would also affect employment. Accommodation and food services account for 3.3–6.8 percent of total employment in the high-income MENAAP countries (figure 1.25). The largest shares are in Oman and Saudi Arabia, followed by the United Arab Emirates, Bahrain, and Qatar. Exposure is generally lower among developing MENAAP economies, although it remains significant in Egypt, Jordan, Lebanon, Tunisia, and the West Bank and Gaza. These estimates capture

FIGURE 1.24 Conflict-related declines in tourism are deeper and last longer than in other tourism downturns

A. Travel expenditure



B. Visitor arrivals



Sources: World Bank Group calculations using data from UN Tourism, the Uppsala Conflict Data Program Georeferenced Event Dataset, and the World Development Indicators.

Note: Panels show unweighted average indexes following events that produced declines of at least 5 percent in both inbound travel expenditure and visitor arrivals between 2000 and 2014. Conflict events are events occurring in a year with at least 50 conflict-related fatalities in the Uppsala Conflict Data Program's Georeferenced Event Dataset. For economies with multiple qualifying events, the largest decline is used. Inbound expenditure is converted to constant US dollars using the US GDP deflator. Events are restricted to the period before the COVID-19 pandemic. US = United States.

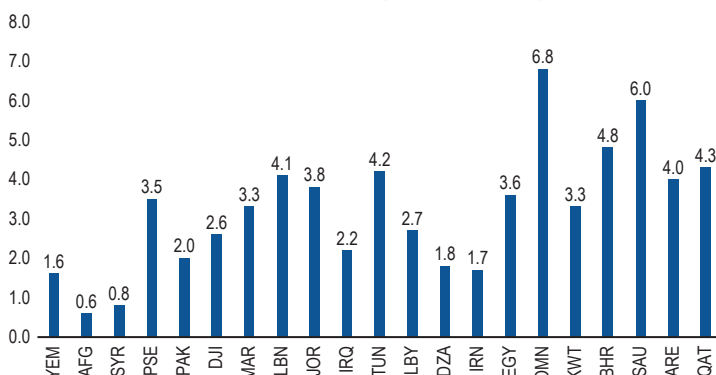
only direct employment in accommodation and food services. They do not include jobs supported indirectly through aviation, transport, retail, entertainment, construction, or tourism supply chains. The total employment exposure is, therefore, larger.

The regional labor market effects can extend beyond the countries receiving visitors. A substantial share

of workers in GCC tourism and hospitality activities are foreign workers who send income to households elsewhere in MENAAP. A prolonged slowdown in tourism, construction, and related services could reduce labor demand and weaken income flows to labor-sending economies, particularly Pakistan and parts of the Levant.

FIGURE 1.25 Employment in tourism varies substantially across MENAAP

Share of workers in accommodation and food services (% of total employment)

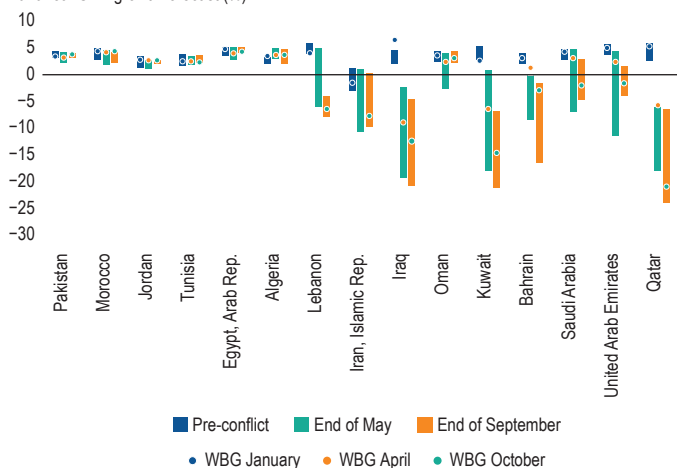


Source: Modeled estimates by the International Labour Organization.

Note: Data years are 2023 for Lebanon, 2022 for West Bank and Gaza, and 2025 for all other economies. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

FIGURE 1.26 GDP growth forecasts for 2026 continue to decline, and uncertainty about growth remains above pre-conflict levels in Persian Gulf countries

2026 real GDP growth forecast (%)



Sources: Focus Economics; January 2026 *Global Economic Prospects* (World Bank 2026a); World Bank Group (2026d); October 2026 *Macro Poverty Outlook* (World Bank Group 2026 forthcoming-a).

Note: Bars represent the range of forecasts by Focus Economics. Dots represent the World Bank Group's growth forecasts, including the April and October *Macro Poverty Outlook* estimates (World Bank 2026c, forthcoming-a), alongside the June *Global Economic Prospects* report (World Bank 2026b). GEP = *Global Economic Prospects*; MPO = *Macro Poverty Outlook*; WBG = World Bank Group.

Outlook, risks, and policy priorities

A reversal of fortunes is shaping the regional macroeconomic outlook

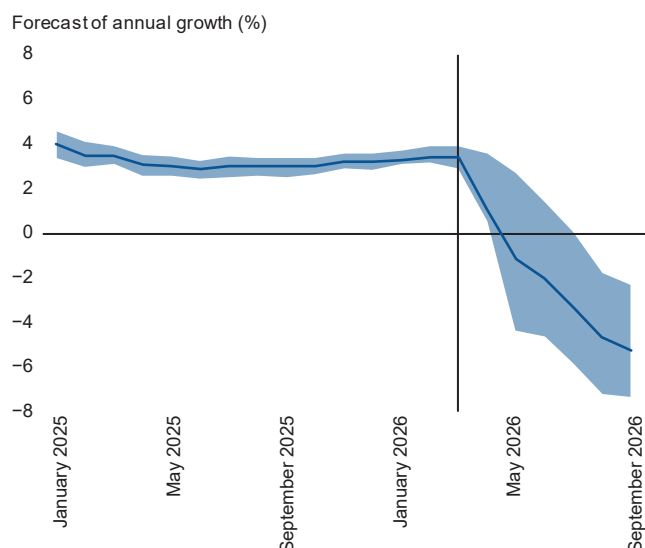
Growth prospects have diverged sharply across MENAAP economies since the conflict began. Forecasts from the private sector for 2026 have been revised down substantially since May, while the dispersion around those forecasts, a proxy for uncertainty about the economic outlook, has widened considerably (figure 1.26). By contrast, expectations for developing oil importers have remained comparatively stable, with forecast revisions modest and uncertainty largely unchanged.

This pattern marks a reversal of the region's experience during previous oil price shocks. Following the Russian Federation's invasion of Ukraine in 2022, higher oil prices improved the terms of trade of Gulf exporters, prompting upward revisions to growth forecasts in GCC economies and Iraq, while projections for oil importers weakened (figure 1.27). The opposite has occurred in 2026. Forecasts for Persian Gulf exporters fell sharply after the conflict began, and uncertainty increased substantially. Forecasts for developing oil importers changed little, and the dispersion around them remained comparatively narrow.

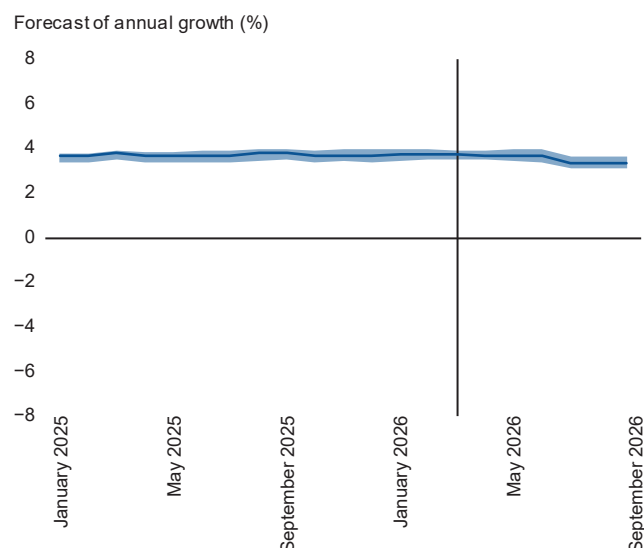
The difference reflects the nature of the shock. In 2022, exporters benefited from higher prices while continuing to sell broadly unchanged volumes. In 2026, disruptions to production facilities and export routes sharply reduced the quantities they could produce and ship. Higher prices did not compensate for the loss of volumes. Weaknesses in tourism, aviation, logistics, and investor confidence further broadened the impact beyond hydrocarbons.

FIGURE 1.27 Growth forecasts fell and uncertainty increased among Persian Gulf exporters, reversing the pattern seen in 2022

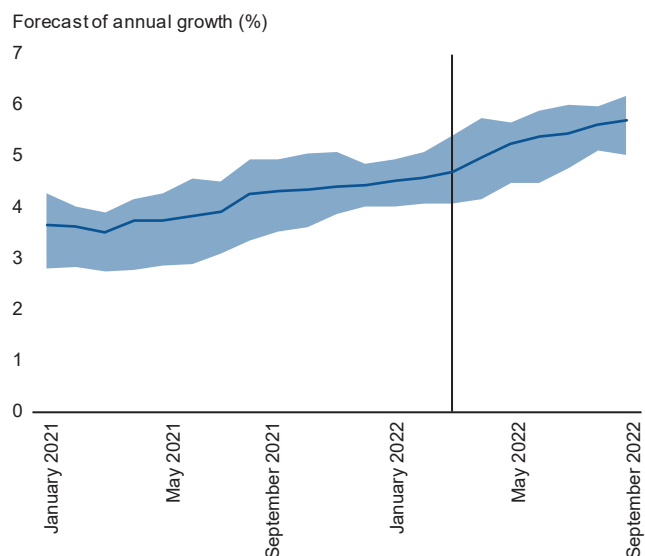
A. GCC economies and Iraq, January 2025–September 2026



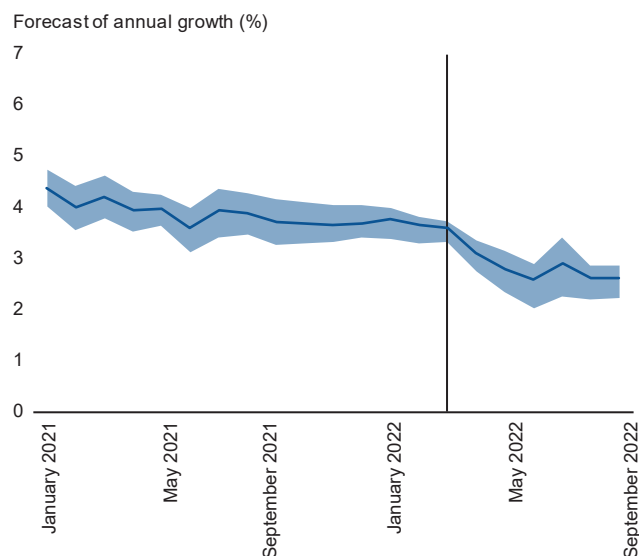
B. Developing oil importers, January 2025–September 2026



C. GCC economies and Iraq, January 2021–September 2022



D. Developing oil importers, January 2021–September 2022



Source: Focus Economics.

Note: Dark blue lines show the median consensus forecast across country groups. For each country, the interquartile range of forecasters' predictions of 2026 growth are calculated; the blue bars represent the median interquartile range of countries in each group. The vertical line marks the beginning of the conflict. GCC includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. Developing oil importers include the Arab Republic of Egypt, Jordan, Morocco, Pakistan, and Tunisia. GCC = Gulf Cooperation Council.

Consistent with these developments, World Bank Group projects MENAAP to contract by 2.1 percent in 2026 after growing by 3.3 percent in 2025 (table 1.1). Excluding the Islamic Republic of Iran, the region's GDP is forecast to decline by

1.3 percent, following growth of 4.0 percent in 2025. The contraction is concentrated among oil and gas exporters in and around the Persian Gulf, where higher prices were unable to offset the loss of export volumes.

TABLE 1.1 Growth losses in MENAAP are concentrated among hydrocarbon exporters

Region or country	Real GDP growth (%)						
	October 2026 forecasts			Changes since April 2026		Changes since January 2026	
	2025e	2026f	2027f	2026f	2027f	2026f	2027f
Middle East, North Africa, Afghanistan, and Pakistan	3.3	-2.1	n.a.	n.a.	n.a.	-5.7	n.a.
MENAAP, excluding the Islamic Republic of Iran	4.0	-1.3	7.8	-3.1	3.0	n.a.	n.a.
Middle East and North Africa	3.4	-2.8	n.a.	n.a.	n.a.	-6.4	n.a.
Gulf Cooperation Council	4.5	-4.3	10.3	-5.7	5.2	-8.7	5.7
Qatar	1.8	-20.9	26.7	-15.2	21.0	-26.2	19.9
United Arab Emirates	6.2	-1.6	9.5	-4.0	5.4	-6.6	4.4
Saudi Arabia	4.6	-2.0	7.9	-5.1	3.0	-6.3	3.5
Bahrain	3.5	-2.9	4.2	-4.1	1.4	-6.0	1.3
Kuwait	2.7	-14.6	22.0	-8.2	8.5	-17.2	19.5
Oman	2.4	3.1	3.4	0.7	0.4	-0.5	-0.6
Developing oil exporters	0.7	-5.4	n.a.	n.a.	n.a.	-7.1	n.a.
Developing oil exporters, excluding the Islamic Republic of Iran	2.5	-2.9	8.1	-1.8	2.1	n.a.	n.a.
Iran, Islamic Rep.	-0.9	-7.7	n.a.	n.a.	n.a.	-6.2	n.a.
Algeria	3.8	3.7	3.4	0.0	0.3	0.2	0.1
Libya	13.4	1.4	2.9	-3.1	-1.1	-2.1	-1.0
Iraq	-2.2	-12.4	16.9	-3.8	6.2	-18.9	13.1
Developing oil importers	3.9	4.3	4.0	0.6	0.2	0.4	-0.1
Egypt, Arab Rep.*	4.4	5.1	4.3	0.8	0.3	0.8	-0.5
Tunisia	2.7	2.3	2.2	-0.2	-0.1	-0.2	0.0
Jordan	2.8	2.7	2.9	0.0	0.0	-0.1	0.1
Morocco	4.9	4.4	4.0	0.2	0.0	0.0	-0.4
Djibouti	6.5	5.7	6.0	-0.2	-0.3	-0.4	0.0
Pakistan*	3.2	3.7	3.8	0.7	0.6	0.7	0.4
Afghanistan	4.8	3.0	3.3	-0.9	-0.6	-0.8	-0.2
Economies not included in aggregates							
Lebanon	4.2	-6.4	n.a.	n.a.	n.a.	-10.4	n.a.
West Bank and Gaza	4.3	1.5	n.a.	-3.0	n.a.	-3.6	n.a.
Syrian Arab Republic	3.6	8.0–10.0	n.a.	n.a.	n.a.	n.a.	n.a.
Yemen, Rep.	-1.5	-1.0	1.0	-0.5	-0.6	-1.0	n.a.

Source: World Bank Group's *Macro Poverty Outlook, October 2026* (World Bank forthcoming-a). <https://www.worldbank.org/en/publication/macro-poverty-outlook>.

Note: Regional and subregional real GDP growth rates are calculated using real GDP weights. Countries are listed in descending order based on GDP per capita (constant 2021 PPP US\$) within each category. Data for Afghanistan and the Islamic Republic of Iran are for fiscal years beginning March 21–22 and ending March 20–21. Data for the Arab Republic of Egypt and Pakistan are for fiscal years beginning July 1 and ending June 30. Lebanon, the Syrian Arab Republic, West Bank and Gaza and the Republic of Yemen are excluded from regional and subregional averages because of data limitations. Real GDP growth rates for Iraq and Pakistan are based on real GDP at constant factor prices. e = estimate; f = forecast; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; n.a. = not available; PPP = purchasing power parity; * = fiscal year basis, 2026 values represent estimates, not forecasts.

The projection assumes that the conflict continues through the end of 2026 without a sustained further escalation. Traffic through the Strait of Hormuz remains impaired, some energy infrastructure operates below capacity, and elevated uncertainty continues to weigh on trade, tourism, and investment. Conditions are assumed to normalize gradually from early 2027 as production recovers and shipping routes reopen.

Under these assumptions, regional growth is projected to rebound to 7.8 percent, excluding the Islamic Republic of Iran. The rebound is concentrated among hydrocarbon exporters and reflects the restoration of production and export capacity rather than stronger productivity or higher potential growth. Fiscal balances are also expected to improve as hydrocarbon revenues recover, although reconstruction needs and elevated social spending will continue to constrain fiscal space in several economies (annex 1A). Growth among developing oil importers is projected to moderate slightly, from 4.3 percent in 2026 to 4.0 percent in 2027.

Gulf economies are bearing the largest output losses

The economic fallout from the conflict has been concentrated in the Gulf economies, although the severity of the shock varies substantially across countries. Differences in exposure to disrupted shipping routes, damage to energy infrastructure, and capacity to reroute exports have become key determinants of economic activity. As a result, GCC output is expected to contract by 4.3 percent in 2026, after expanding by 4.5 percent in 2025, a downturn comparable in magnitude to that experienced during the COVID-19 pandemic. The contraction reflects sharp reductions in hydrocarbon production and exports following the closure of the Strait of Hormuz, compounded by spillovers to tourism, logistics and aviation.

The largest contractions are concentrated in Qatar and Kuwait, where damage to energy infrastructure and limited alternative routes for hydrocarbon exports lead to exceptionally large output losses. Qatar's GDP is projected to fall by 20.9 percent,

its weakest performance in more than five decades, while Kuwait's GDP is projected to contract by 14.6 percent, the steepest decline in over three decades (figure 1.28).

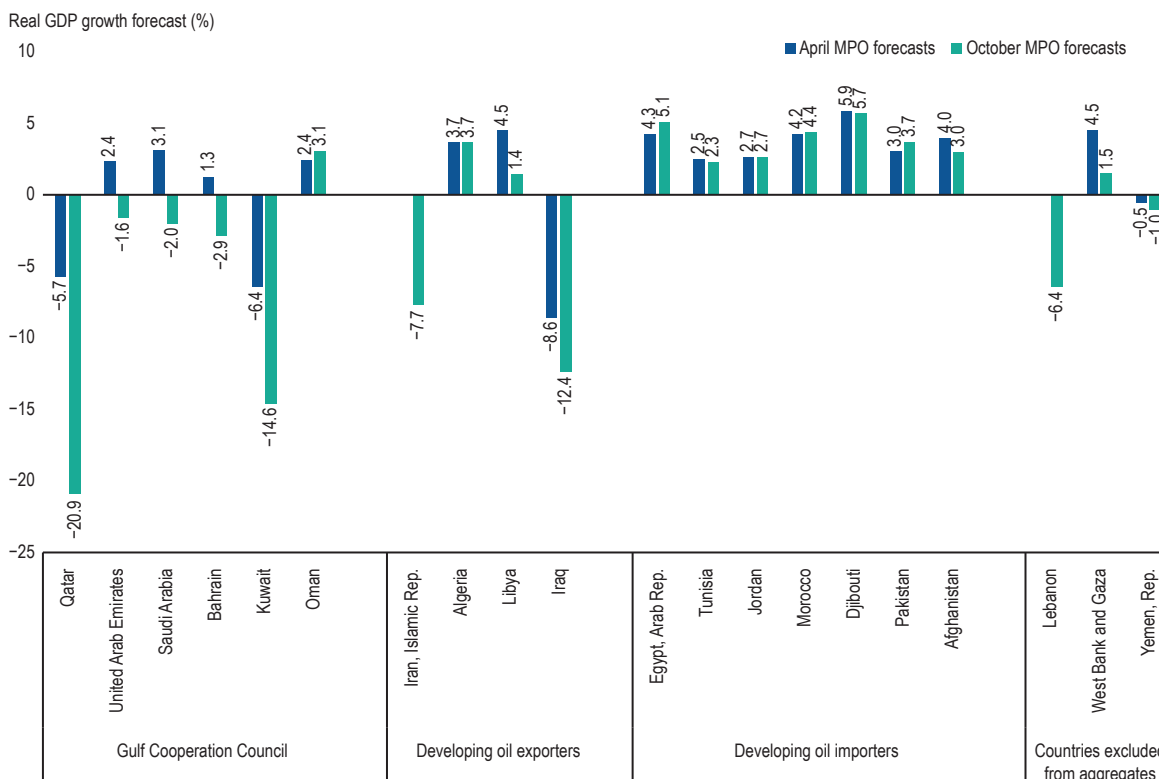
Elsewhere in the GCC, alternative export routes, greater economic diversification, and policy support help cushion the shock. Saudi Arabia benefits from the East-West Pipeline, while the UAE relies on export infrastructure outside the Strait of Hormuz and greater production flexibility following its exit from OPEC. Bahrain's more diversified economic base limits the downturn, although disruptions to refining, tourism, and business services remain significant and fiscal space is constrained. Oman stands out as the only GCC economy to maintain robust growth, supported by ports outside Hormuz, rising hydrocarbon output, and resilient non-oil activity.

Growth is expected to rebound sharply in 2027 as hydrocarbon production and exports gradually recover. The strongest recoveries are expected to occur in the economies that experience the deepest losses in 2026, with GDP growth projected to reach 26.7 percent in Qatar as LNG production resumes and 22.0 percent in Kuwait as oil exports normalize. Expansion also accelerates in the other GCC economies, as hydrocarbon production recovers and trade, tourism, and domestic activity strengthen. As a result, average growth across GCC economies is expected to rise to 10.3 percent.

Yet much of the recovery reflects the restoration of lost production and export capacity rather than stronger underlying growth fundamentals. Infrastructure damage, delayed investment, and elevated uncertainty are likely to continue weighing on economic activity after hydrocarbon output recovers, while some losses in tourism, logistics, and investor confidence may take longer to reverse.

Other developing oil exporters follow divergent paths

Outside the GCC, economic outcomes differ sharply depending on exposure to the conflict.

FIGURE 1.28 The largest declines in GDP growth forecasts for 2026 are in the GCC countries


Source: World Bank Macro Poverty Outlook April 2026 (World Bank 2026c), and October 2026 (World Bank, forthcoming-a). <https://www.worldbank.org/en/publication/macro-poverty-outlook>.

Note: MPO = Macro Poverty Outlook.

Developing oil exporters are projected to contract by 5.4 percent in 2026 (2.9 percent excluding the Islamic Republic of Iran). But this aggregate masks a widening divide between exporters directly affected by the conflict and those able to benefit from higher hydrocarbon prices.

The Islamic Republic of Iran and Iraq account for most of the deterioration. In the Islamic Republic of Iran, GDP is projected to contract by 7.7 percent as damage to energy and transport infrastructure, trade disruptions, foreign exchange shortages, and exceptionally high inflation weigh on private consumption, investment, and exports. Iraq faces a 12.4 percent contraction of GDP, its weakest performance in more than two decades, reflecting severe disruptions to oil production and exports. Both economies are expected to recover in 2027 as production and exports normalize, although infrastructure constraints, fiscal pressures, and limited

economic diversification are likely to constrain the pace and breadth of the recovery.

By contrast, exporters outside the conflict zone benefit from higher hydrocarbon prices while avoiding major disruptions to production and shipping. Algeria is projected to grow by 3.7 percent in 2026. Higher hydrocarbon prices and a modest increase in oil and gas production support exports and government revenues, but weaker domestic demand and slower investment temper overall growth. Growth is expected to ease to 3.4 percent in 2027 as hydrocarbon production stabilizes and fiscal policy becomes less expansionary. Libya is projected to grow by 1.4 percent in 2026 and 2.9 percent in 2027, supported by stable oil production and higher hydrocarbon prices. The gains from stronger energy markets are, however, limited by political fragmentation, weak institutions, and recurring security disruptions.

Developing oil importers remain comparatively resilient

Growth among developing oil importers is projected to rise from 3.9 percent in 2025 to 4.3 percent in 2026. Unlike oil exporters, these economies are not directly affected by disruptions to hydrocarbon production and exports. Instead, the conflict is transmitted through higher energy, food, freight, and insurance costs, which weaken external balances and raise inflationary pressures. Robust domestic demand and, in some economies, favorable agricultural conditions help offset these headwinds. Growth is expected to moderate to 4.0 percent in 2027 as domestic demand moderates and higher import costs continue to weigh on activity.

Among the region's larger oil importers, domestic demand remains the main driver of growth. In Egypt, growth rose from 4.4 percent in FY2024/25 to an estimated 5.1 percent in FY2025/26, supported by lower inflation, stronger private consumption and investment, and a recovery in extractive industries. Morocco enters 2026 with strong growth momentum, supported by favorable rainfall, sustained public infrastructure investment, resilient tourism, and robust export activity. After expanding by 4.9 percent in 2025, GDP is expected to grow at 4.4 percent in 2026, as the boost from earlier agricultural gains fades and higher energy costs weigh on the economy. In Pakistan, growth is expected to increase from 3.2 percent in FY2024/25 to 3.7 percent in FY2025/26 as services, manufacturing, and livestock production remain resilient despite rising import costs. In all three economies, higher commodity prices and transport costs create pressures on inflation and external balances, but these are outweighed by continued strength in domestic activity.

Other oil importers are more exposed to the conflict through tourism, trade routes, and financing conditions. Jordan's growth is projected to slow slightly to 2.7 percent in 2026 as lower tourism receipts and higher energy import costs partly offset stronger domestic activity and trade through Aqaba. Tunisia's growth is projected to moderate to 2.3 percent as higher energy costs and constrained financing weigh on domestic demand. Djibouti remains one of the region's fastest-growing

economies, projected to expand by 5.7 percent, supported by port and logistics activities. However, continued security risks in the Red Sea and disruptions to shipping routes weigh on related services, tourism, and investment. While growth in Jordan and Djibouti is expected to strengthen modestly in 2027 as regional trade and transport conditions improve, Tunisia is likely to remain constrained by fiscal consolidation and limited access to external financing.

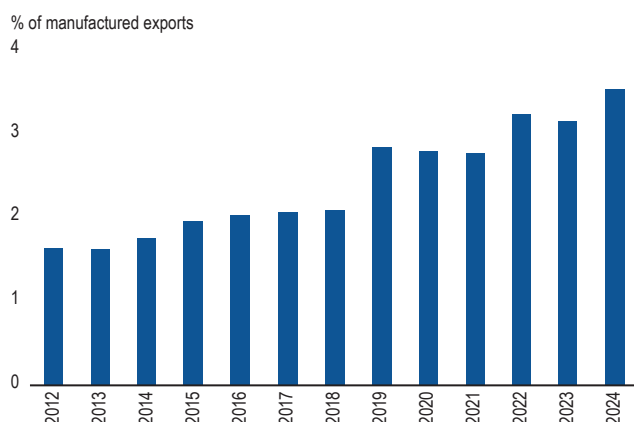
Some oil importers are also finding emerging export opportunities. High-technology exports have gradually increased across a group of MENAAP oil importers, rising from less than 2 percent of total manufacturing exports in 2012 to about 3.5 percent in 2024 (figure 1.29, panel a). Tunisia and Morocco lead the region, with high-technology products accounting for more than 7 percent and 5 percent of manufacturing exports, respectively, followed by Egypt and Pakistan. The growth of high-technology exports is consistent with a gradual move toward more knowledge-intensive activities and greater participation in global technology value chains, including segments linked to the production of digital and AI-related goods. Investments in data centers are concentrated in Saudi Arabia and the United Arab Emirates (figure 1.29, panel b). Chapter 2 provides a deep dive into the region's position in AI.

Recovery remains tenuous in conflict-affected economies

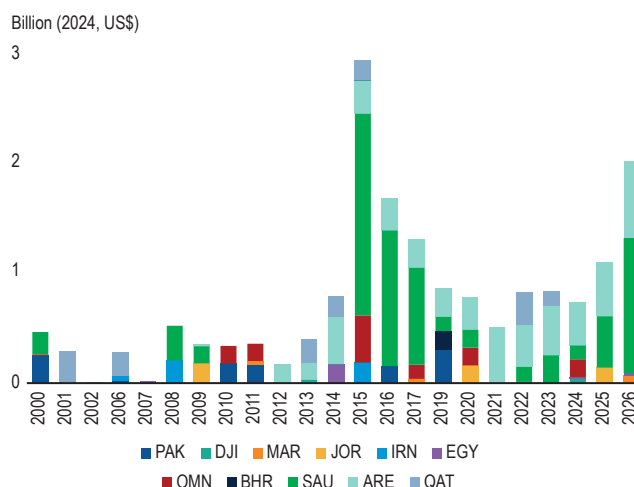
For several MENAAP economies, including Afghanistan, the Islamic Republic of Iran, Lebanon, Libya, Syria, West Bank and Gaza, and Yemen, the 2026 conflict compounded pre-existing fragility. These economies entered the conflict with limited household, institutional, and fiscal capacity to absorb additional shocks. The conflict reached them largely through higher energy, freight, and insurance costs, disrupted trade corridors, and reduced humanitarian financing. Yet outcomes differ depending on the nature of underlying vulnerabilities. In some economies, the conflict has amplified already severe macroeconomic stress. In others, governance and institutional constraints remain the principal obstacles to recovery. Elsewhere,

FIGURE 1.29 High-technology exports are expanding in MENAAP economies, while data center investment is concentrated in the GCC

A. High-tech exports in developing MENAAP



B. Investments in data centers, 2000–26



Sources: Vergara Cobos, and Straub (forthcoming); World Development Indicators; Straub et al. (2026).

Note: Panel a shows the weighted average of the indicator high-technology exports (% of manufactured exports), weighted by constant GDP in each year. The economies included in the aggregate are the Arab Republic of Egypt, Jordan, Lebanon, Morocco, Pakistan, Tunisia, and West Bank and Gaza. Economies are labeled by their International Organization for Standardization country codes, which are available at <https://www.iso.org/obp/ui/#search>.

economic activity is recovering from exceptionally low levels, but progress remains fragile.

In *Afghanistan*, the shock has been transmitted primarily through trade and transit channels rather than direct exposure to hydrocarbon markets. The economy remains fragile following the deep 2021–22 contraction. Rapid population growth, large returnee inflows, and declining aid continue to strain labor markets, housing, and public services. Private investment as a share of GDP is expected to decline by 2.0 percentage points, while capital-goods imports fell by 40 percent in the first five months of FY2026. Inflation is projected to rise to 7.0 percent from 3.6 percent in FY2025, reflecting stronger demand alongside disruptions to regional transport networks. External imbalances remain large, with the current account deficit reaching 34.2 percent of GDP and external grants falling to 10.1 percent of GDP. Growth is projected to strengthen only gradually, to 3.3 percent in FY2027 and 3.5 percent in FY2028, remaining insufficient to generate meaningful gains in living standards or absorb a rapidly growing workforce.

The pressures are even more acute in the *Islamic Republic of Iran*, where the conflict has directly disrupted economic activity. Damage to energy infrastructure, industrial facilities, ports, and transport networks has compounded longstanding structural weaknesses, while disruptions to trade and financial channels have further constrained adjustment. Real GDP contracted by 3.6 percent year-over-year in the final quarter of FY2025/26, inflation averaged 84.8 percent between April and August 2026, and unemployment rose from 7.3 percent to 9.1 percent in the first quarter of FY2026/27. With weak fiscal buffers, a fragile banking sector, and limited access to international finance, the authorities face increasingly difficult policy tradeoffs between stabilizing prices and supporting activity.

Lebanon confronts many of the same challenges, although through different channels. Renewed hostilities have generated additional displacement and destruction of physical capital, further weakening tourism, consumption, and investment. More than 350,000 people remained displaced as of mid-August, while direct damages continue to accumulate. After growing by 4.2 percent in 2025, the

economy is expected to contract by 6.4 percent in 2026. Inflation has accelerated to 17.5 percent and severe food insecurity now affects an estimated 1.24 million people. While recent banking-sector reforms mark important institutional progress, public debt of roughly 125 percent of GDP and continued exclusion from international capital markets leave recovery highly vulnerable to additional shocks.

Conflict continues to shape economic outcomes in the *West Bank and Gaza*. Despite the ceasefire, the Gaza economy remains in near-total collapse, with flare-ups of hostilities, persistent restrictions, and stalled reconstruction preventing recovery. Real GDP grew only 3.1 percent year-over-year in the first quarter of 2026 from an exceptionally low base, signaling continued paralysis rather than recovery. Real per capita income had fallen to roughly US\$200 by end-2025 and unemployment reached 68 percent in the fourth quarter of 2025. In the West Bank, output contracted by 5.2 percent year-over-year in the first quarter of 2026 as compressed public expenditure and restricted access to the Israeli labor market weighed on consumption. The Palestinian Authority's fiscal crisis has intensified following the continued suspension of revenues, forcing salary payments to be cut and increasing reliance on borrowing and arrears. Poverty is estimated at 41.9 percent in the West Bank and Gaza in 2026 (\$8.30 per day, 2021 PPP) and remains nearly universal in Gaza. Recovery could begin to take hold if reconstruction gains ground and fiscal constraints ease, but restoring output and living standards to pre-conflict levels would remain a long-term challenge.

The *Republic of Yemen* likewise remains in acute distress. Real GDP per capita has fallen by nearly 60 percent since 2015, nearly three quarters of the population live below the poverty line, and 22 million of the country's 41.8 million people require humanitarian assistance (53 percent). The country effectively operates as two economic zones, with oil exports blocked since October 2022, and the regional conflict has worsened an already severe situation. Diesel prices rose 13 percent year-over-year in areas controlled by the Internationally Recognized Government, fuel imports fell sharply year-over-year in January–May 2026, through both Houthi- and government-controlled ports,

and electricity outages reached 18–20 hours per day in some districts. Food security has deteriorated further, with 62 percent of the population experiencing inadequate food consumption and 5.4 million people projected to face severe acute food insecurity by the end of 2026. Humanitarian financing has also weakened sharply. With military tensions intensifying and more than 80 percent of food sourced from abroad, the Republic of Yemen remains highly exposed to additional disruptions to trade routes, ports, and external support.

In *Libya*, pervasive institutional weakness is hurting economic growth, despite favorable external conditions. Higher oil prices and recovering production have strengthened export revenues and support projected fiscal and external surpluses. Yet growth is projected to reach only 1.4 percent in 2026. Institutional fragmentation, weak economic governance, deteriorating public services, and recurring security incidents continue to suppress investment and non-oil activity. Although Libya adopted its first unified budget since 2013, parallel spending channels persist, transparency has weakened, and inflation has accelerated to 11.1 percent. Electricity shortages culminated in a nationwide blackout that disrupted water supplies and triggered protests. The contrast between stronger hydrocarbon revenues and deteriorating public services highlights that Libya's outlook depends primarily on political stabilization and improved governance rather than on developments in energy markets.

In the absence of official GDP data, high-frequency indicators point to broad-based economic acceleration in the *Syrian Arab Republic* in the first half of 2026. Cement production approached pre-conflict levels, nighttime light intensity rose by 8.4 percent (May 2026, year-on-year), and flight movements increased by 118 percent (July 2026, year-on-year). Higher rainfall supported a stronger wheat harvest, after a record drought. More than 3.7 million of the 16 million displaced Syrians had returned by July 2026, bringing skills and remittances and boosting demand. Growth is now projected at 8–10 percent for the year—the highest rate since 1996—up from 3.6 percent in 2025. Further, the regional conflict has highlighted Syria's potential as an alternative energy and logistics corridor, with Iraqi petroleum

products now transported through Syria for export from Baniyas. Yet, the recovery is marked by ongoing vulnerabilities. The minimum wage, raised to SYP12,560 in May 2026, still covers less than half of the minimum expenditure basket. Humanitarian food assistance has been scaled back following aid shortfalls. The poverty rate at the international line of \$3.00 per day (in 2021 PPP) is projected to decline only moderately, to 20.6 percent in 2026.

The 2026 conflict has reinforced pre-existing vulnerabilities across the fragile economies in the MENAAP region. Whether through trade disruptions in Afghanistan, direct conflict damages in the Islamic Republic of Iran, Lebanon, and the West Bank and Gaza, humanitarian pressures in Yemen, governance failures in Libya, or the challenges of rebuilding in Syria, economic recovery remains fragile. Without improvements in security, stronger institutions, restored trade and transport links, and sustained international support, growth is unlikely to be sufficient to reverse recent welfare losses or significantly reduce poverty across the region.

Some pressures may outlast the conflict

Real GDP per capita remained below its pre-COVID-19 level in several MENAAP economies in 2025. The largest shortfalls were in Afghanistan, Lebanon, the Republic of Yemen, and West Bank and Gaza, where real GDP per capita was about one-third lower than 2019 levels. Iraq's GDP per capita is still about one-fifth lower than its pre-pandemic level, and Kuwait and Oman were around 6 percent lower. Libya, Qatar, Tunisia, and the United Arab Emirates, also remained below 2019 levels, albeit by smaller margins.

Conditions are projected to deteriorate further in 2026 in several of these countries. The largest decline is expected in Qatar, where real GDP per capita is projected to fall from about 3 percent below its 2019 level in 2025 to about 27 percent below in 2026. Afghanistan and Morocco are also expected to move further below their pre-pandemic benchmarks, as are Kuwait, Oman, and the United Arab Emirates. Saudi Arabia is projected to move from slightly above its 2019 level in 2025 to below it in 2026. The Islamic Republic of Iran remains

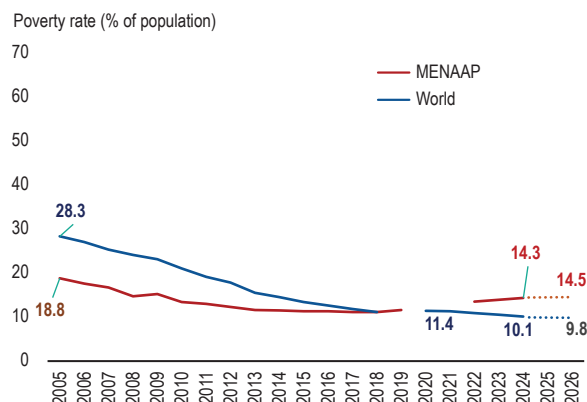
above its pre-COVID-19 level, but its gains are projected to narrow substantially. By contrast, real GDP per capita is projected to rise further above 2019 levels in Algeria, Bahrain, Djibouti, Egypt, Jordan, and Pakistan. Libya and Tunisia are projected to show little change.

Poverty is rising in MENAAP and is increasingly concentrated in fragile settings. The latest World Bank Group estimates show that MENAAP accounts for 14 percent of the world's extreme poor, second only to Sub-Saharan Africa. After declining substantially during the 2000s and 2010s, poverty reduction stalled around 2019 and reversed following the COVID-19 pandemic (figure 1.30). MENAAP is now the only region in which poverty remains above pre-pandemic levels. In contrast to global trends, it continues to rise (World Bank, forthcoming-b). In 2024, 14.3 percent of the region's population lived on less than \$3.00 a day, compared with 10.4 percent globally, and 26.9 percent lived on less than \$4.20 a day, compared with 18.9 percent worldwide. The increase was driven primarily by a rise in poverty in Pakistan, where the poverty rate rose by 6.4 percentage points at the \$3.00 per day line and 3.2 percentage points at the \$4.20 per day line between 2018/19 and 2024/25 following a succession of adverse shocks, including the COVID-19 pandemic, the devastating 2022 floods, a macroeconomic crisis marked by high inflation and currency depreciation, and a prolonged period of economic adjustment that weakened real household incomes and employment opportunities. Poverty is also increasingly concentrated in economies affected by conflict and fragility, where displacement, weak labor markets, and the erosion of assets and basic services have made recovery especially difficult. These regional averages mask substantial inequalities within countries, with poverty rates often differing sharply across subnational areas (figure 1.31). Projections suggest that these adverse trends will persist through 2026.

The burden is highly concentrated. Pakistan accounts for about 48 percent of the people in the region living below the \$3.00 per day poverty line. Afghanistan, the Syrian Arab Republic, and the Republic of Yemen together account for another 47 percent. Most recent estimates show poverty

FIGURE 1.30 Poverty rates—which have declined globally since the COVID-19 pandemic—have increased in MENAAP

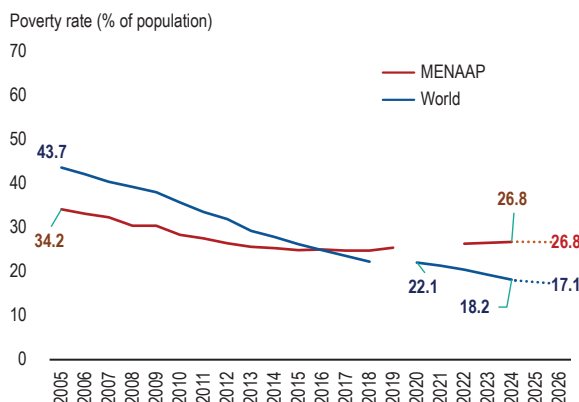
A. Actual and projected global and MENAAP poverty rates at the international poverty line of \$3.00/day (in 2021 PPP) 2005–26



Source: World Bank Group's Poverty and Inequality Platform.

Note: Gaps indicate periods when data coverage was below 50 percent of the population. Dotted lines represent estimates assuming poverty remains unchanged through the end of 2026. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

B. Actual and projected global and MENAAP poverty rates at the lower-middle-income poverty line of \$4.20/day (in 2021 PPP) 2005–26



rates at the \$3.00 per day line approached or exceeded 20 percent in Djibouti, Pakistan, Syria, and the Republic of Yemen.

Large disparities also exist within countries. In Djibouti and the Republic of Yemen, the gaps between the poorest and least-poor subnational regions exceed 50 percentage points at the \$3.00 per day line (figure 1.31). Where the conflict has disrupted conventional poverty measurement, alternative welfare monitoring points to persistent and overlapping deprivation, particularly in Gaza and the Republic of Yemen (box 1.4). At the \$4.20 per day line, poverty is close to zero in the least-poor regions of the Islamic Republic of Iran and Egypt but exceeds 40 percent and 30 percent, respectively, in their poorest regions. National averages, therefore, conceal large differences in households' capacity to absorb the shock.

Policy priorities amid ongoing conflict need to protect people, restore productive capacity and preserve fiscal sustainability

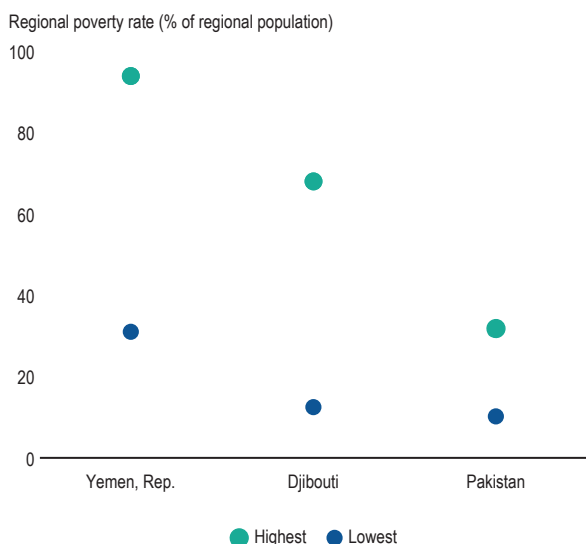
Risks remain tilted to the downside. The baseline assumes that conflict-related disruptions ease from

early 2027. A longer or more intense conflict would delay the recovery of hydrocarbon production, exports, tourism, and investment. The uncertainty surrounding the economic outlook is reflected in the elevated and rising dispersion across professional forecasters for the year ahead, which is now at its highest level since early 2020, at the onset of the COVID-19 pandemic (figure 1.32). Renewed restrictions at the Strait of Hormuz would weigh most heavily on Bahrain, Iraq, Kuwait, and Qatar. Further attacks around Bab el-Mandeb would weaken Saudi Arabia's alternative Red Sea route and raise trade costs for Djibouti, Egypt, Jordan, and the Republic of Yemen. Additional damage to energy facilities, refineries, ports, electricity systems, or desalination plants could turn a temporary disruption into a persistent loss of productive capacity.

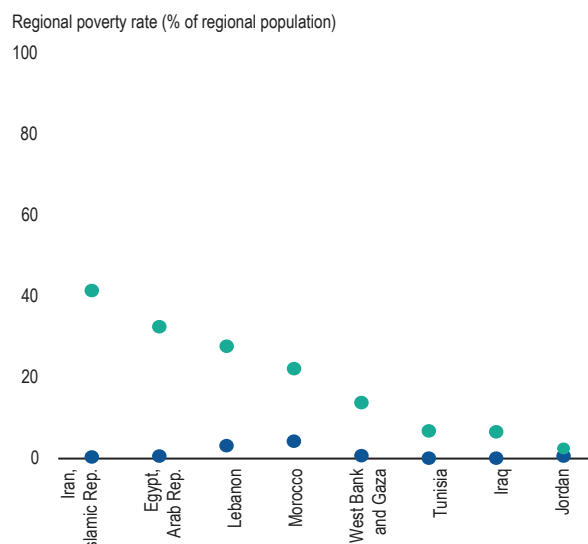
As the conflict persists, the policy challenge is shifting from emergency response toward building resilience. Priorities are to protect vulnerable households and essential services, restore productive capacity, strengthen the resilience of energy and transport infrastructure, and preserve fiscal sustainability. The balance among these priorities will differ across economies according to their

FIGURE 1.31 Subnational disparities in poverty rates are large

A. Highest and lowest subnational regional poverty rates in the Republic of Yemen, Djibouti, and Pakistan at the \$3.00/day (in 2021 PPP) poverty line



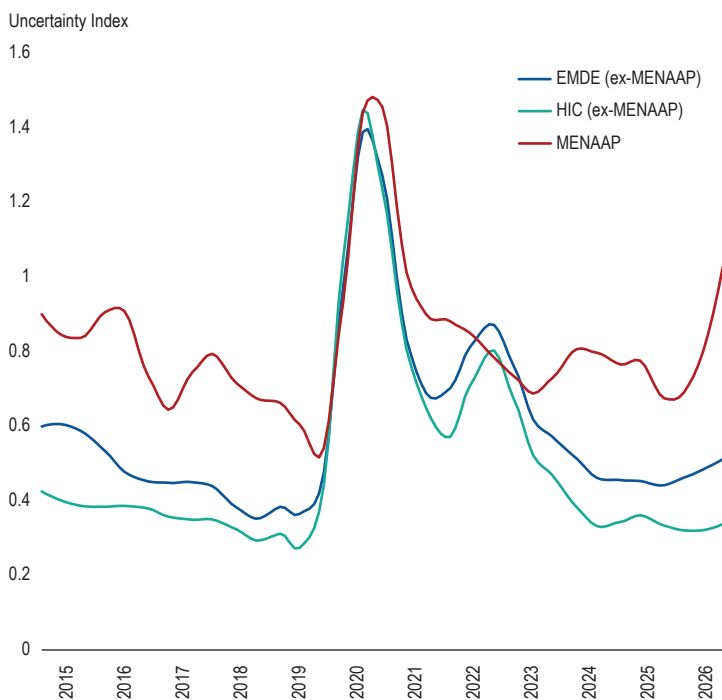
B. Highest and lowest subnational regional poverty rates in selected economies at the \$4.20/day (in 2021 PPP) line



Source: World Bank Group's Poverty and Inequality Platform and Subnational Poverty and Inequality Database.

Note: Green dots show the highest regional poverty rate; blue dots show the lowest. Years in parentheses show year of data. Data years are as follows: Djibouti (2017), Egypt, Arab Rep. (2021); Iran, Islamic Rep. (2023); Iraq (2023); Jordan (2010); Lebanon (2022, partial coverage); Morocco (2013); Pakistan (2024); Tunisia (2021); West Bank and Gaza (2023); and Republic of Yemen (2014). All figures are in 2021 PPP US dollars. PPP = purchasing power parity; US = United States.

FIGURE 1.32 Uncertainty in one-year ahead real GDP growth forecasts has risen



Source: World Bank staff calculations based on Consensus Economics and Focus Economics.

Note: The time series depicts the dispersion of one-year-ahead forecasts for real GDP growth of the median country within each group. Dispersion is captured by the interquartile range across forecasters—that is, the difference between the forecast in the 75th percentile and the forecast in the 25th percentile. The monthly time-series is smoothed using a local regression model. EMDE = Emerging Market and Developing Economies; HIC = High-Income Countries; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

exposure, institutional capacity, and available policy space.

Protect people

In conflict-affected economies, the immediate priorities remain humanitarian assistance, an effective response to displacement, and the continuity of basic services. Food, shelter, health care, education, electricity, and water services must be protected to limit irreversible losses in human capital. Recovery planning should begin alongside emergency support, with transparent assessments of reconstruction needs and arrangements that can direct resources toward the most affected households and communities.

Where the conflict is transmitted through prices rather than hostilities, the objective is to protect purchasing power without undermining macro-economic stability. Increases in food prices fall disproportionately on poorer households, which devote 35–50 percent of total expenditure to food. Targeted cash transfers and well-designed social assistance protect these households at lower fiscal cost than broad fuel or food subsidies, which are

BOX 1.4 Measuring poverty amid conflict, displacement, and market disruption is difficult

Measuring monetary poverty and living conditions is difficult in fragile settings characterized by conflict, displacement, institutional fragmentation, and widespread market disruptions.

In the West Bank and Gaza, the conflict has both sharply worsened living conditions and made those conditions more difficult to measure. The latest household survey was conducted in 2023. Data collection in the West Bank continued throughout that year; the Gaza sample covers only the period before the conflict began in October. Subsequent destruction, displacement, market disruption, and population movements prevented the collection of representative household consumption data in Gaza. Conventional monetary poverty estimates for the post-2023 period must, therefore, rely on projections and be complemented by alternative indicators of household welfare.

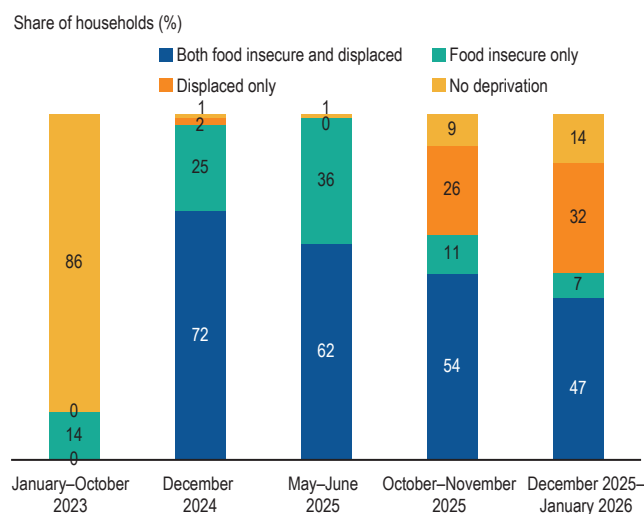
Poverty was already rising before the conflict, with the poverty rate for both the West Bank and Gaza increasing from 29.2 percent in 2016/17 to 32.8 percent in 2023. The deterioration was concentrated in Gaza, where poverty reached 63.7 percent;

the rate in the West Bank actually declined modestly, to 11.7 percent.

Projections indicate a much sharper worsening after October 2023. By 2025, poverty is estimated to have affected more than half of the population, reflecting near-universal poverty in Gaza and an increase to about 1 in 5 people in the West Bank. Even by the end of the decade, projected welfare levels remain below those prevailing before the conflict.

In the absence of representative post-conflict consumption data, the Gaza Welfare Panel Survey provides a complementary picture based on repeated mobile-phone interviews. During the most acute phase of the conflict, 97 percent of households surveyed were food insecure. Although the October 2025 ceasefire eased the intensity of hostilities, deprivation remained widespread. In January 2026, 54 percent of households were food insecure, nearly 80 percent remained displaced, and 47 percent experienced both food insecurity and displacement (figure B1.4.1). In addition, 86 percent of households were dependent on humanitarian assistance, indicating that normal sources of income and livelihood had not recovered.

FIGURE B1.4.1 Food insecurity and displacement in Gaza declined but remained widespread even after the 2025 ceasefire



Source: World Bank Group, Conflict, Displacement, and Persistent Deprivation: Tracking Household Welfare in Gaza, 2023–2026 (World Bank forthcoming-c).

BOX 1.4 Measuring poverty amid conflict, displacement, and market disruption is difficult (continued)

Recovery has also been highly unequal. Households that were poor before the conflict, had lower educational attainment, or remained displaced consistently reported worse outcomes. Prolonged interruptions to education add a further, longer-term cost. Learning losses are estimated to reduce lifetime earnings for the current school-age cohort by 12–25 percent. Thus, the conflict's effects are likely to persist through depleted assets, disrupted education, weakened health, and prolonged dependence on assistance.

In the Republic of Yemen, monetary poverty data have not been collected since 2014. In January 2026, the Central Statistics Organization in Aden launched the 2026 Household Budget Survey in the Internationally Recognized Government (IRG) areas. While waiting for these results, the country continues to rely on monthly phone surveys collected by the World Food Programme and the Food and Agriculture Organization, which monitor food security, livelihood sources, and household coping strategies. Phone surveys provide coverage across areas where conventional in-person data collection is constrained, such as in areas outside the control of IRG, but they do not fully substitute for representative household consumption surveys. Regular data collection of prices of the minimum expenditure basket has continued in IRG areas. Web scraping has proved useful to provide an indication of food and fuel prices in Houthi-controlled areas.

The latest evidence from both the *Yemen Food Security Update* in June (WFP 2026) and the *Yemen Joint Monitoring Report* in July (World Bank et al. 2026)

indicates a continued deterioration in food security, driven primarily by declining purchasing power rather than a lack of food availability. Nationwide, 62–64 percent of households are unable to meet their minimum food needs, and 36 percent experience severe food deprivation. Approximately 8–10 percent of households report that at least one member went an entire day and night without eating because of the lack of food. Rising food and fuel prices, increased transport and import costs, reduced incomes, and prolonged disruptions to livelihoods have further eroded household access to food. Although food remains available in local markets and imports continue, higher prices and weakening purchasing power are placing increasing pressure on households. As a result, families are increasingly relying on negative coping strategies, including skipping meals, reducing portion sizes, limiting adult food consumption in favor of children, and other food-based coping mechanisms. Humanitarian assistance remains a critical buffer against more severe outcomes.

In both the West Bank and Gaza and the Republic of Yemen economies, continued welfare monitoring will be essential. Monetary poverty projections can describe the likely scale of deterioration, but they cannot capture all dimensions of deprivation in an environment of mass displacement and disrupted markets. Repeated monitoring of food access, displacement, employment, service delivery, education, and humanitarian dependence will be needed to identify the most vulnerable households and guide the targeting of assistance and reconstruction programs.

expensive, often poorly targeted, and difficult to withdraw (World Bank 2026e). Where registries, payment systems, and delivery institutions are weak, governments and development partners need to strengthen them now, so that support can expand quickly when food, energy, or climate shocks occur.

Protect productive capacity

In Gulf energy exporters, the priority is to restore export capacity and reduce vulnerability to future

disruptions. Doing so requires repairing and protecting energy, port, power, and desalination infrastructure and investing in alternative pipelines, terminals, and trade routes. The experience of 2026 showed both the value of such capacity and its limits: Rerouting through the Red Sea and the SUMED pipeline kept cargo moving, but at higher cost, and, in turn, those routes proved exposed to disruption. Economic diversification remains essential, but the conflict demonstrates that diversification must be accompanied by resilient infrastructure and logistics networks.

Elsewhere, protecting productive capacity also requires maintaining electricity, transport, communications, schools, health facilities, and viable firms. In fragile economies, preventing further losses in human capital and basic service delivery is, itself, an investment in future productive capacity.

Uncertainty itself is a constraint on recovery. Firms facing questions about security, transport routes, energy costs, and demand postpone investment even when financing is available. Deferred investment may not return quickly, even after security and trade conditions improve. Clear policy communication and credible medium-term fiscal frameworks can support private investment in tourism, construction, and other activities that would otherwise recover only slowly after exports and shipping normalize.

Preserve fiscal sustainability

Across all three groups of economies in MENAAP, policy support should be timely, targeted, and fiscally sustainable. Explicit fuel and electricity subsidies already exceed the global median in many MENAAP economies, and general government debt exceeds 80 percent of GDP in Egypt, Jordan, and Tunisia and is substantially higher in Lebanon. Higher international energy prices will widen these costs in countries that suppress domestic prices. Governments should avoid allowing temporary emergency measures to become permanent spending commitments

by preserving priority social and capital spending while managing fiscal, external, and debt pressures. A slower-than-expected decline in global inflation could keep international interest rates elevated, further narrowing fiscal space and raising refinancing risks across highly indebted economies.

Regional and global cooperation can reduce exposure over the longer term. Cross-border electricity networks can connect countries with complementary patterns of supply and demand, provide backup capacity during shortages, and create larger markets for renewable energy. The ELMED interconnector between Tunisia and Italy illustrates this potential. Its planned 600-megawatt, bidirectional link will allow Tunisia to import electricity when domestic supply is constrained and, over time, to export surplus solar and wind power to European markets. Similar investments, supported by coordinated regulation, financing, and procurement, could strengthen energy security while helping the region convert its renewable resources into new sources of trade and growth.

The central objective is not simply to cushion the current shock but to prevent conflict, uncertainty, and fiscal strain from causing lasting losses in productive capacity, human capital, and living standards. Building more resilient energy, transport, and trade systems will be essential to reducing the region's exposure to future disruptions.

Annex 1A Macro Poverty Outlook forecasts

TABLE A1.1 Real GDP per capita growth and inflation estimates and forecasts, 2025–27

Region or country	Real GDP per capita growth (%)			Inflation (%)		
	2025e	2026f	2027f	2025e	2026f	2027f
Middle East, North Africa, Afghanistan, and Pakistan	1.2	–3.7	n.a.	1.8	4.3	n.a.
MENAAP, excluding the Islamic Republic of Iran	1.6	–3.0	6.0	1.6	4.1	2.9
Middle East and North Africa	1.7	–3.9	n.a.	1.4	3.9	n.a.
Gulf Cooperation Council	0.4	–6.0	8.6	1.1	3.7	2.6
Qatar	–2.1	–22.2	25.0	0.5	2.7	1.9
United Arab Emirates	1.4	–3.3	8.0	1.3	2.7	1.8
Saudi Arabia	–0.1	–3.6	6.1	2.1	3.4	3.0
Bahrain	2.7	–4.6	2.7	0.1	4.9	2.7
Kuwait	3.4	–15.8	20.5	2.4	4.3	2.4
Oman	–1.5	–0.2	0.8	1.0	3.9	3.2
Developing oil exporters	–0.6	–6.5	n.a.	1.7	9.1	n.a.
Developing oil exporters, excluding the Islamic Republic of Iran	0.8	–4.4	6.4	1.4	7.1	4.4
Iran, Islamic Rep.	–1.8	–8.4	n.a.	49.1	74.2	n.a.
Algeria	2.5	2.4	2.2	1.4	7.1	4.4
Libya	12.2	0.3	1.7	2.1	11.0	10.0
Iraq	–4.2	–14.2	14.6	0.3	2.5	2.8
Developing oil importers	1.6	2.4	2.3	3.6	5.5	5.0
Egypt, Arab Rep.*	3.1	3.9	2.5	20.9	13.3	14.2
Tunisia	2.1	1.7	1.7	5.7	5.5	5.0
Jordan	1.8	2.0	2.1	1.8	2.5	2.3
Morocco	3.9	3.5	3.2	0.8	1.2	1.8
Djibouti	5.1	11.6	6.0	0.0	1.7	1.4
Pakistan*	1.6	2.1	2.2	4.5	7.1	8.2
Afghanistan	–5.6	–3.3	0.6	3.6	7.0	5.0
Economies not included in aggregates						
Lebanon	3.4	–7.2	n.a.	14.6	17.5	n.a.
West Bank and Gaza	1.9	–0.4	n.a.	10.5	–26.0	n.a.
Syrian Arab Republic	–1.9	n.a.	n.a.	–27.0	21.4	n.a.
Yemen, Rep.	–4.3	–3.8	n.a.	20.0	22.0	17.0

Source: World Bank Group's Macro Poverty Outlook, October 2026 (World Bank forthcoming-a). <https://www.worldbank.org/en/publication/macro-poverty-outlook>.

Note: Countries are listed in descending order based on GDP per capita (constant 2021 PPP). Data for Afghanistan and the Islamic Republic of Iran are for fiscal years beginning March 21–22 and ending on March 20–21. Data for the Arab Republic of Egypt and Pakistan are for fiscal years beginning July 1 and ending June 30. Regional and subregional real GDP per capita growth rates are calculated as the growth rate of the sum of real GDP divided by the sum of the population of the group. Regional and subregional inflation rates are calculated as the median of country-specific inflation rates within the group. Lebanon, the Syrian Arab Republic, West Bank and Gaza, and the Republic of Yemen are excluded from regional and subregional averages due to uncertain values. Real GDP per capita growth for Iraq and Pakistan are based on real GDP at constant factor prices. e = estimate; f = forecast; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; n.a. = not available; PPP = purchasing power parity; * = fiscal year basis, 2026 values represent estimates, not forecasts.

TABLE A1.2 Current account and fiscal account balance estimates and forecasts, 2025–27

	Current account balance (% of GDP)			Fiscal account balance (% of GDP)		
	2025e	2026f	2027f	2025e	2026f	2027f
Middle East, North Africa, Afghanistan, and Pakistan	1.5	0.2	n.a.	-4.2	-4.9	n.a.
MENAAP, excluding the Islamic Republic of Iran	1.3	0.2	1.9	-4.3	-4.9	-3.1
Middle East and North Africa	1.7	0.4	n.a.	-4.1	-5.2	n.a.
Gulf Cooperation Council	4.9	2.8	6.0	-3.3	-4.1	-1.1
Qatar	14.8	4.2	13.7	-1.0	-7.1	3.2
United Arab Emirates	13.3	8.2	13.4	3.7	4.2	5.0
Saudi Arabia	-2.6	-1.4	-0.9	-5.8	-6.6	-3.7
Bahrain	5.7	0.9	1.5	-10.5	-12.3	-10.6
Kuwait	22.9	13.5	20.3	-13.9	-18.0	-12.3
Oman	-1.9	3.5	3.2	0.6	4.1	4.2
Developing oil exporters	-2.2	-1.8	n.a.	-4.9	-7.5	n.a.
Developing oil exporters, excluding the Islamic Republic of Iran	-5.9	-2.6	-3.9	-6.1	-8.5	-8.2
Iran, Islamic Rep.	2.8	-0.6	n.a.	-3.2	-5.8	n.a.
Algeria	-8.8	-2.9	-6.2	-10.4	-11.1	-12.5
Libya	-11.8	7.8	-1.4	0.0	5.7	-7.2
Iraq	-1.5	-4.1	-1.7	-2.5	-8.0	-3.4
Developing oil importers	-2.6	-3.4	-3.2	-5.5	-4.5	-4.7
Egypt, Arab Rep.*	-4.2	-4.7	-4.2	-7.1	-6.8	-6.5
Tunisia	-2.4	-4.1	-3.5	-5.3	-6.0	-5.6
Jordan	-5.6	-7.3	-5.9	-5.0	-4.6	-4.3
Morocco	-2.1	-3.6	-2.4	-3.5	-3.5	-3.3
Djibouti	16.8	16.1	15.9	0.9	-1.0	-1.8
Pakistan*	0.5	-0.1	-0.8	-5.4	-2.6	-3.5
Afghanistan	-36.1	-34.2	-34.5	-0.2	-2.1	-1.0
Economies not included in aggregates						
Lebanon	-25.1	-21.3	n.a.	3.9	1.3	n.a.
West Bank and Gaza	-15.8	-15.7	n.a.	-7.6	-9.8	n.a.
Syrian Arab Republic	n.a.	n.a.	n.a.	0.2	-3.4	n.a.
Yemen, Rep.	-32.0	-35.2	-31.5	-1.2	-0.2	-0.3

Source: World Bank Group's Macro Poverty Outlook, October 2026 (World Bank forthcoming-a). <https://www.worldbank.org/en/publication/macro-poverty-outlook>.

Note: Countries are listed in descending order based on GDP per capita (constant 2021 PPP US\$). Data for Afghanistan and the Islamic Republic of Iran are for fiscal years beginning March 21–22 and ending on March 20–21. Data for the Arab Republic of Egypt and Pakistan are for fiscal years beginning July 1 and ending June 30. Lebanon, the Syrian Arab Republic, West Bank and Gaza, and the Republic of Yemen are excluded from regional and subregional averages due to data limitations. Current account balance and fiscal balance regional and subregional averages are calculated using current year nominal GDP levels as weights. Current account balance and fiscal balance values for Iraq are expressed as a share of GDP at factor prices. For Jordan, fiscal account balance includes the adjustment on receivables and payables (use of cash) as per IMF Country Report No. 23/49 (IMF 2023). e = estimate; f = forecast; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; n.a. = not available; PPP = purchasing power parity; * = fiscal year basis, 2026 values represent estimates, not forecasts.



CHAPTER 2

AI's UNEVEN PROMISE

KEY MESSAGES

- Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) economies are entering the artificial intelligence (AI) transition at very different speeds. At one end of the spectrum, Saudi Arabia and the United Arab Emirates are among the world's top 25 economies for both AI model development and high-performance computing. At the other, fragile economies face basic institutional and infrastructure constraints, including unreliable access to electricity. Middle-income countries fall in between, combining national ambition and growing technical capacity with major gaps in implementation.
- The MENAAP region's biggest readiness gap is in regulation and institutional capacity: MENAAP economies are weaker than their income peers in adaptable legal frameworks, enforcement, and accountability.
- Limited private sector dynamism is a cross-cutting constraint to AI adoption. Only about 24 percent of firms in MENAAP economies invest in physical capital, compared with 37 percent in other emerging market and developing economies (EMDEs), and just 19 percent provide formal training, compared with 30 percent in EMDEs outside the region. Private sector reform is a precondition for an effective AI-led growth strategy.
- In the near term, AI is more likely to complement than replace workers in MENAAP, where it poses a threat to less than 10 percent of jobs but has the potential to augment about 13–20 percent of jobs. Benefits from AI are likely to be uneven across and within economies. The estimated value of the time

Continued

KEY MESSAGES (*continued*)

- saved by AI equals 1.1 percent of GDP in high-income Gulf economies but only 0.4 percent in both upper-middle-income and lower-middle-income economies. Within economies, educated workers are best placed to gain.
- The localization gap—reflecting the limited representation of regional languages, dialects, and local institutional data in AI systems—is sizable. Although Arabic is spoken by over 500 million people, it accounts for only 0.7 percent of global URLs. Similarly, Persian accounts for 0.7 percent and Urdu for 0.03 percent of global URLs. AI model performance tends to decline when processing the diverse range of Arabic dialects relative to Modern Standard Arabic.
 - The usage gap reflects low per capita use of AI tools, shallow firm adoption, and uneven government readiness. Data from Anthropic’s Claude indicate that individuals in most MENAAP economies, including several Gulf economies, use AI less intensively than their income level would predict. At the firm level, AI usage remains shallow. In Jordan, for example, 24 percent of surveyed firms use some AI—and less than 5 percent employ it for sophisticated business uses, such as decision support or automated workflows.
 - Foundational capital gaps reflect shortages in digital skills and creative thinking capabilities. AI engineers make up less than 1 percent of LinkedIn members. Employers view communication, critical thinking, and adaptability as bigger gaps than technical skills.
 - Uneven electricity and broadband infrastructure constrain but do not make AI adoption an all-or-nothing proposition. “Small AI”—low-cost, purpose-built tools that can operate with limited connectivity or offline functionality—provides near-term pathways while countries improve their infrastructure.
 - MENAAP’s heterogeneity is a latent opportunity. Saudi Arabia and the United Arab Emirates have made substantial progress in compute capacity, data centers, and model development. Their capabilities create opportunities for regional collaboration, with other MENAAP economies contributing talent, localized data, sector expertise, and applications.

Introduction

Artificial intelligence (AI) is moving rapidly from a frontier technology to a general-purpose tool embedded in everyday economic and social activity. It is already changing how firms produce, workers perform tasks, governments deliver services, and individuals access information. The speed of this diffusion distinguishes the current transition from many previous waves of technological change. AI tools have reached firms, workers, schools, and public institutions within only a few

years, and their capabilities continue to expand. For developing economies, the question is no longer whether AI will matter but how quickly it will diffuse, who will be able to use it productively, and whether it will narrow or widen existing gaps in productivity and opportunity. These questions are particularly important for the Middle East, North Africa, Afghanistan, and Pakistan (MENAAP), a region whose economies enter the AI transition with very different levels of income, institutional capacity, skills, infrastructure, and private sector dynamism.

The region is divided in its capacity to respond. At one end, Saudi Arabia and the United Arab Emirates are making large-scale investments in computing infrastructure, data centers, AI models, research, talent, and governance, increasingly positioning themselves not only as users of AI but also as producers of AI technologies and infrastructure. Both countries have moved rapidly up the global rankings of AI capability and developed the region's most advanced AI ecosystems. They are using sovereign wealth funds to invest in compute capacity, data infrastructure, and domestic AI capabilities. At the other end, fragile and conflict-affected economies face much more fundamental constraints, including unreliable electricity, weak connectivity, limited fiscal space, and severe institutional fragility. Middle-income economies fall between these two poles, often combining ambitious national strategies and pockets of strong technical capacity with major gaps in implementation. The result is not one MENAAP AI transition but several, unfolding at very different speeds.

National AI strategies illustrate this divergence. Most countries in the region now recognize AI as an economic and policy priority. Their strategies share concerns around competitiveness, innovation, government efficiency, skills, privacy, and ethics. But ambition is not the same as readiness. Some countries are building data centers, developing foundation models, and attracting global technology partnerships, while others are still working to strengthen basic digital government systems, improve broadband access, and build regulatory capacity. Readiness also varies across dimensions within countries. An economy may have relatively strong digital infrastructure but a weak innovation ecosystem or capable firms but limited regulatory preparedness. AI readiness is, therefore, best understood as an ecosystem of complementary capabilities rather than a single technological threshold.

The labor market implications of this transition are also likely to differ from those in high-income economies. MENAAP's workforce is less concentrated in the nonroutine cognitive occupations that current generative AI (GenAI) systems are best able to perform. Large shares of employment remain in manual, agricultural, elementary, craft, construction, and

other occupations with relatively low exposure to current AI technologies. The immediate automation risk is, therefore, lower than in high-income economies. Estimates suggest that the share of jobs facing high automation exposure remains relatively small across much of the region; the share with potential for augmentation is larger. In this sense, the near-term labor market challenge in MENAAP is less one of widespread displacement than of uneven access to productivity-enhancing tools.

Lower exposure to AI in labor markets should not be interpreted as an unambiguous advantage, however, as it partly reflects the concentration of workers in lower-productivity occupations that current AI tools are not yet designed to transform. Workers most exposed to AI tend to be urban; better educated; and employed in cognitive, administrative, and technical occupations. These workers are also more likely to be among the first to benefit from augmentation. The risk for MENAAP is, therefore, a different form of inequality: Rather than AI immediately replacing large numbers of workers, its productivity gains may initially accrue to a relatively narrow group of higher-skilled workers, firms, and countries already positioned to use it. Thus, the central labor market question is not only how many jobs AI may automate but whether the technology can diffuse sufficiently to raise productivity beyond a small professional and technical core.

Three structural gaps—a localization gap, a usage gap, and a foundational capital gap—will determine whether that broader diffusion occurs. The localization gap arises because many of the world's leading AI systems were trained primarily on data, languages, institutions, and business environments outside the region. Arabic, Persian, and Urdu remain underrepresented in training data; performance challenges are particularly pronounced for dialectal Arabic and culturally specific content. The problem extends well beyond language. AI systems used in law, health, finance, public administration, education, and labor markets require local data, institutional knowledge, and regulatory context. A technically sophisticated model trained on foreign data can perform poorly when applied to a local labor market, legal system, curriculum, or business environment. Building local datasets, improving

data interoperability, and adapting models to country and sector contexts are, therefore, central to translating frontier AI capabilities into useful applications for MENAAP.

The second gap is usage. Access to AI does not automatically translate into productive adoption. Across many MENAAP economies, individuals use AI less intensively than do individuals in other countries at similar levels of income per capita, firms often adopt it only for relatively simple tasks, and governments vary widely in their ability to integrate AI into public services. Firm-level evidence illustrates the distinction between access and transformation. Many firms use chatbots, content generation tools, or AI-assisted search; far fewer integrate AI into production processes, decision systems, workflows, or core business models. Because productivity gains tend to come from reorganizing processes around technology rather than merely acquiring technology, shallow adoption is unlikely to generate large aggregate gains. This problem is compounded by weak private sector dynamism. Firms that invest little in physical capital, worker training, research and development (R&D), and new products are also less likely to make the complementary investments required to use AI effectively. The large footprint of state-owned enterprises (SOEs) and weak market contestability further erode these foundations. As AI creates new opportunities for the entry and expansion of young and small firms, the opportunity cost of leaving barriers to competition and high business costs unaddressed is rising.

The third gap is foundational human and physical capital. Productive AI adoption requires workers with digital literacy, technical skills, the ability to think critically, creativity, and the capacity to redesign tasks around new tools. Demand for AI-related skills is rising rapidly across the region, but supply remains uneven and concentrated. The Gulf Cooperation Council (GCC) economies generally have stronger digital skills and are increasingly attracting AI talent from elsewhere in MENAAP. In contrast, several middle-income economies continue to experience net outflows of skilled workers. Some of them end up in GCC countries; others leave for France, the United Kingdom, the United

States, or other Western countries. The challenge is not only a shortage of AI talent. Effective augmentation requires broader capabilities—communication, judgment, problem solving, adaptability, and creative thinking—that remain weak in many education systems. Physical infrastructure imposes an even more basic constraint. Reliable electricity and broadband connectivity remain uneven across the region. Where electricity is intermittent or broadband penetration remains thin, sophisticated AI adoption is not yet the relevant constraint.

These infrastructure constraints do not make AI adoption an all-or-nothing proposition. “Small AI”—affordable, purpose-built applications designed to function with limited connectivity, basic devices, and intermittent power—offers an important pathway for the region in addressing infrastructure gaps. Such tools can operate through lightweight mobile applications, voice services, short message service (SMS), or offline functionality, circumventing the need for constant access to high-performance compute or high-speed broadband, making it possible to deploy AI applications in agriculture, health, education, and other services even where infrastructure remains constrained. A sequenced approach is, therefore, possible: Countries can deploy lightweight, locally adapted AI tools that address immediate development needs while continuing to invest in the electricity, broadband, and digital systems required for more sophisticated uses. Small AI does not eliminate the need for foundational infrastructure; it expands the set of productive applications available while those foundations are being built.

Regulation and governance will be equally important in determining whether AI diffuses safely and at scale. Across national strategies, concerns about privacy, data sharing, algorithmic bias, ethics, security, and regulatory uncertainty are often more consistent than the economic priorities countries identify. These concerns are already affecting adoption. More advanced firms in the region identify privacy and security among the most important constraints to scaling AI use. Weaknesses in legal adaptability and enforcement remain among the largest regional readiness gaps.

The policy challenge is not simply to regulate more but to establish rules that create trust without unnecessarily constraining experimentation and investment. Clear frameworks for personal and commercial data, cross-agency and cross-border data sharing, procurement, accountability, cybersecurity, model oversight, and ethical use can reduce uncertainty for firms and governments. Data governance is particularly important because localization itself depends on making local data usable while protecting citizens, firms, and institutions from misuse.

Saudi Arabia and the United Arab Emirates demonstrate how quickly capabilities can be built when capital, strategy, and institutional commitment align. Both countries have made substantial progress in AI infrastructure, model development, investment, skills, and governance. Their emergence as regional AI producers creates opportunities beyond their own borders. MENAAP economies possess different comparative advantages: Gulf countries can provide capital, compute, cloud infrastructure, and model development capacity; populous middle-income economies can contribute talent, sector knowledge, market scale, data, and application development; and lower-capacity economies can initially benefit by adopting proven, low-cost applications. These differences need not produce a permanently divided region. They can, instead, form the basis of a more integrated regional AI ecosystem.

Regional collaboration is, therefore, one of MENAAP's most important opportunities. No single country needs to build every layer of the AI stack. Shared compute resources, interoperable data frameworks, research partnerships, talent mobility, common language datasets, regional benchmarks, and cross-border investment could allow countries to specialize while benefiting from capabilities developed elsewhere in the region. This feature is particularly important for localization. Arabic-language models and applications must serve a linguistically diverse region; Persian- and Urdu-speaking markets create additional opportunities for locally adapted tools. Pooling data, expertise, compute, and investment could

lower the fixed costs of developing such applications and make regional markets more attractive to both domestic and international developers.

The policy agenda proposed in this chapter is, therefore, not about choosing between AI ambition and more traditional development priorities; the two are increasingly intertwined. Countries will need to improve the business environment, build human capital, strengthen electricity and digital infrastructure, create trustworthy data systems, and modernize regulation whether or not they pursue frontier AI development. AI raises both the returns to making these investments and the costs of failing to do so. The region's leaders can push further into model development and infrastructure; middle-income economies can focus on adaptation, sector-specific applications, and stronger innovation ecosystems; and fragile economies can prioritize accessible, small-scale applications that address immediate needs. Across all three groups, the objective should be the same: to ensure that AI becomes a tool for broad-based productivity and better services rather than another force widening existing divides.

This chapter examines how close MENAAP is to achieving that objective. It first assesses the region's strategies and readiness, then considers how AI is likely to affect workers and productivity. It identifies localization, usage, and foundational human and physical capital as the three structural gaps limiting broader gains and examines how these constraints interact. It turns to the region's emerging strengths—including the rapid progress of Saudi Arabia and the United Arab Emirates—and asks how differences in capabilities can be transformed from a source of divergence into a basis for regional complementarity. The central message is that MENAAP does not face a single AI future. The outcome will depend on whether countries can adapt the technology to local needs, spread its use beyond a narrow frontier, build the human and physical foundations needed for productive adoption, and create the governance and regional institutions required for AI to diffuse safely and broadly.

Five case studies developed for this report provide grounded evidence on how AI adoption is

unfolding across firms, labor markets, education, and public institutions in MENAAP (annex 2A). The first—based on a focus group discussion convened by the World Bank’s MENAAP Chief Economist Office in partnership with the Institut Arabe des Chefs d’Entreprises in Tunisia—examines AI use cases reported by 17 senior business leaders, as well as the drivers of adoption and the constraints firms face. The second—developed by Insights for Research, Training, and Polling—analyzes AI-enabled job matching and skills forecasting in the West Bank and Gaza, highlighting the challenges of deploying AI in data-constrained and conflict-affected environments. The third assesses AI-assisted learning programs held during the winter break in Balochistan through a randomized controlled trial (RCT) that points to the difficulty of making AI-assisted tools work in settings marked by low attendance and weak school infrastructure. The fourth studies the Saudi Data and Artificial Intelligence Authority (SDAIA), focusing on its institutional design, data infrastructure, and the structural challenges it navigates. The fifth draws on a survey of frontier firms backed by the International Finance Corporation (IFC), highlighting how deeper AI integration across business functions remains limited even among these technologically advanced firms. These case studies complement the chapter’s analysis by showing how localization, usage, and foundational capital constraints operate in practice.

A region divided by strategy and adoption capacity

MENAAP countries are entering the AI transition with a sharp divide in strategy and adoption capacity. As a result, AI has become a potential source of productivity gains in some countries and of deeper regional inequalities in others. Wealthier GCC countries are making substantial investments in their national digital infrastructure, AI strategies, AI model development, and compute capacity, positioning themselves as active drivers of the transition. Middle-income countries occupy a more uncertain middle ground. Their ambitions are

growing, but their limited capacity to adapt leads to significant gaps in readiness. Fragile and conflict-affected states face the greatest risks of being left behind and seeing their existing vulnerabilities deepen.

AI strategies: Shared concerns, divergent goals

National AI strategies reveal a region in which economies are unified in their concerns but divided in their ambitions and capacity to act. Of 21 MENAAP economies, only 14 have published national AI strategy documents. In addition to the 6 GCC economies (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), they are the Arab Republic of Egypt, the Islamic Republic of Iran, Jordan, Lebanon, Morocco, Pakistan, Tunisia, and the West Bank and Gaza. Four others—Algeria, Djibouti, Iraq, and Libya—have formally adopted strategies but released no public document as of July 2026. Afghanistan, the Syrian Arab Republic, and the Republic of Yemen have no national AI strategy of any kind. This pattern is not coincidental: The countries without strategies are experiencing active conflict or extreme institutional weakness. Even among the 14 countries with published documents, the quality and depth of the strategies vary widely; the United Arab Emirates, for example, has issued multiple strategy documents, ethics guidelines, and enabling legislation since 2017. The existence and quality of a national AI strategy serve as indicators of institutional capacity.

This divide notwithstanding, national AI strategies in the region focus on a core set of goals. Most countries prioritize innovation and R&D, competitiveness, and government efficiency. Public-private partnerships also feature prominently: Lebanon calls for “consolidating the public-private sector partnership at the level of joint ventures and initiatives in all areas of AI,” while Bahrain emphasizes “technological innovation through the adoption of new ideas and the application of the latest artificial intelligence technologies.” The United Arab Emirates sets the most explicit positioning goal, aiming to build a “reputation as an AI destination.”

The divergence of strategies appears most prominently where AI goals reflect countries' underlying economic structures and fiscal constraints. Energy and tourism sectors feature prominently in GCC strategies, consistent with their desire to extract more value from their oil and gas exports and service sectors through AI-driven productivity increase. Rapid expansion of cloud infrastructure and data centers appears almost exclusively in GCC strategies, particularly in Saudi Arabia and the United Arab Emirates, reflecting their ability to finance large-scale information technology (IT) infrastructure investments. Saudi Arabia's US\$100 billion Project Transcendence and the United Arab Emirates's US\$30 billion Global AI Infrastructure Partnership have no parallels elsewhere in the region. Agriculture and manufacturing appear more prominently in non-GCC strategies. Pakistan's strategy singles out agriculture-related "pesticide and fertilizer management, irrigation management, yield estimation, import and export decisions, and food security" Lebanon devotes a full section to AI in smart digital factories (figure 2.1).

AI strategies across MENAAP converge more strongly on regulatory concerns than economic goals. Most MENAAP countries flag algorithmic bias in decision-making, data privacy, and regulatory gaps. Nearly all national strategies address ethical concerns and bias, with many linking these risks to biases in AI training data.

AI can produce biased outputs when it is trained on data that do not reflect local people, culture, and languages (World Bank 2026f). The United Arab Emirates calls for biases in datasets to be mitigated and disclosed. Some other countries focus on bias in the decisions made by AI. Egypt proposes oversight of AI decision-making processes and bias detection mechanisms to minimize algorithmic prejudice. Pakistan mentions avoiding increasing gender biases, especially the gender digital divide and wage gap. Data privacy follows closely; regulatory gaps come next. Morocco calls the lack of specific AI regulation in domestic law a fundamental obstacle to AI adoption. Egypt and Jordan point to gaps in existing rules. Egypt is drafting a legislative framework for AI investment, aiming to give investors a transparent set of rules. Jordan's AI strategy seeks to expand AI adoption in the public sector by revising procurement rules to simplify their purchase of AI solutions. GCC countries generally aim to further develop existing frameworks. Kuwait calls the development of a broad legal and regulatory framework essential, while Saudi Arabia links the creation of a stable regulatory framework to its investment goals.

Shortages of AI-specific human capital are where national AI ambitions and concerns intersect. On the supply side, strategies emphasize education and training through schools, universities, and variety of other skills programs. On the demand side, they

FIGURE 2.1 Most MENAAP economies share core AI ambitions and concerns but diverge on sectoral, cloud, and data center goals

A. Major goals from national AI strategies



B. Major concerns from national AI strategies



Source: Compiled from the national AI strategies of 14 economies in MENAAP (the six GCC economies, the Arab Republic of Egypt, Jordan, Pakistan, the Islamic Republic of Iran, Lebanon, Morocco, Tunisia, and the West Bank and Gaza). Font size is proportional to the frequency with which each term appears across national AI strategies.

Note: AI = artificial intelligence; GCC = Gulf Cooperation Council; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; R&D = research and development.

focus on workforce management, job creation, reskilling, and related labor market outcomes. Both issues appear in nearly every strategy. Saudi Arabia aims to have 40 percent of its workforce trained on basic AI literacy, with over 15,000 local specialists by 2030. Pakistan sets the largest absolute target: training 200,000 individuals a year, with 3,000 postgraduate scholarships. Egypt aims to train 30,000 AI professionals by 2030. Jordan plans to increase the number of AI researchers by 30 percent. Three Gulf states—Kuwait, Qatar, and the United Arab Emirates—are among the 11 countries globally with government-endorsed K–12 AI curricula. Jordan and Saudi Arabia have similar programs in the pipeline (Miao and Shiohira 2022).

Most national strategies frame AI primarily through the lens of the skills and growth agenda, viewing labor market disruptions as a secondary concern. Rather than a comprehensive jobs agenda, national AI strategies give limited attention to job creation, job quality, and worker transitions and rarely identify displacement as a central policy concern. Job displacement appears in only one of six GCC strategies and three of eight non-GCC documents. Among the examples, Qatar warns that “the threat of job tasks becoming susceptible to automation is very real,” and Jordan notes that “some traditional jobs are likely to be lost.” Brain drain is acknowledged: The United Arab Emirates notes the need “to compete with destinations around the world that are also trying to attract scarce AI talent,” and Egypt devotes a full section to “combating the AI brain drain.” Overall, however, the strategies frame the labor market impact of AI primarily as an opportunity rather than a risk.

From strategy to readiness: MENAAP's uneven AI preparedness

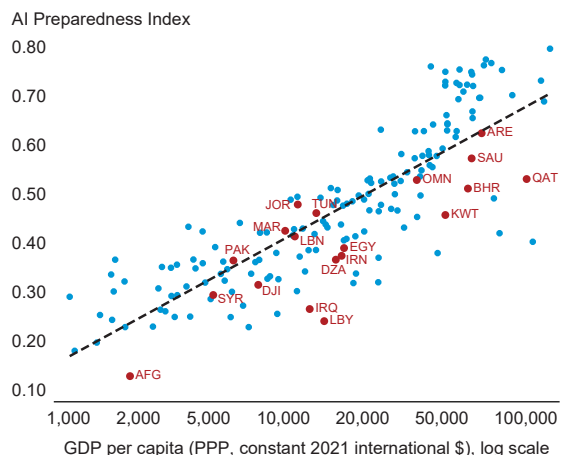
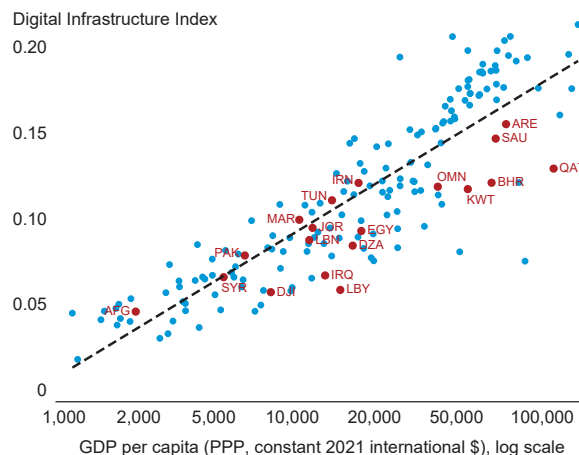
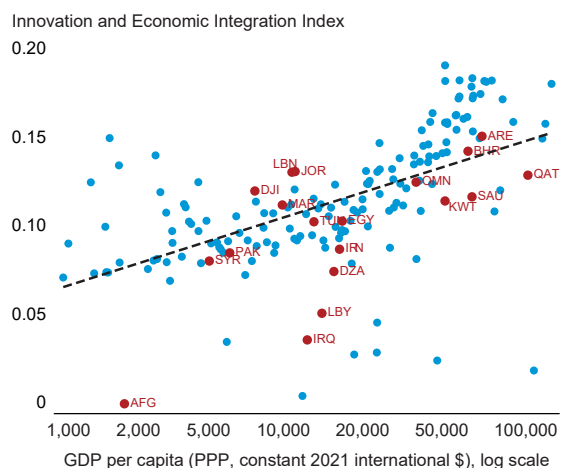
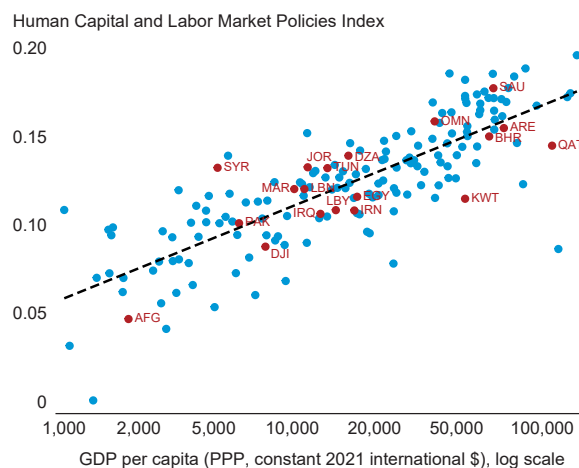
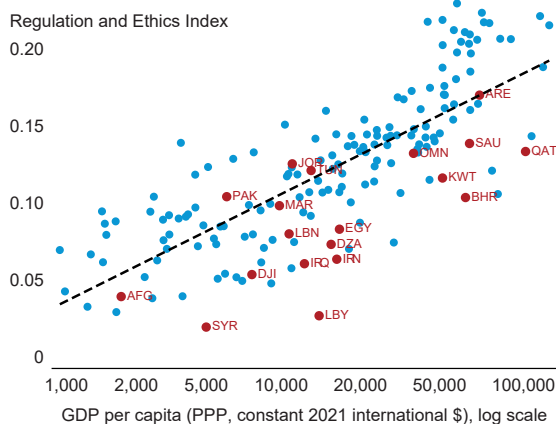
The regional AI divide becomes sharper when national strategies are assessed against the infrastructure, innovation, regulation, and human capital needed for effective AI adoption. The International Monetary Fund's AI Preparedness Index captures the readiness of different economies across four dimensions: digital infrastructure, human capital and labor market policies, innovation and economic

integration, and regulation and ethics (Cazzaniga et al. 2024).

AI readiness means having the connectivity and digital systems to deploy AI, the skills and labor policies to support workers, an environment that enables innovation, and adaptable rules that can be effectively enforced. The index shows that GCC countries are generally better positioned to adopt AI than developing MENAAP economies. However, higher-income MENAAP countries tend to score below their global income group peers, and several lower-income economies perform broadly in line with—or even above—their income group benchmarks (figure 2.2, panel a).

The widest preparedness gap in the region is not in human capital (figure 2.2, panel d) but in adaptable legal frameworks governing digital business models and the state's capacity to enforce them after deployment. Relative to income peers, MENAAP countries show the largest shortfall in the regulation and ethics pillar (figure 2.2, panel e), suggesting that many countries have not yet built the enforcement systems and accountability safeguards needed for widespread AI use. By contrast, the human capital and labor pillar of the index is closer to income group averages, suggesting that skills constraints are important, but regulatory and institutional gaps are more binding for overall AI readiness.

These regional averages mark a second layer of unevenness: Countries differ not only in their overall readiness but also in how capabilities are distributed across the four pillars. MENAAP countries often combine strong performance in some pillars with substantial gaps in others. Some economies have the connectivity and digital systems needed to support AI diffusion but weaker innovation ecosystems; others show stronger innovation and economic integration despite infrastructure gaps. Pakistan illustrates the former pattern, performing strongly on digital infrastructure relative to its income peers but weakly on innovation and economic integration. Jordan illustrates the latter pattern, performing relatively well on innovation and economic integration but less strongly on digital

FIGURE 2.2 AI readiness varies widely across MENAAP economies**A. IMF AI Preparedness Index****B. Digital infrastructure pillar****C. Innovation and economic integration pillar****D. Human capital and labor pillar****E. Regulation and ethics pillar**

Source: International Monetary Fund AI Preparedness Index (2023) based on Cazzaniga et al. (2024).

Note: The index sums four indicators with equal weights: digital infrastructure, human capital and labor market policies, innovation and economic integration, and regulation and ethics. The digital infrastructure subpillar seeks to capture the degree of Internet accessibility and maturity of e-commerce infrastructure through various indicators. The human capital and labor market policies pillar incorporates education outcomes, digital skills in the workforce, and labor market policies that facilitate labor market transitions. The innovation and economic integration pillar captures whether the economic environment is conducive to technological innovation and the movement of resources within and across countries, which can help maximize the economic impact of AI. The regulation and ethics pillar reflects the adaptability of the legal framework to digital business models and government's effectiveness index as a proxy for enforcement and accountability. See Cazzaniga et al. (2024) for details. Countries appear in ascending order of GDP per capita PPP in 2025 within each income group, based on the World Bank classification for fiscal 2027. Figure is based on the sample of 170 countries covered by the International Monetary Fund AI Preparedness Index, including 19 in MENAAP. Red markers denote MENAAP economies, and blue markers denote other economies; the dashed line shows the fitted linear trend. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

infrastructure. AI readiness is an ecosystem of complementary capabilities, not several isolated inputs.

A critically binding constraint: Weak innovation ecosystems and the lack of private sector dynamism

Beyond the regional divide in AI strategy and readiness, the region faces limited private sector investment, innovation, and market contestability, which weaken the foundations for AI adoption. Accelerated productivity growth through AI requires a private sector that invests, innovates, and competes, both at home and in international markets. AI adoption requires investing in new technologies, retraining new workers, and redesigning new processes—conditions that are largely absent in many economies. The large footprint of the state through public employment and pervasive SOEs suppresses market competitiveness and crowds out private enterprises. Political instability, corruption, cumbersome regulations, and widespread cronyism further undermine market contestability and firm performance (Gatti et al. 2025). A region in which firms have few incentives to introduce new products, processes, or technologies is poorly positioned to absorb AI's potential.

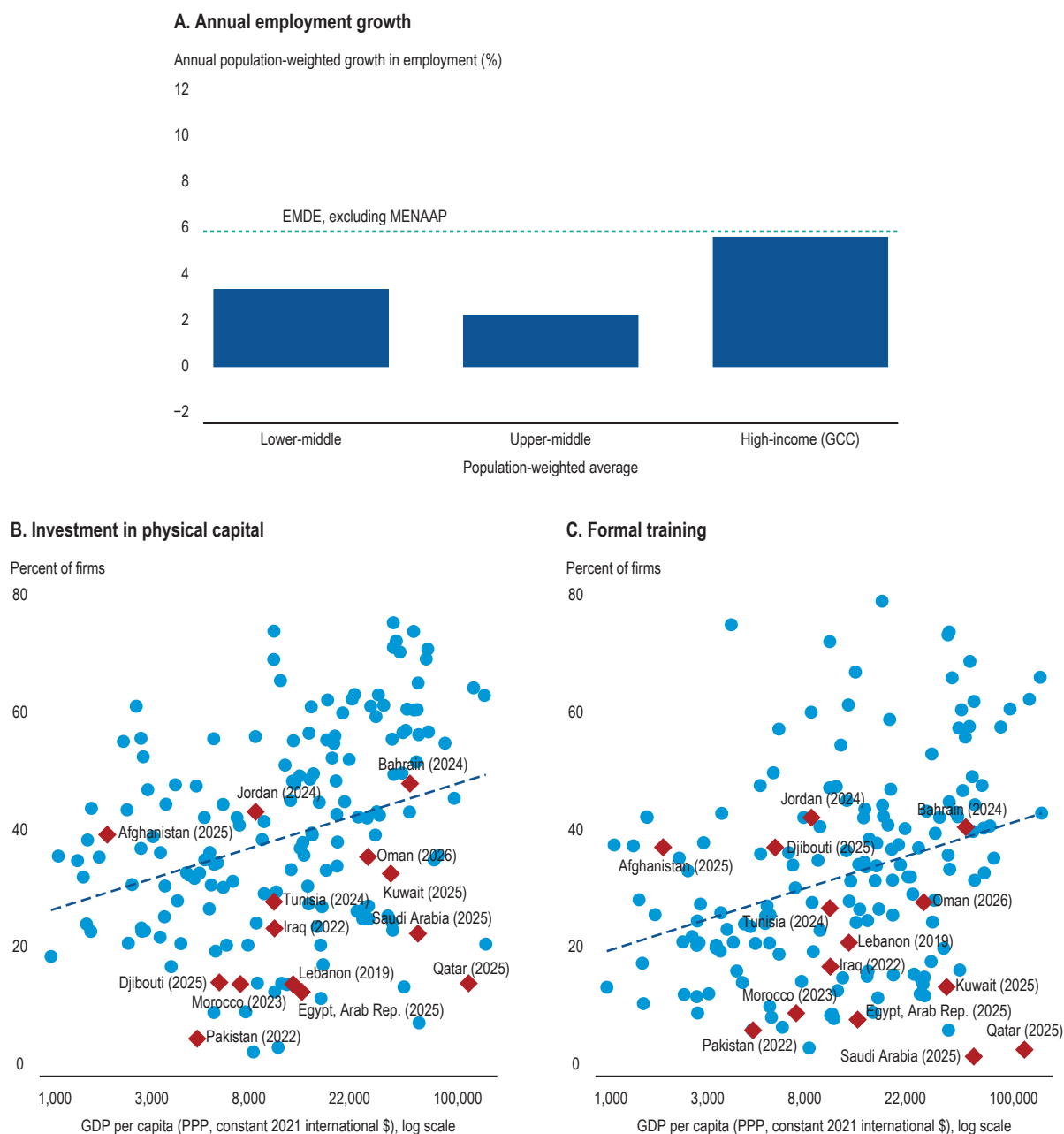
The private sector in many MENAAP countries is burdened by weak productivity, innovation, and job creation. Employment growth in MENAAP stands at 3.5 percent, well below the average of 5.9 percent among emerging market and developing economies (EMDEs) (figure 2.3, panel a). Limited entry and exit of businesses from product markets further dampens competitive pressure, leaving the private sector structurally unable to reallocate resources toward more productive uses (Gatti et al. 2025). The World Bank Enterprise Surveys provide regionwide data on businesses. Over the fiscal year preceding when businesses were surveyed, less than 24 percent of MENAAP firms invested in physical capital, well below the 37 percent average among EMDEs (figure 2.3, panel b). The gap in human capital investment is equally stark: Roughly 19 percent

of firms in the region offer formal training, well below the 30 percent average for EMDEs (figure 2.3, panel c).

Without adequate investment in either physical or human capital, the potential for innovation—and AI adoption—remains weak. Across the region, the share of firms investing in R&D, a key input of innovation, is well below income peers (9 percent in MENAAP against 11 percent in EMDEs outside the region) (figure 2.4, panel a). The share of firms that introduced a new product or service in the past three years—a measure of product innovation—is significantly lower in MENAAP than in peer economies (16 percent versus 29 percent). The share reporting new or improved processes is also lower (9 percent against 19 percent). The gap is starkest in the region's largest economies: In Egypt, just 9 percent of firms report product innovation and 3 percent process innovation; in Pakistan, the figures are 3 percent and 1 percent, respectively, against a lower-middle-income peer average of 23 percent and 14 percent. Saudi Arabia reports 11 percent and 4 percent, respectively, well below the 36 and 22 percent averages among high-income economies (figure 2.4, panels b and c).

Governments' presence in MENAAP markets has shaped the private sector. States are major direct employers, and SOEs have an outsized economic footprint, suppressing the market contestability that drives productivity and innovation. The public sector crowds out private activity in two ways. First, it competes for talent and capital, drawing workers and investments away from the private sector and misallocating resources. Second, and more consequentially, SOEs dominate sectors that are served by private firms in many other countries. SOEs account for an estimated 20–50 percent of value added and 30 percent of employment in the Middle East and North Africa (MENA) region (OECD 2012). Their presence is concentrated in commercially contestable sectors (Gatti et al. 2025; Islam, Moosa, and Saliola 2022). SOEs typically operate with many privileges, such as exemptions from competition law, and line ministries simultaneously own, regulate, and set policy for the enterprises they oversee, generating conflicts of interest.

FIGURE 2.3 Firms in MENAAP create fewer jobs and invest less in physical capital and worker training than firms in income peers

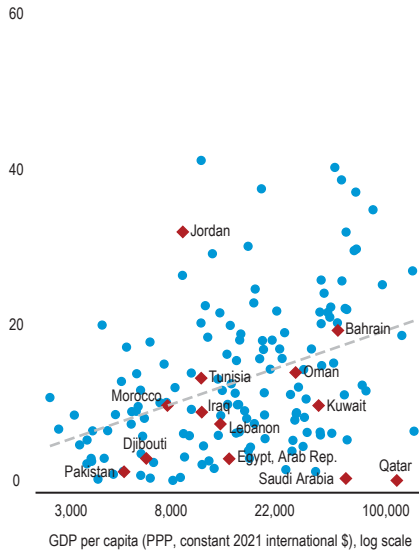


Sources: World Bank calculations based on data from World Bank Enterprise Surveys and population data from World Development Indicators.

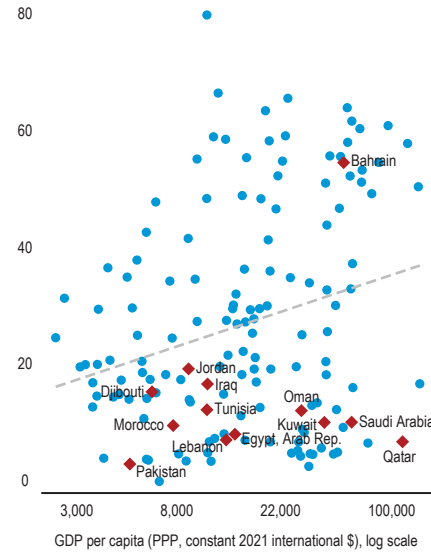
Note: Data are from the latest World Bank Enterprise Survey for each country conducted in 2015 or later. Panel a shows firms' average annual employment growth between the year the survey was implemented and two years earlier, using sample weights within each country and total population as the weight across countries. Population includes all residents, regardless of legal status or citizenship. Income classification is based on the current World Bank income group classification, applied to all survey years. The following surveys are included for MENAAP (survey year in brackets): Bahrain (2024), Djibouti (2025), Egypt, Arab Rep. (2025), Iraq (2022), Jordan (2024), Kuwait (2025), Lebanon (2019), Morocco (2023), Oman (2026), Pakistan (2022), Qatar (2025), Saudi Arabia (2025), and Tunisia (2024). In panel a, the dashed teal line is the population-weighted average across EMDEs outside of MENAAP. Panels b and c show results for the last complete fiscal year covered by each survey, using sample weights. In panel b, the y-axis is the weighted average share of firms investing in physical capital. In panel c, the y-axis is the weighted-average share of firms providing formal training. Sample includes 171 economies, including 14 in MENAAP. Red markers denote MENAAP economies, and blue markers denote other economies; the dashed line shows the fitted linear trend. EMDEs = emerging market and developing economies; GCC = Gulf Cooperation Council; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity.

FIGURE 2.4 Firms in middle- and high-income MENAAP economies lag income peers in R&D, product innovation, and process innovation**A. R&D spending**

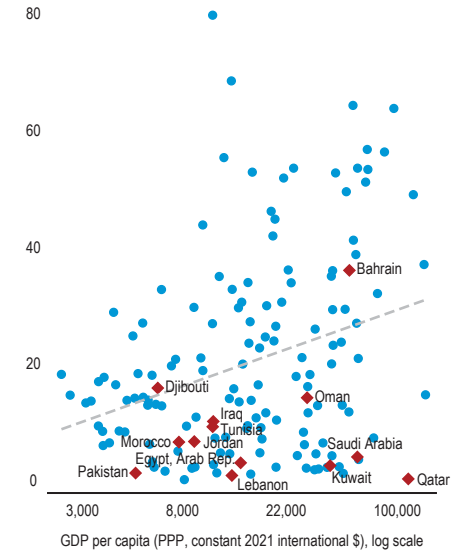
Percent of firms investing in R&D

**B. Product innovation**

Percent of firms introducing new products or services in the past three years

**C. Process innovation**

Percent of firms introducing significantly improved process in the past three years



Sources: World Bank calculations, based on data from World Bank Enterprise Surveys and population data from World Development Indicators.

Note: Data are from the latest World Bank Enterprise Survey for each country conducted in 2015 or later. All three panels show weighted averages using sample weights for the fiscal year covered by the latest survey available. The sample in all three panels is restricted to middle- and high-income economies. The following surveys are included for MENAAP: Bahrain (2024), Djibouti (2025), Egypt, Arab Rep. (2025), Iraq (2022), Jordan (2024), Kuwait (2025), Lebanon (2019), Morocco (2023), Oman (2026), Pakistan (2022), Qatar (2025), Saudi Arabia (2025), and Tunisia (2024). Income classification is based on the World Bank classification for fiscal 2027, applied to all survey years. Sample includes 151 countries, including 13 in MENAAP. Red markers denote MENAAP economies, and blue markers denote other economies; the dashed line shows the fitted linear trend. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity; R&D = research and development.

Financial markets compound the problem: Implicit or explicit government guarantees lower SOE borrowing costs, and state-owned banks (SOBs) extend credit to SOEs on strategic rather than commercial terms, inflating nonperforming loans while starving the private sector of finance (Cardarelli, Vera-Martín, and Lall 2022).

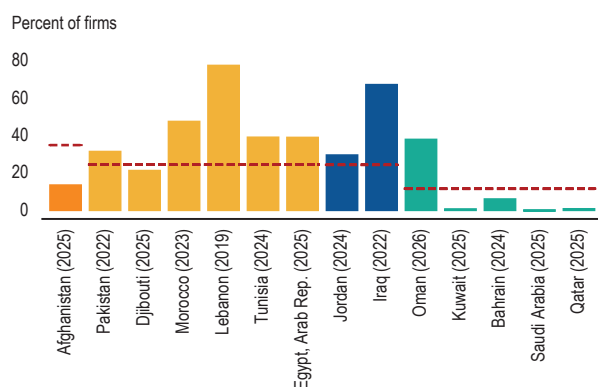
The conditions for doing business continue to constrain business activity in many countries in the region. A sound business environment spurs firm creation; attracts foreign investment; and fosters competition, innovation, and job growth. Firms frequently cite corruption, political instability, and cumbersome licensing as obstacles to firm operations, investment, and productivity increase, at levels significantly above those observed in income peers (figure 2.5). Formal firms in low- and middle-income MENAAP countries are more likely than firms in comparable economies elsewhere to cite corruption, political instability, and burdensome licensing, with 41 percent of firms in low- and middle-income MENAAP countries identifying corruption as a

major or severe constraint, against 26 percent across income peers outside the region. Political instability is flagged by 49 percent of firms in low- and middle-income MENAAP countries, compared with 26 percent of firms in income peers outside MENAAP (figure 2.5). The pattern is driven by the region's middle-income economies. In contrast, firms in all GCC countries except Oman report obstacle rates at or below those of their high-income peers.

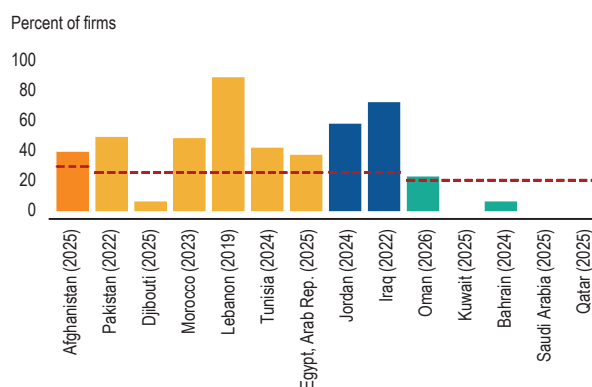
AI adoption is a prime example of innovation: It requires firms willing to invest in new technologies, retrain workers, and redesign processes in pursuit of productivity gains. The 2026 *World Development Report's* adopt–adapt–advance framework requires a private sector capable of taking up AI at each stage (World Bank 2026f). The firm-level evidence for MENAAP suggests that building this capacity must precede—or accompany—progress along these pathways in much of the region. Furthermore, a private sector that operates under unfair competition from SOEs and a business environment marked by corruption and political instability—is structurally

FIGURE 2.5 Except in some Gulf countries, firms in MENAAP are more likely than firms outside the region to cite corruption, political instability, and business licensing and permits as major or severe constraints

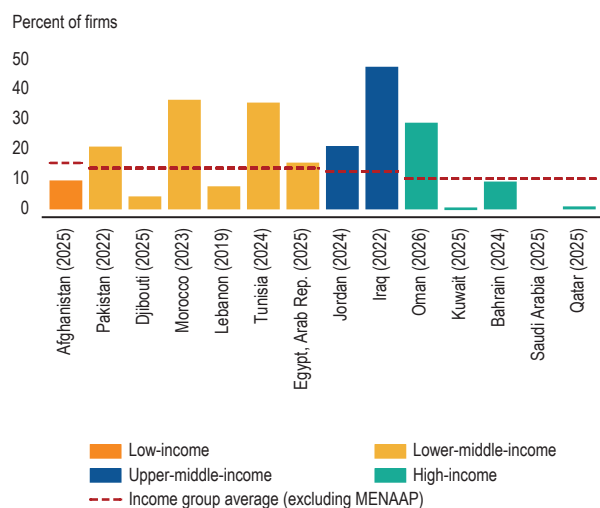
A. Corruption as a major/severe constraint



B. Political instability as a major/severe constraint



C. Business licensing and permits as a major/severe constraint



Sources: World Bank staff calculations based on data from World Bank Enterprise Surveys.

Note: Data are from the latest World Bank Enterprise Survey for each country conducted in 2015 or later. Years in parentheses indicate the year of the survey. Income classification is based on the World Bank income group classification for fiscal 2027, applied to all survey years. Within country income groups, countries appear in ascending order of GDP per capita, PPP (constant 2021 international \$). MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity; US = United States.

ill-positioned to seize AI productivity gains. Where SOEs crowd out private credit and SOEs face no meaningful competitive pressure, both the incentive and financing conditions for AI adoption are absent. By lowering barriers to entry and expansion for young and small firms, AI raises the opportunity cost of leaving weak market contestability and high business costs unaddressed. The consequence is not merely that the region risks missing the AI wave, but that the wave itself may widen the productivity gap between MENAAP and its peers. Private sector reform is, thus, a precondition for, not a complement to, any AI-centered growth strategy.

What AI means for workers in MENAAP

Differences in country readiness and firms' capacity to adopt AI ultimately shape how the technology affects workers. Countries vary in their strategies, regulatory frameworks, and adoption capacity, while firms operate in a low-dynamism business environment that may limit how deeply AI is used. These conditions determine whether AI remains a narrow tool for a small group of knowledge workers or becomes a broader source of productivity gains across the economy.

AI affects workers through five channels. First, AI can lower the entry requirements for expert tasks within an occupation, a dynamic documented in customer support, professional writing, and software development (Brynjolfsson, Li, and Raymond 2025; Cui et al. 2026; Noy and Zhang 2023). It enables less experienced workers to perform tasks that previously required more specialized knowledge or experience. Second, AI can shift cognitive tasks to adjacent occupations that require less specialized expertise—moving some medical image screening from scarce specialists to lower-level health care providers, for example. Third, AI can augment workers in their existing roles—by helping teachers plan lessons, generate learning materials, and provide faster feedback, for example. Fourth, AI can raise the productivity of capital, as predictive computer vision systems do when they identify road infrastructure defects and improve maintenance prioritization (Shahrivar et al. 2025). Fifth, AI can create new tasks and occupations, such as large language model (LLM) engineers, AI trainers, and prompt specialists. These channels, mapped in figure 2.6, correspond to the task-based concepts of the falling entry bar, expertise leveling, labor augmentation, capital augmentation, and new task creation (Acemoglu, Autor, and Johnson 2026).

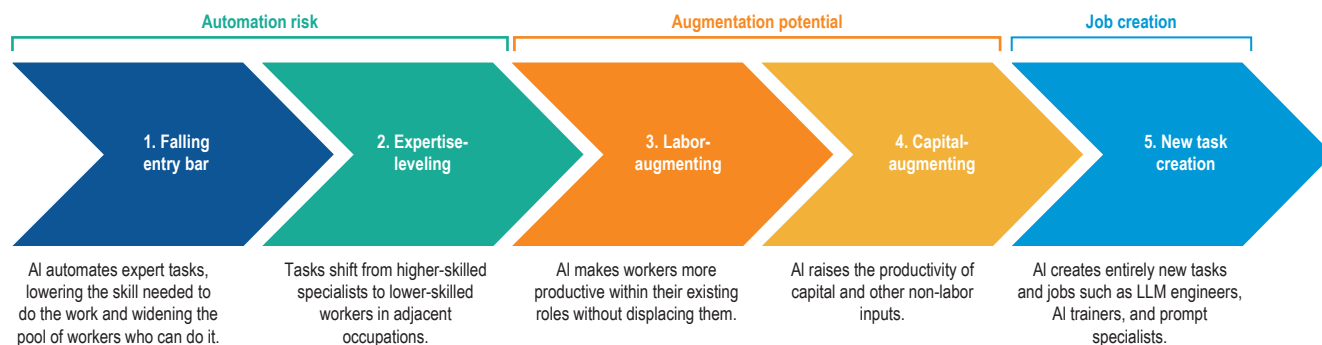
AI can accelerate innovation itself, not only change the tasks workers perform today. It is increasingly characterized as a general-purpose meta-technology—a technology for developing new technologies—because it can support co-invention across scientific and economic domains (Agrawal,

Gans, and Goldfarb 2019; Cockburn, Henderson, and Stern 2019). Early empirical evidence already shows AI accelerating scientific discovery and product innovation (Agrawal, McHale, and Oettl 2026; Babina et al. 2024). A historical parallel is electricity, which enabled the development of entirely new capital goods—electric motors, refrigeration, and telecommunications equipment—that restructured production across industries far beyond the power sector itself (David 1990).

Mapping AI exposure: Weighing automation risk against augmentation potential

AI differs from earlier technologies because it reaches into the nonroutine cognitive tasks that many previous waves of automation largely spared. Computers reshaped labor demand by replacing routine cognitive tasks, such as data entry. As a result, the share of middle-skilled, middle-pay jobs declined while employment grew at both ends of the skill distribution—a polarization effect documented extensively in the United States (Autor, Levy, and Murnane 2003; Autor and Dorn 2013). Industrial robots displaced workers in repetitive manual tasks, particularly in manufacturing and other routine physical occupations. AI goes farther, by affecting analytical, creative, and interpersonal tasks that were previously harder to automate (Brynjolfsson and Mitchell 2017; Webb 2020). The relevant question is, therefore, where the region’s workforce sits along this task spectrum.

FIGURE 2.6 AI affects workers through five channels

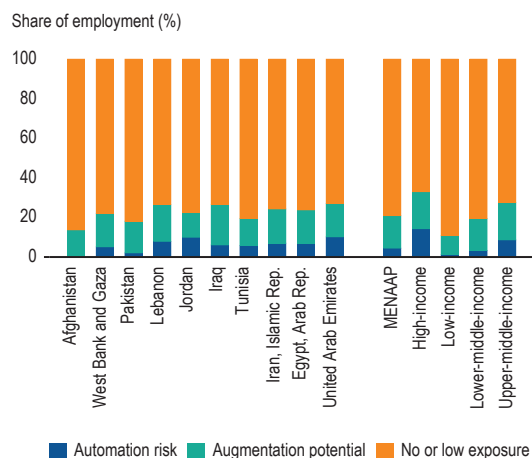


Sources: Based on Acemoglu et al. (2026) and World Bank (2026f).

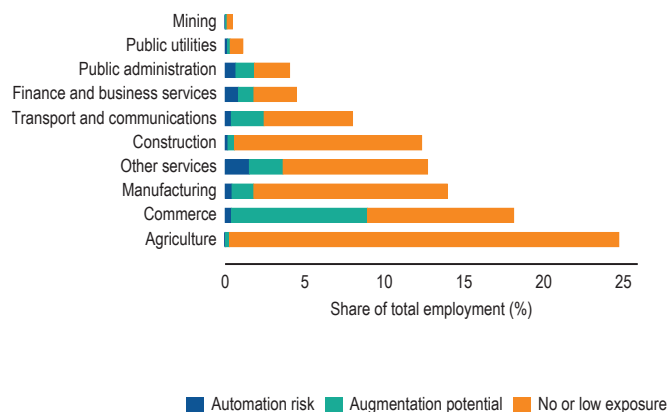
Note: AI = artificial intelligence; LLM = large language model.

FIGURE 2.7 MENAAP faces lower AI automation risk than high-income economies, with augmentation opportunities outpacing automation

A. Exposure of jobs to GenAI in MENAAP economies and country income groups



B. GenAI exposure in MENAAP economies and countries, by sector



Source: World Bank's rendering of data from Gmyrek et al. (2026).

Note: Country shares of employment by GenAI exposure categories are derived from Gmyrek et al. (2026). In panel a, the MENAAP aggregate and the income group bars are means of these country rates, where each country is weighted by its total employment. Employment weights are computed from ILOSTAT employment-by-occupation data (ISCO-08 two-digit) for the latest available year per country. Income groups follow the World Bank classification as of July 2025. The benchmarks cover the countries in the Gmyrek et al. (2026) sample that have ILOSTAT employment data and include 43 high-, 30 upper-middle-, 31 lower-middle-, and 17 low-income countries; no MENAAP countries are in the benchmark samples. Panel b pools employment by broad sector and GenAI exposure category for the same 10 MENAAP countries shown in panel a, weighted by ILOSTAT employment-by-sector-and-occupation data (ISCO-08 one-digit) for the latest available year per country. GenAI exposure measures are derived from the task-level mean and standard deviation of GenAI exposure scores within each occupation. Automation risk includes occupations in gradients 3 and 4, characterized by high and consistent exposure, where most tasks have strong automation potential. Augmentation potential covers gradients 1 and 2, reflecting moderate to low exposure with high task-level variability—occupations where GenAI is more likely to complement rather than replace human work. No or low exposure includes occupations outside these gradients, representing jobs with limited or no current GenAI exposure. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>. AI = artificial intelligence; GenAI = generative AI; ILOSTAT = International Labour Organization Labor Statistics; ISCO = International Standard Classification of Occupations; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

MENAAP faces lower AI automation risk than high-income economies, because its employment structure is less concentrated in highly exposed cognitive occupations. The International Labour Organization (ILO)–National Research Institute of the Ministry of Digital Affairs in Poland (NASK) Index of Occupational Exposure measures task-level AI exposure within International Standard Classification of Occupations (ISCO-08) categories.¹ It classifies occupations into six exposure groups based on both average exposure and variation across tasks. Occupations with consistently high exposure are most at risk of automation; occupations that combine automatable tasks with people-dependent tasks have greater potential for augmentation. Country-level exposure is calculated by combining these occupational scores with each country's employment structure (figure 2.7, panel a).

¹The ILO–NASK Index assesses the feasibility of task-level automation by combining information from surveys of Polish workers, expert validation, and GenAI assessment.

Based on this index, high-income economies face the highest automation exposure, because a larger share of their employment is concentrated in the cognitive occupations most susceptible to GenAI.²

Within MENAAP, augmentation opportunities outweigh immediate automation risks. Automation risk—instances in which AI is likely to substitute for rather than complement human work—accounts for 0–10 percent of jobs, with the largest shares in Jordan and the United Arab Emirates and the smallest in Afghanistan and Pakistan. By contrast, 13–20 percent of jobs carry augmentation

²Like any standardized measure of exposure, the ILO–NASK Index is not immune from the challenge of accounting for differences in task content across countries. Gmyrek et al. (2026) show that adjusting for cross-country differences in computer use, routine manual, nonroutine analytical, and nonroutine interpersonal tasks, lower-income countries have even lower exposures relative to high-income countries than the standardized index indicates. As the task content is assumed to be the same across countries, all cross-country variations in exposure reflect variations in the current composition of occupations.

potential (instances in which AI enhances the productivity of rather than replacing workers outright) (figure 2.7, panel a). Iraq and Lebanon show the largest augmentation shares, reflecting the weight of sales workers and plant and machine operators in employment. Sectoral patterns reinforce the same message: Commerce carries the highest augmentation potential across the region, while agriculture and construction remain largely unexposed (figure 2.7, panel b). Usage data further validate occupational exposure measures, showing that GenAI exposure measures align with observed AI use across occupations and countries (box 2.1).

MENAAP's lower automation risk reflects the region's concentration of workers in manual occupations. Compared with high-income economies, MENAAP has a larger share of employment

concentrated in jobs that current AI tools cannot easily automate (figure 2.8). This feature lowers the immediate displacement risk, but it is not necessarily reassuring, as it reflects a workforce concentrated in lower-productivity occupations. Estimates of AI's labor market effects remain highly uncertain, because the technology is still evolving and workers, firms, and governments are still learning how to use it. In Saudi Arabia, for example, a computable general equilibrium model estimates that around 20 percent of jobs are at risk of displacement but that this displacement is more than offset by potential job creation of 23 percent, yielding net job creation of approximately 2.5 percent (Barone et al. 2025). While augmentation opportunities outpace automation risks in MENAAP countries, AI is already disrupting global digital services markets (box 2.2).

BOX 2.1 From exposure to usage: Validating AI occupational exposure scores

Comparing artificial intelligence (AI) exposure with actual AI usage helps test whether task-based exposure measures identify where AI is beginning to matter. Exposure measures what AI could do to jobs based on task characteristics—such as whether tasks involve drafting text, analyzing information, coding, or interacting with people—and, therefore, captures potential. Usage measures what workers and firms are actually doing with AI; it captures realized adoption. If occupations and countries with higher predicted exposure also show higher observed usage, the exposure measures gain credibility as indicators of where AI is likely to have the greatest labor market impact.

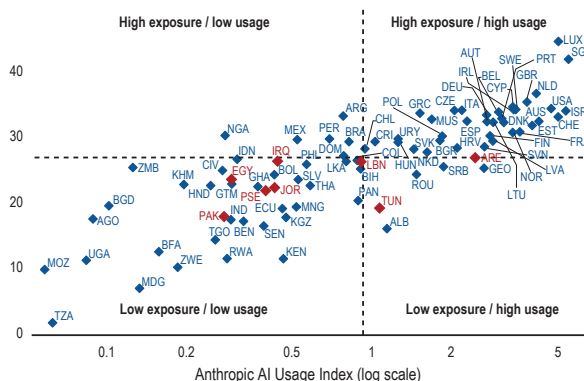
The comparison requires linking two different measurement frameworks: occupational exposure and observed AI use. On the exposure side, the chapter uses the International Labour Organization–National Research Institute of the Ministry of Digital Affairs in Poland Index to assess task-level AI exposure within standardized occupational categories. As a complementary measure, the AI Occupational Exposure score identifies 10 AI application areas, connects them to

52 human abilities through crowd-sourced surveys, and links those abilities to occupations using O*NET importance ratings. The score also weights each AI application by measured progress on published benchmarks, giving more advanced capabilities greater weight (Felten, Raj, and Seamans 2021). On the usage side, the Anthropic AI Usage Index measures a country's share of total Claude conversations relative to its share of the global working-age population; a value of 1 indicates per capita usage equal to the world average.

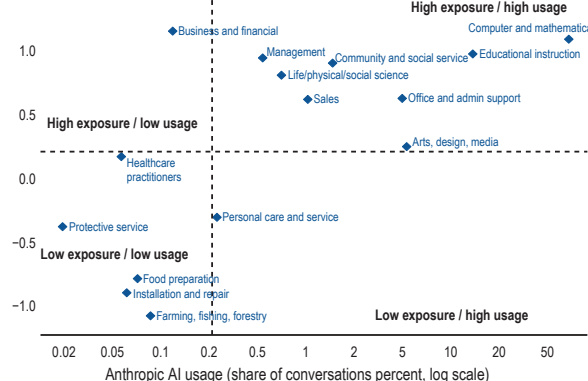
The evidence shows that predicted exposure and realized usage broadly move together across both countries and occupations. Across countries, higher occupational exposure is associated with higher AI usage (figure B2.1.1, panel a). Within the MENAAP region, the same relationship appears at the occupational level: Occupations with higher AI Occupational Exposure scores account for larger shares of Claude conversations (figure B2.1.1, panel b). This alignment suggests that exposure indexes are not only theoretical measures of technological potential but actually help identify where AI use is already beginning to concentrate.

BOX 2.1 From exposure to usage: Validating AI occupational exposure scores (*continued*)**FIGURE B2.1.1 AI exposure is broadly correlated with AI usage across countries and occupations****A. Globally**

AI exposure (percent of workforce)

**B. By occupation in MENAAP countries**

AI exposure (AIOE score)



Sources: Anthropic Economic Index (February 5–12, 2026); Gmyrek et al. (2026); ONET 20.1 task-to-SOC mapping; Felten et al. (2021).

Note: In panel a, the y-axis shows the country-level share of employment that is exposed to AI from either augmentation (gradients 1 and 2) or automation (gradients 3 and 4), following Gmyrek et al. (2026). Dashed lines show the medians across the countries shown. Only countries with at least 200 sampled conversations are plotted. Panel b plots AI occupational exposure versus AI usage in 15 MENAAP countries, by occupation. Each data point represents one occupational category at the SOC major-group level (two-digit code). The x-axis (log scale) shows the share of task-classified Claude conversations attributed to each occupational group, computed as the country-level share averaged across MENAAP countries (each country is weighted equally). The y-axis shows the AIOE score from Felten et al. (2021), averaged across occupations within each major group. The dashed horizontal line shows the global median AI exposure across occupational groups. The dashed vertical line shows the international organization for standardization country codes available at <https://www.iso.org/obp/ui/#search>. AI = artificial intelligence; AIOE = AI Occupational Exposure; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; SOC = Standard Occupational Classification.

While this section focuses on occupational exposure to GenAI, current government deployment patterns are broader and differ substantially. Backend government AI applications across countries predominantly rely on predictive analytics and decision support tools rather than GenAI (World Bank 2026f). Consequently, estimates of exposure to GenAI should not be interpreted as a measure of the effects of all AI currently used in government processes.

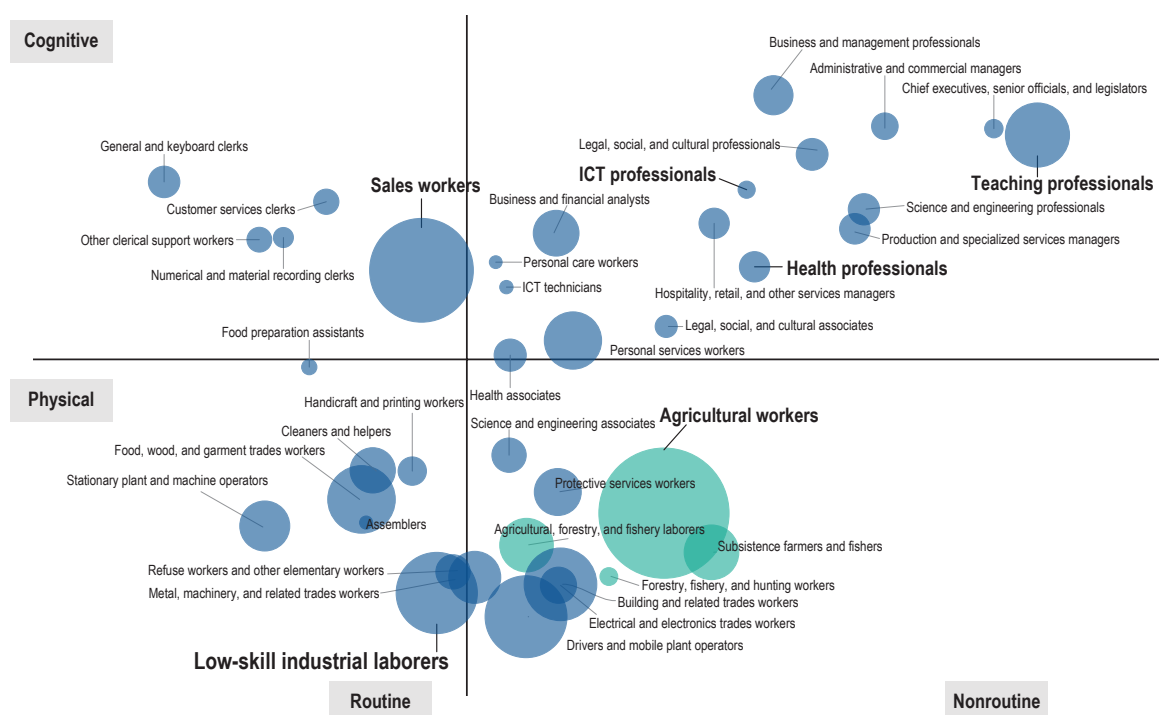
Which workers are most exposed?

AI exposure scores measure the technical feasibility of automating tasks through GenAI-based tools. The scores follow a task-based approach. The starting point is a representative sample of nearly 30,000 tasks drawn from Poland's six-digit

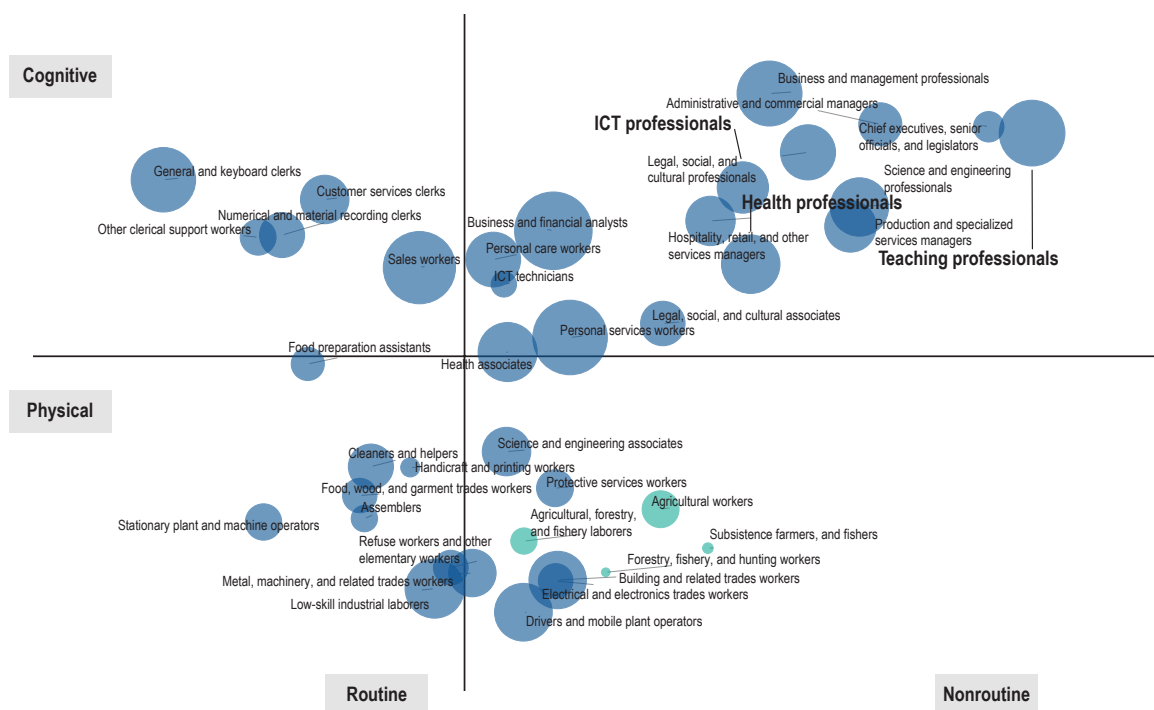
occupational classification system, aligned with the four-digit ISCO-08 framework (Gmyrek et al. 2026). AI exposure scores at the occupational level capture the average perceived technical feasibility of automating the tasks bundled within a given occupation using GenAI tools. These scores capture the technical reach of GenAI, not whether it will augment or automate work. A higher score indicates only that a larger share of an occupation's tasks could technically be performed or supported by GenAI. To reveal which characteristics are associated with higher AI exposure across countries in the region, occupational exposure scores are matched with individual-level microdata based on each respondent's reported occupation. Doing so allows for the analysis of the distribution of exposure across the workforce along socioeconomic and labor market dimensions within each country.

FIGURE 2.8 The workforce is less exposed to AI in MENAAP than in high-income economies, because of the larger share of manual jobs in the region

A. MENAAP employment across the physical/cognitive and routine/nonroutine spectrum



B. Employment in high-income economies across the physical/cognitive and routine/nonroutine spectrum



Sources: Arias et al. (2025); World Bank (2025).

Note: Green bubbles denote agriculture, forestry, and fishing occupations (ISCO-08 61, 62, 63, and 92). Bubble size is proportional to each occupation's share of classified civilian employment in MENAAP, computed as an employment-weighted average across 10 economies using the most recent ILO Labour Force Survey available from 2019 onward: Afghanistan (2021), Arab Republic of Egypt (2024), the Islamic Republic of Iran (2024), Iraq (2021), Jordan (2023), Lebanon (2019), Pakistan (2025), Tunisia (2021), United Arab Emirates (2022), and West Bank and Gaza (2025). Armed forces (ISCO 01–03) and workers with unknown occupation are excluded from both numerator and denominator. High-income economies include AUS (2024), AUT (2025), BEL (2024), CHE (2025), COK (2023), CYP (2024), CZE (2024), DEU (2024), DNK (2024), ESP (2024), EST (2024), FIN (2024), FRA (2024), GBR (2025), GRC (2025), HRV (2024), IRL (2024), ISL (2024), ISR (2024), ITA (2024), JPN (2023), KOS (2024), LTU (2024), LUX (2024), LVA (2024), MSR (2020), NIU (2022), NLD (2024), NOR (2024), PRT (2025), SGP (2024), SVK (2024), SVN (2024), SWE (2024), TKL (2022), USA (2025), and WLF (2019). International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>. AI = artificial intelligence; ICT = information and communications technology; ILO = International Labour Organization; ISCO = International Standard Classification of Occupations; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

BOX 2.2 AI and online work: Early disruption in MENAAP's digital services exports

The MENAAP region's integration into global digital services markets is an early test case for disruption driven by artificial intelligence (AI). The total global value of exports of digitally delivered services more than quadrupled between 2005 and 2024. In the region, the value of these exports increased by a factor of six, making digital services a significant growth vector for the region's middle- and low-income economies. The Arab Republic of Egypt and Pakistan are among the top five global suppliers of services on major online platforms across more than 2,700 skill areas (Betai and Chen 2026). That integration creates opportunity, but it also exposes workers directly to changes in global demand when AI substitutes for some outsourced tasks.

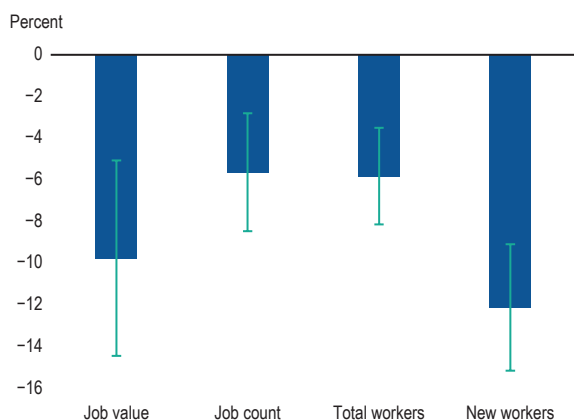
Since ChatGPT's launch, MENAAP workers in AI-substitutable online skills have seen demand for their labor fall, in both value and volume. The value of jobs requiring skills in the top quartile of AI substitutability

declined by 9.8 percent, and the number declined by 5.6 percent relative to the bottom quartile (figure B2.2.1, panel a). The contraction extends to worker participation: The number of active workers in a given skill category fell by 5.8 percent, and the number of new workers entering that skill category for the first time fell by 12.1 percent. The sharper decline among new entrants suggests that AI is compressing entry opportunities more severely than it is displacing established workers. These results should be interpreted alongside a mixed broader literature, in which some studies find positive effects of AI on services offshoring to developing countries through productivity gains (Stapleton and O'Kane 2021), while others find no measurable impact (Bastos and Nayyar, forthcoming).

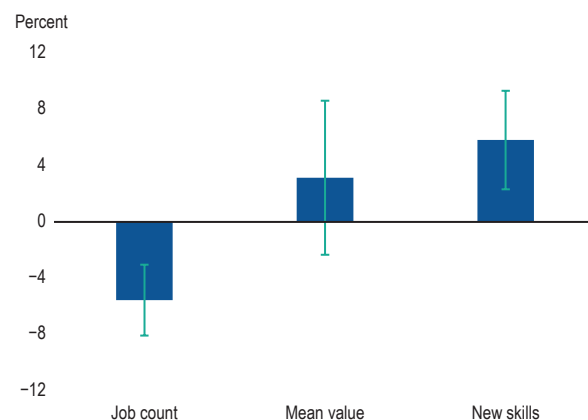
The evidence on outsourcing of digital services post-ChatGPT is not uniformly negative, as labor demand appears to be shifting toward higher-value tasks. Workers in AI-substitutable skill areas are completing fewer jobs, but they are earning more per job, suggesting

FIGURE B2.2.1 Demand for outsourcing of digital services in MENAAP declined after ChatGPT was introduced, 2022–24

A. Differences between digital services jobs at the top and bottom quartile of AI exposure scores after ChatGPT introduction



B. Differences between worker outcomes at the top and bottom quartile of AI exposure scores after ChatGPT introduction



Source: World Bank calculations based on data from Betai and Chen (2026).

Note: Figures show regression results for job and worker outcomes. The log of the outcome is regressed on an indicator for the introduction of ChatGPT on November 22, 2022, interacted with exposure scores. Data cover the period between January 2022 and December 2024. The coefficients are evaluated at the difference between the 75th percentile and 25th percentile of exposure scores in the respective samples. In panel a, regressions are run at the skill group level, with scores reflecting the skill's level of exposure. The "job value" is the sum of payments on all completed jobs in a skill category completed by individuals in MENAAP countries. "Job count" is the total number of completed jobs in a skill category by individuals in MENAAP. "Total workers" is the number of workers who completed at least one job that was posted in a skill subcategory in a given week. "New workers" refers to the number of active workers who did not complete any job in a skill category before the given week. Regressions include skill area and year-week fixed effects. In panel b, regressions are run at the worker level; scores reflect each worker's level of exposure, based on the maximum exposure to AI across all jobs performed by the worker before the introduction of ChatGPT. "Job count" is the total number of jobs completed by a continuing worker, defined as someone who, in a given week, completed at least one job and had completed jobs before that week. "Mean value" is the average value of all completed jobs by a continuing worker. "New skills" is the number of skill categories in which a continuing worker performs jobs for the first time. Regressions include individual and country-time fixed effects. AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

BOX 2.2 AI and online work: Early disruption in MENAAP's digital services exports (*continued*)

that international clients continue to outsource more complex tasks and are willing to pay a premium for them (Betai and Chen 2026; figure B2.2.1, panel b). MENAAP workers are also adapting to the changing nature of online work following the introduction of ChatGPT. Relative to workers in the bottom quartile

of substitution exposure, workers in the top quartile added new skills to their portfolios at a 6 percent higher rate after the introduction of ChatGPT. Workers who diversify their skills may, therefore, be better positioned to offset earning losses—a sign of adaptive capacity that policy could support and scale.

Aggregate exposure figures tell only part of the story. Exposure varies significantly by education, location, gender, sector, and employment status. The analysis estimates economy-specific regressions for Egypt, the Islamic Republic of Iran, Jordan, Morocco, Pakistan, Tunisia, and the West Bank and Gaza, relating occupational AI exposure scores to gender, urban status, sector, education, and employment status while controlling for observable worker characteristics.³

Urban and more educated workers are more exposed to AI across all seven economies. This finding reflects the concentration of cognitive and administrative occupations in cities and among workers with higher levels of education (figure 2.9, panels b and d). Pakistan has the highest estimated coefficient for tertiary-educated workers, suggesting that tertiary graduates there are especially concentrated in cognitive occupations with high AI exposure. Morocco's lower coefficient for tertiary-educated workers suggests that its tertiary graduates are less concentrated in cognitive-intensive occupations exposed to AI.

Gender differences in AI exposure depend on whether women are concentrated in high-exposure occupations. In Egypt, the Islamic Republic of Iran, Morocco, and the West Bank and Gaza, women are disproportionately represented in such occupational groups, including clerical support, information and communications technology (ICT),

and business and administration roles. Women in Jordan and Tunisia are less concentrated in these highly exposed occupations. Women in Pakistan are less exposed overall, because they are disproportionately employed in occupations that are comparatively protected from AI exposure, including craft and related trades; elementary occupations; and skilled agricultural, forestry, and fishery work (figure 2.9, panel a).

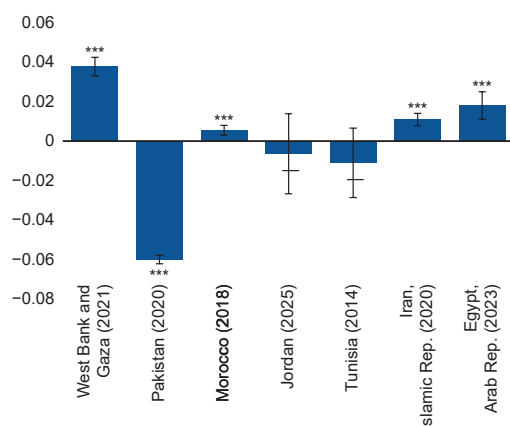
AI-exposed occupations are often concentrated in government and public enterprises. This pattern is especially visible in Egypt, the Islamic Republic of Iran, Morocco, Pakistan, the West Bank and Gaza, and, to a lesser extent, Jordan, where high-exposure clerical, ICT, and professional occupations are heavily represented in the public sector (figure 2.9, panel c).

The magnitude and direction of exposure depends on individuals' employment status. Self-employed workers and employers face higher AI exposure in Egypt, Morocco, Pakistan, Tunisia, and the West Bank and Gaza, likely because many are concentrated in exposed clerical, professional, ICT, business administration, and managerial occupations. Unpaid family work is more heterogeneous: It is negatively associated with exposure in Egypt, the Islamic Republic of Iran, and Morocco but positively associated with exposure in Pakistan and Tunisia. These differences reflect cross-country variation in occupational composition. Exposure is higher where nonwage work is linked to professional and administrative tasks and lower where it is concentrated in crafts, elementary, agricultural, forestry, and fishery occupations (figure 2.9, panel e).

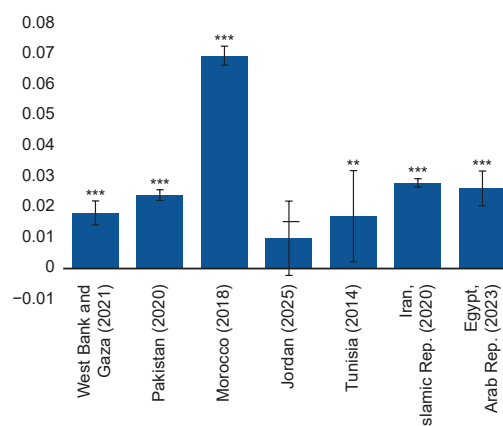
³Coefficients are interpreted relative to the omitted category: male (panel A), rural (panel B), private sector (panel C), basic education (panel D), and wage employment (panel E).

FIGURE 2.9 Educated, urban, and nonwage workers dominate AI-exposed occupations**A. By gender**

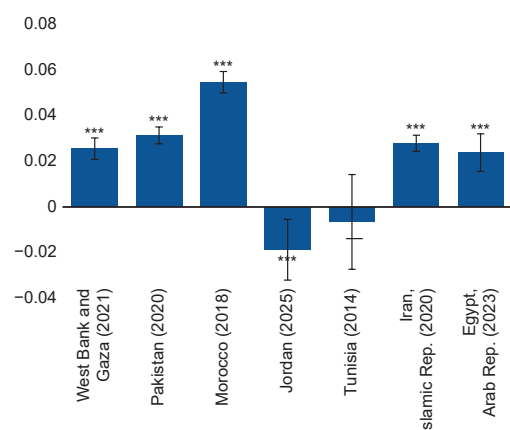
Coefficient estimates of female vs. male

**B. By urban or rural setting**

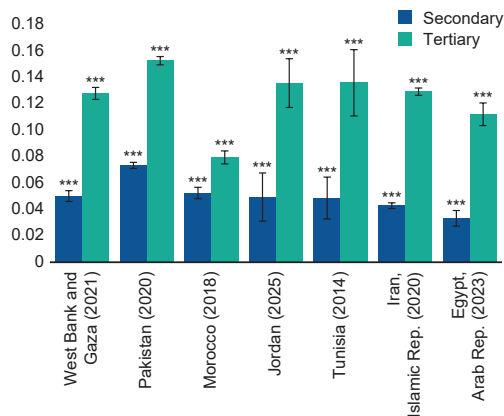
Coefficient estimates of urban vs. rural

**C. By sector**

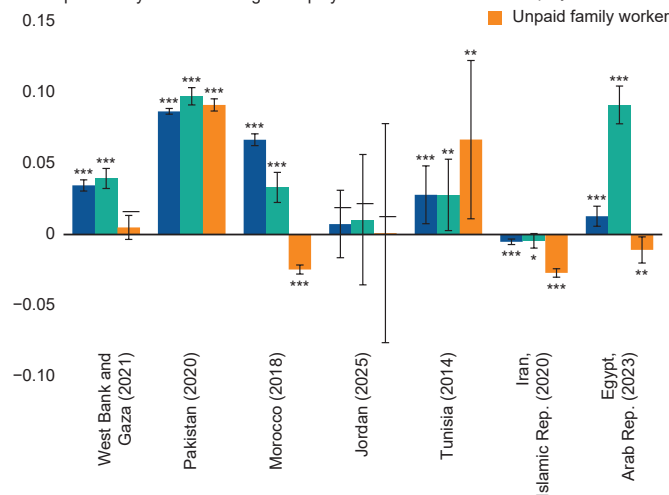
Coefficient estimates of public sector vs. private sector

**D. By education**

Coefficient estimates of secondary and tertiary education vs. basic education

**E. By employment status**

Coefficient estimates of self-employed, employer, and unpaid family worker vs. waged employee



Source: World Bank calculations using individual-level data from publicly available labor market panel surveys. Labor force surveys are sourced from the Economic Research Forum ERF Microdata Portal and national statistics offices.

Note: The sample includes all individuals ages 15–64. The latest survey collection years are in parentheses. Regressions are estimated separately by economy using individual survey weights and include controls for urban status, gender, age, age squared, education, employment status, sector, and governorate fixed effects (which correspond to the largest administrative units). Economies appear in ascending order of GDP per capita, PPP (constant 2021 international dollars) in 2025. Whiskers denote 95 percent confidence intervals based on robust standard errors. AI = artificial intelligence; PPP = purchasing power parity. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Productivity gains from AI: A concentrated and uneven dividend

The productivity effects of AI depend on whether augmentation potential translates into measurable economic gains. The augmentation potential documented in the previous section unfolds against a sharply uneven distribution of economic gains from AI. The question is not only whether AI can raise productivity but which countries and workers are positioned to capture those gains.

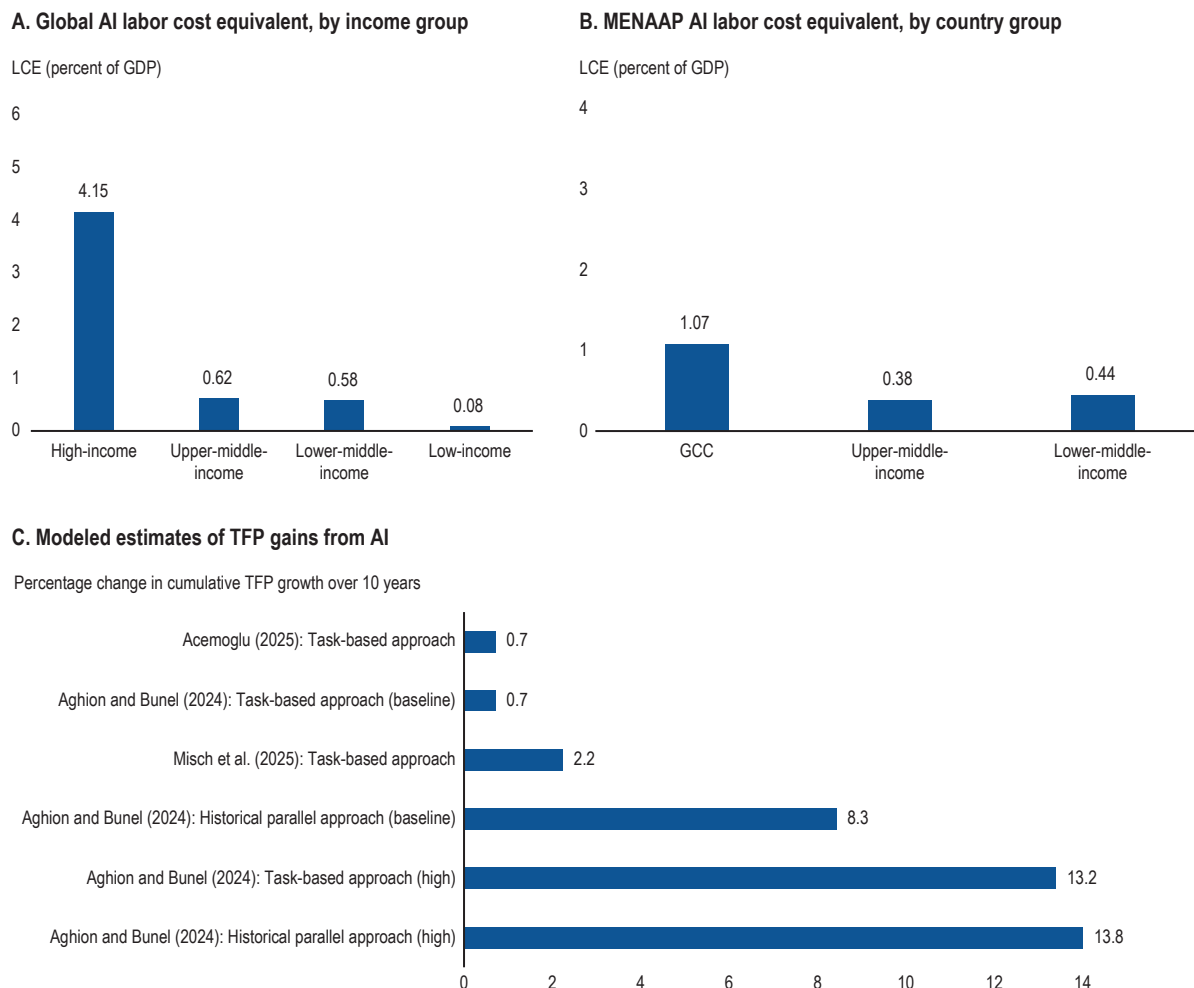
The economic footprint of AI can be measured by the value of labor time AI tools already substitute or augment. Fan and Nguyen (2026) estimate this footprint through a labor cost equivalent (LCE)—the annual labor cost of performing the same tasks that AI conversations currently handle, priced at country-specific occupation wages and scaled across AI platforms. The estimates use Anthropic’s publicly available sample of 1 million Claude conversations, released in February 2026, covering more than 100 countries. A key limitation is that Claude users may not be representative of the broader AI-user population, globally or within MENAAP. The sample could overrepresent highly educated and knowledge-intensive users, potentially biasing estimates of productivity gains upward. The LCE should also be read as a partial-equilibrium indicator of AI’s current productive footprint, not as a forecast of net labor market effects, because it holds employment and wages fixed and does not account for displacement, wage adjustment, or reallocation of freed time.

AI’s measured productivity gains are concentrated in high-income countries. These economies capture far more of the value of AI-enabled time savings than middle-income countries, and middle-income countries capture more than low-income countries. The LCE amounts to approximately 4.2 percent of GDP in high-income countries, 0.6 percent in upper-middle-income countries, and 0.1 percent in low-income countries (figure 2.10, panel a). Concentration is also evident within the high-income group, in which the United States accounts for the largest share of LCE. The global pattern

suggests that gains are concentrated at the frontier and taper sharply with income and AI usage intensity.

Within MENAAP, the same concentration of gains appears, but the region’s wealthiest economies capture a fraction of the gains when compared with global income peers. AI’s measured gains relative to GDP are highest in the Gulf economies, with the United Arab Emirates standing out. Its LCE-to-GDP ratio approaches that of high-income economies such as Germany and the United Kingdom (figure 2.10, panel b). Saudi Arabia has a large LCE in absolute terms because of the size of its economy, but its ratio is below that of other high-income economies and close to the region’s middle-income economies. Outside the Gulf, measured gains are smaller and more dispersed. In absolute terms, they are concentrated in populous economies such as Algeria, Iraq, and Pakistan. The ratio is somewhat higher in smaller economies, such as Lebanon and Tunisia. Egypt, despite its large population, records both a low absolute LCE and a low ratio to GDP. The non-GCC middle-income economies—both upper- and lower-middle income—record similarly low ratios, suggesting that income classification alone does not determine the AI dividend.

AI productivity gains are also unequal within countries. The first beneficiaries of AI productivity gains are high-paid, higher-skilled workers in knowledge-intensive occupations—software engineers, data analysts, financial professionals, lawyers, and consultants—who make up a small share of total employment. As the use of AI spreads into lower-paid occupations that employ more people—in teaching, sales, and office work, for example—the gains can broaden across the workforce. Higher-income economies tend to be farther along this diffusion path. In many developing economies, including much of MENAAP, AI use remains confined to a narrow professional core, so gains remain concentrated among workers who are already better positioned to benefit (Fan and Nguyen 2026). Lower-income MENAAP economies, therefore, face a double disadvantage. They capture only a small share of the region’s measured AI gains,

FIGURE 2.10 AI productivity gains are concentrated in high-income countries

Sources: World Bank calculations based on Aghion and Bunel (2024); Acemoglu (2025); Misch et al. (2025); and Fan and Nguyen (2026).

Note: Panel a covers the 86 economies for which direct ILO occupational-wage data were available (39 high-income, 20 upper-middle-income, 21 lower-middle-income, and 6 low-income). Panel b covers 15 MENAAP economies (all six GCC members; two non-GCC upper-middle-income countries (Algeria and Iraq); and seven non-GCC lower-middle-income economies (Arab Republic of Egypt, Jordan, Lebanon, Morocco, Pakistan, Tunisia, and the West Bank and Gaza). Low-income MENAAP economies are excluded due to a lack of data. GCC = Gulf Cooperation Council; ILO = International Labour Organization; LCE = labor cost equivalent; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; TFP = total factor productivity.

and those gains reach a narrow group of higher-paid workers rather than the broader workforce.

Modeled estimates of AI's total factor productivity (TFP) gains remain imprecise. Most estimates come from high-income settings that likely overstate what most middle-income economies can capture. Cumulative 10-year estimates of TFP gains range from below 1 percent to nearly 14 percent depending on the country, methodology, and assumptions about how deeply AI affects tasks (figure 2.10, panel c). This wide range reflects both the early stage of AI diffusion and uncertainty about whether AI will remain concentrated in a narrow set of tasks or reorganize work more broadly. At the upper end,

historical parallels for the United States imply cumulative TFP gains of 13.8 percent over a decade under the European electricity wave of the 1920s benchmark and 8.3 percent under US digital technology wave of the late 1990s and early 2000s benchmark (Aghion and Bunel 2024). A task-based approach that assumes broader AI exposure than Acemoglu's framework yields cumulative TFP growth of 13.2 percent; applying more conservative assumptions reduces the estimate to 0.7 percent (Acemoglu 2025; Aghion and Bunel 2024). A middle-ground estimate for 31 European countries points to about 2.2 percent cumulative TFP growth over a decade (Misch et al. 2025). At the lower end, a framework in which aggregate productivity gains depend on

the share of tasks affected by AI and average task-level cost savings estimates no more than 0.7 percent cumulative TFP growth over 10 years for the United States (Acemoglu 2025). Because these estimates are drawn from Europe and the United States, they likely represent an upper bound for most MENAAP economies, where AI integration, institutional readiness, physical infrastructure, and the share of knowledge-intensive tasks are much lower.

From augmentation potential to productivity gains: Three structural gaps

AI augmentation is the main pathway through which MENAAP workers could benefit from AI, but productivity gains are not automatic. Converting augmentation potential into broad-based productivity gains requires AI tools that fit the region's languages and business contexts, firms and governments that use them intensively to reorganize work, and workers who have the human and physical capital needed to use them productively.

Three structural gaps stand between MENAAP workers and the AI productivity dividend: localization, usage, and foundational human and physical capital gaps. The localization gap means that dominant AI tools remain poorly calibrated to MENAAP's languages, data environments, and business contexts. The usage gap means that AI use remains limited at three levels: Individuals use AI less intensively than income peers, firms adopt it only shallowly, and governments vary widely in their readiness to deploy AI for public service delivery. The foundational gap means that many workers lack the digital skills, AI talent, and creative thinking capacities and economies lack reliable broadband and electricity infrastructure required for AI to generate broad-based productivity gains.

These gaps compound one another, turning separate constraints into mutually reinforcing barriers to AI-driven productivity gains. Poorly localized AI tools reduce widespread adoption, because they do not fit the region's languages, data environments, or business contexts. Shallow usage then prevents

firms and governments from reorganizing work around AI in ways that could raise productivity. Workers who lack the necessary human and physical capital cannot offset weak localization or limited adoption. Unlocking AI's productivity gains, therefore, requires progress on all three gaps at once.

The localization gap: Why frontier AI falls short for MENAAP workers

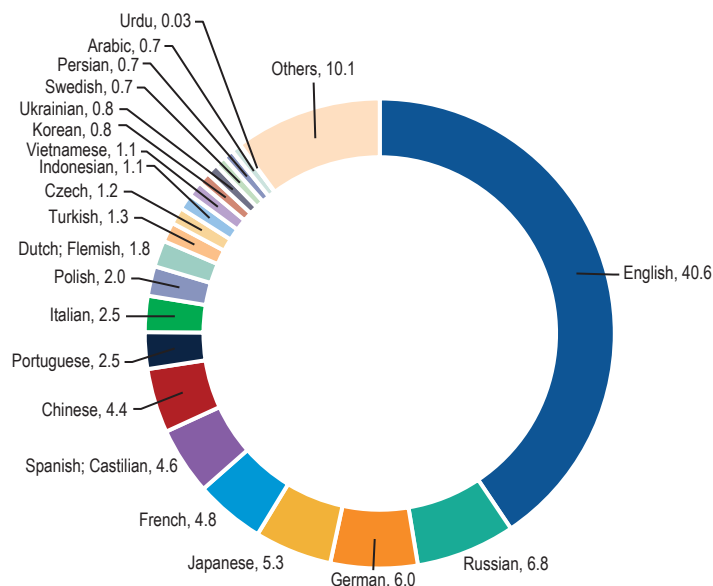
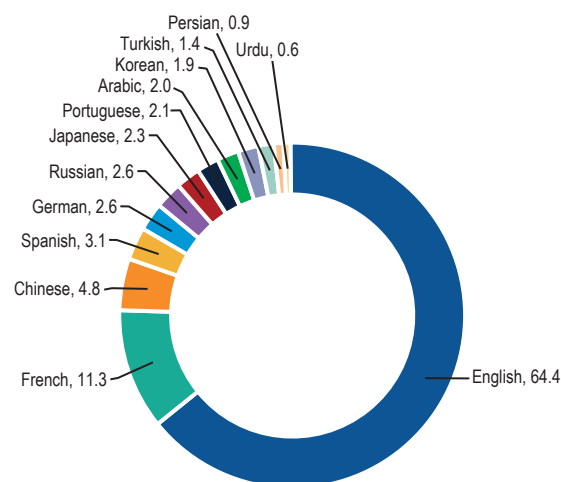
The localization gap limits AI's productivity dividend because tools must fit the region's languages, institutions, and ways of working to improve the productivity of workers and firms. AI systems are highly sensitive to local context, as their outputs reflect the data, languages, and institutional settings on which they are trained and adapted (World Bank 2026f). Language is the most measurable part of this gap. Main MENAAP languages like Arabic, Persian, and Urdu remain underrepresented in AI training data. Arabic dialect diversity creates additional performance challenges for workers whose tasks rely on spoken varieties rather than Modern Standard Arabic (MSA). The gap also extends beyond language. Limited structured and AI-ready data in legal, financial, health, administrative, and labor market records makes it harder to calibrate AI tools to MENAAP's institutions, regulations, and occupational structures.

Where AI learns: Regional languages remain underrepresented

Realizing the full potential of AI requires that solutions be suited to the local contexts in which they are deployed. AI systems learn from the data on which they are trained (Liu and Wang 2026). Models trained predominantly on English-language Internet data risk embedding algorithmic biases or generating recommendations that conflict with local norms, cultures, and regulations (World Bank 2026f).

The localization gap begins with language. Arabic, Urdu, and Persian appear only marginally in both the raw web data that feed frontier models and the curated datasets used by developers to build and adapt them.

Arabic illustrates the scale of this underrepresentation most clearly. Although it is spoken by over

FIGURE 2.11 Regional languages are underrepresented in AI training data**A. Main languages of global URLs, July 2026****B. Main languages of open-source AI-training datasets on Hugging Face, July 2026**

Sources: Common Crawl, Statistics of Monthly Web Crawl Archives, CC-MAIN-2026-30 (July 2026), <https://commoncrawl.github.io/cc-crawl-statistics/plots/languages>; OECD.AI (2026), data from Hugging Face, Training Datasets by Language and Type (July 2026), <https://oecd.ai/en/data?selectedArea=ai-models-and-datasets&selectedVisualization=open-training-datasets-by-language-and-type>.

Note: Language identification in panel a is based on the crawler's primary language classification per page. In panel b, training datasets include both monolingual and multilingual datasets. The underlying data from the OECD sum to more than 100 percent; data in the figure were renormalized to sum to 100 percent. For details, see the OECD.AI methodological note. AI = artificial intelligence; OECD = Organisation for Economic Cooperation and Development; URLs = Uniform Resource Locators.

500 million people, Arabic accounts for only 0.7 percent of global URLs collected by Common Crawl in July 2026, the primary web dataset used to train many frontier AI models. Persian accounts for 0.7 percent of crawled URLs and Urdu for just 0.03 percent (figure 2.11, panel a). The imbalance is evident in curated open-source AI training datasets hosted on Hugging Face, where Arabic represents 2.0 percent of datasets, Persian 0.9 percent, and Urdu 0.6 percent, compared with 64.4 percent for English, 11.3 percent for French, and 4.8 percent for Chinese (figure 2.11, panel b). Even after normalizing for population size, English yields 4.3 percent of AI representation per 100 million speakers, while Arabic yields 0.4 percent, Persian 1.1 percent, and Urdu 0.3 percent (figure 2.11).⁴

Frontier models are trained on a corpus in which MENAAP languages remain peripheral. Regional

languages are underrepresented relative to their real-world prevalence in both the raw web data that feed model training and the curated datasets used for model development and fine-tuning (figure 2.11, panels a and b). This underrepresentation matters because language coverage shapes the quality of AI outputs, especially for workers who rely on Arabic, Persian, or Urdu for professional, public service, and everyday tasks.

How AI performs: Frontier models improve, but gaps persist

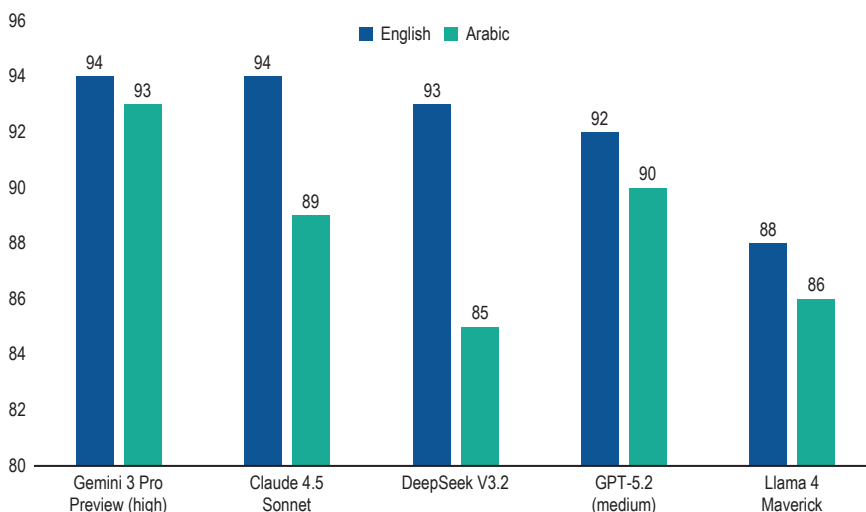
Arabic performance gaps in global frontier models are measurable but relatively narrow on broad multilingual benchmarks. The Multilingual AI Model Benchmark from Artificial Analysis compares the performance of the same global frontier models in English and Arabic across reasoning, knowledge, mathematics, and programming tasks (figure 2.12, panel a). The results show that frontier models generally perform better in English than in Arabic, but the gaps are mostly small in magnitude. This finding suggests that global models are improving

⁴The total number of English speakers (1.51 billion) includes English, Ghanaian Pidgin English, and Liberian English, as listed in the Ethnologue Top 200 List. Speaker counts of Urdu (246.0 million) and Persian (82.5 million) are sourced from the same list.

FIGURE 2.12 Arabic LLM capabilities are improving in global frontier models and in regional native models

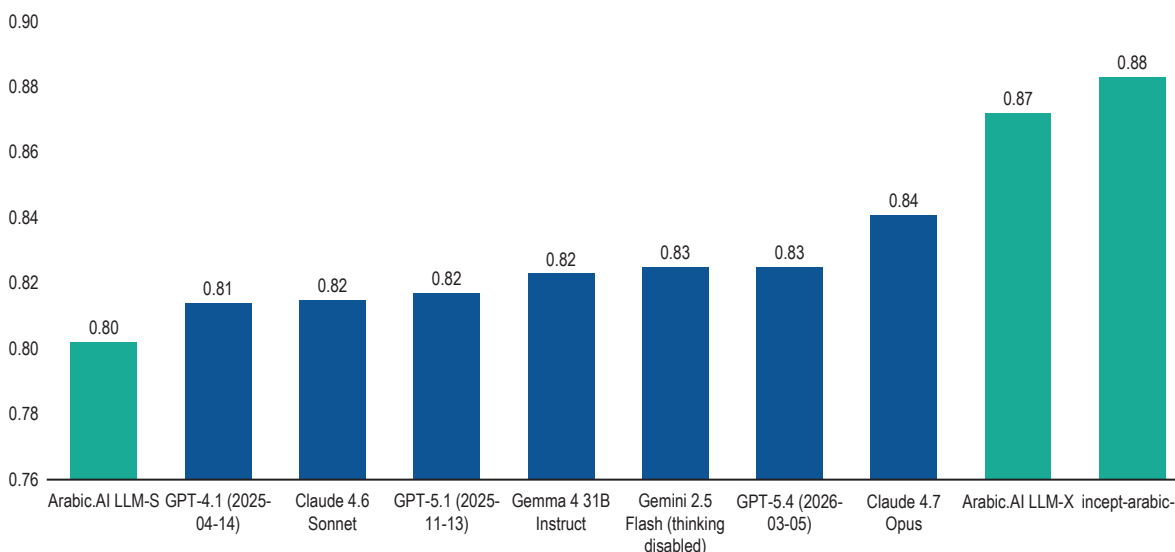
A. Multilingual AI model benchmark

Artificial Intelligence Multilingual Index score



B. HELM Arabic Language benchmark

Average score on HELM Arabic Language benchmark



Sources: Multilingual AI Model Benchmark, Artificial Analysis; HELM Arabic (Release v2.1.0, 2026-06-15). Center for Research on Foundation Models, HAI, and Arabic.AI (<https://crfm.stanford.edu/helm/arabic/latest/>).

Note: The Artificial Intelligence Multilingual Index shown in panel a combines a comprehensive suite of evaluation datasets to assess language model capabilities across reasoning, knowledge, math, and programming. It compares the performance of frontier models in English and Arabic. The higher the index, the better the performance. The HELM Arabic Language shown in panel b is an extension of the HELM, a leaderboard for transparent and reproducible evaluation of LLMs on Arabic-language benchmarks developed by the CRFM at Stanford HAI in collaboration with Arabic.AI. The leaderboard builds on a collection of established Arabic-language evaluation tasks that are widely used in the research community, covering seven benchmarks: (1) AIGHafa, a multiple-choice evaluation benchmark derived from publicly available NLP datasets; (2) ArabicMMLU, a native Arabic question-answering benchmark sourced from school exams across North Africa, the Levant, and the Gulf regions; (3) Arabic EXAMS, the Arabic subset of the EXAMS multilingual benchmark consisting of high school exam questions across various subjects; (4) MadinahQA, a benchmark published by MBZUAI testing knowledge of Arabic language and grammar; (5) AraTrust, an Arab-region-specific safety evaluation dataset with human-written questions including direct attacks, indirect attacks, and harmless requests with sensitive words; (6) ALRAGE, a passage-based, open-ended, model-graded question-answering benchmark reflecting retrieval-augmented generation use cases; and (7) ArbMMLU-HT, a human translation of MMLU into Arabic published by MBZUAI. Each test is graded on a scale of 0 to 1; the mean score is the simple average across the seven benchmarks. AI = artificial intelligence; CRFM = Center for Research on Foundation Models; HAI = Stanford Institute for Human-Centered Artificial Intelligence; HELM = Holistic Evaluation of Language Models; LLM = large language model; MMLU = Massive Multitask Language Understanding; NLP = natural language processing.

on Arabic-language tasks, even though English remains the stronger language of performance.

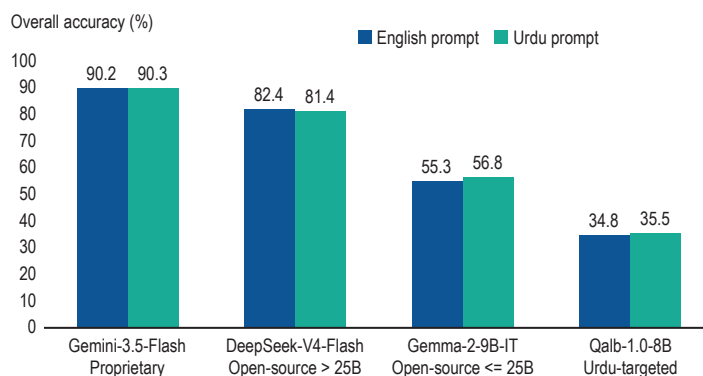
When evaluated directly on Arabic-language tasks, purpose-built regional models tend to outperform global frontier models. The HELM Arabic Language benchmark holds the language constant and assesses performance across seven Arabic-language tasks covering comprehension, reasoning, knowledge, language proficiency, safety, and question answering (figure 2.12, panel b). On this benchmark, leading global frontier models (GPT, Claude, and Gemini) score between 0.81 and 0.84. The two highest-scoring models are regionally developed Arabic-specific models, *incept-arabic-1* at 0.88 and *Arabic.AI LLM-X* at 0.87.⁵ These results suggest that purpose-built Arabic models can close, and in some cases surpass, the performance of global incumbents on Arabic tasks.

Urdu evidence suggests that frontier models are narrowing broad language performance gaps but that gaps remain in Urdu-centered humanities content. On the UrduMMLU benchmark, the prompt language has only a marginal effect on overall performance: Frontier models perform similarly when prompted in English and Urdu, suggesting that the largest language access gap is beginning to close (Tabassum et al. 2026; figure 2.13, panel a). Accuracy is lower on humanities subjects than on science, technology, engineering, and math (STEM) tasks under Urdu prompts, indicating that frontier models lack sufficient exposure to culturally and linguistically specific content even when their general multilingual capabilities appear strong (figure 2.13, panel b).

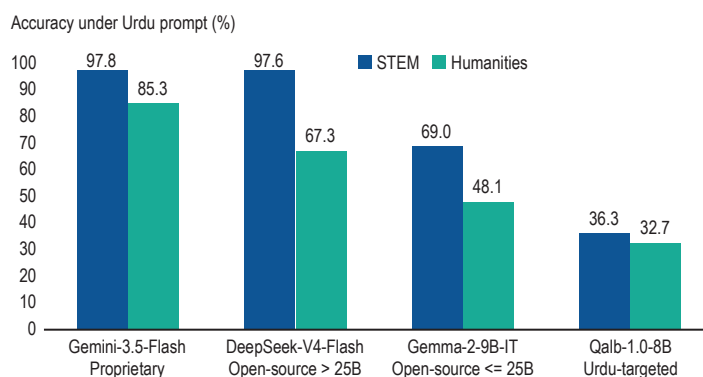
Many workplace interactions occur in dialect rather than MSA. Seventeen Arabic dialects rank among the world's top 200 languages; Egyptian Arabic alone is spoken by approximately 120 million people worldwide (figure 2.14, panel a). Although many business applications—such as customer-facing interactions, including call centers, retail, public services, and voice interfaces—take place in dialectal Arabic, AI tools are trained predominantly

FIGURE 2.13 Frontier models perform similarly well under English and Urdu prompts but remain less accurate for Urdu-centered humanities subjects

A. Overall accuracy under English and Urdu prompts



B. STEM and humanities accuracy under Urdu prompt



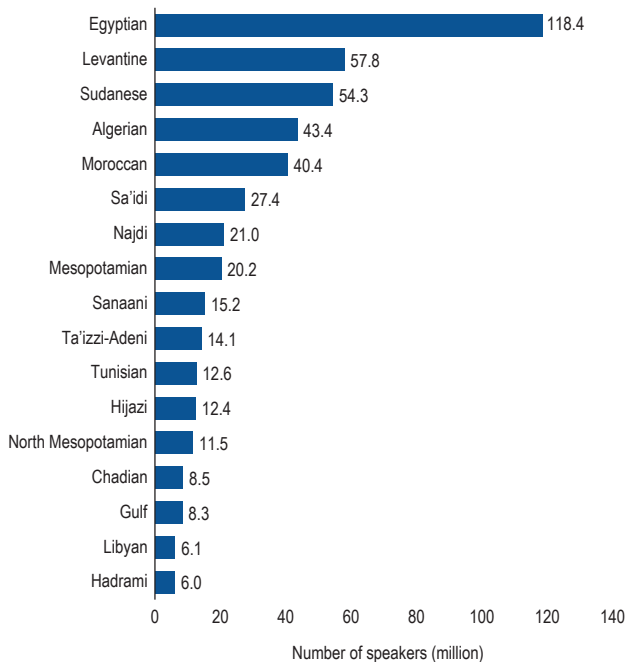
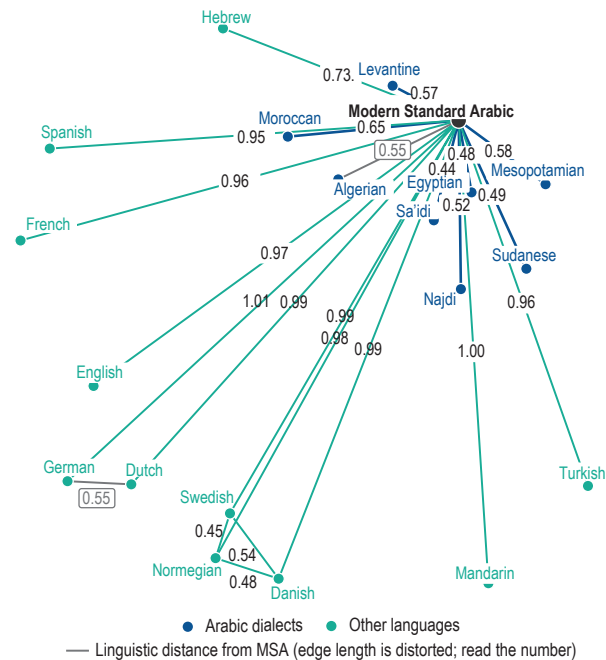
Sources: Tabassum et al. (2026); UrduMMLU (<https://arxiv.org/html/2606.07167v1>).

Note: UrduMMLU covers both standard academic subjects and Urdu- and region-specific content. STEM = science, technology, engineering, and math.

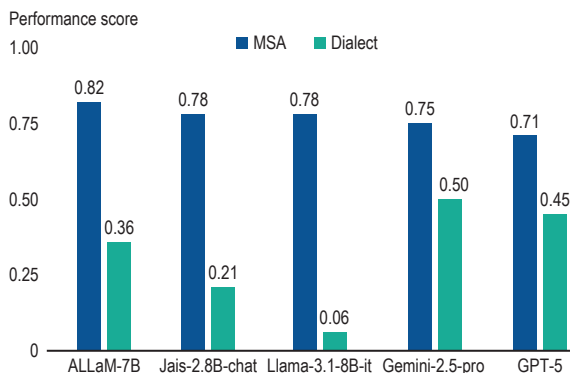
on MSA. The gap is not merely stylistic: Arabic dialects function as the primary spoken language of entire countries, and the linguistic distance between MSA and some dialects is large. The distance between MSA and Algerian Arabic is similar to the distance between German and Dutch, for example (figure 2.14, panel b). Model performance can, thus, deteriorate sharply in dialectal settings.

Dialectal Arabic remains a major blind spot for both frontier and regional LLMs because models trained primarily on MSA lose accuracy when asked to operate in dialects. Recent evidence compares how accurately LLMs can steer generated text into either MSA or a specific Arabic dialect (figure 2.15). The results show substantial degradation in accuracy for both frontier models and regional LLMs across

⁵Arabic.AI LLM-X and Arabic.AI LLM-S are developed by Arabic.AI, which has regional offices in Amman, Dubai, and Riyadh. Incept Arabic is developed by Inception, based in Abu Dhabi.

FIGURE 2.14 Millions of people speak Arabic dialects, which are often as different as some European languages**A. Number of speakers of Arabic dialects****B. Linguistic distance between MSA, dialects, and major languages**

Sources: Ethnologue (Eberhard, Simons, and Robinson 2026), (<https://www.ethnologue.com/insights/ethnologue200/>); ASJP Database v21 (2025, <https://zenodo.org/records/16736409>).
 Note: Panel b displays the LDND (Bakker et al. 2009; Holman et al. 2008) for selected languages. It compares the words for 40 basic concepts in each pair of languages, counts how many letter changes turn one word into the other, and corrects for the similarity two unrelated languages would show by chance. A value near 0 means the words are the same; a value near 1 means the two languages are no closer than unrelated ones. Word lists come from the ASJP Database v21 (Wichmann et al. 2025). Borrowed words flagged in ASJP are left out. Each language is represented by its standard-variety word list; where ASJP has more than one, the distance is the average over all pairs. MSA is the 40-item STANDARD_ARABIC_2 list. Points are placed by metric multidimensional scaling of the full distance matrix. Because a two-dimensional picture cannot reproduce all distances exactly (the average error is about 25 percent), the numbers on the edges, not their lengths, give the true distance. ASJP = Automated Similarity Judgment Program; LDND = Levenshtein Distance Normalized Divided; MSA = Modern Standard Arabic.

FIGURE 2.15 Frontier and native regional LLMs are less accurate in dialectal Arabic than in MSA

Source: Al Kautsar et al. (2026).

Note: The bars display the accuracy of global frontier models and regional native models in steering generated text into either MSA or a specific Arabic dialect. LLMs = large language models; MSA = Modern Standard Arabic.

13 countries in North Africa, the Levant, and the Gulf (Al Kautsar et al. 2026). This pattern reflects the marginality of Arabic dialects in the data that

feed AI training and reinforces the broader localization challenge. Models may perform well in formal Arabic while remaining less reliable for workers whose jobs depend on spoken dialects, especially in customer service, sales, retail, public services, and other interaction-intensive occupations.

Beyond language: Local data are the next binding constraint

AI tools can serve MENAAP markets only when they learn from local contexts, institutions, workers, and users. Public or business data systems across the region remain fragmented, and many of the administrative records that matter for AI adaptation—including court rulings, land registries, health statistics, business registries, and labor market records—are not yet digitized, standardized, or publicly accessible at scale (World Bank 2026f). Evidence suggests that countries with stronger national statistical systems tend to use AI more intensively (box 2.3).

BOX 2.3 Data readiness and AI use in MENAAP

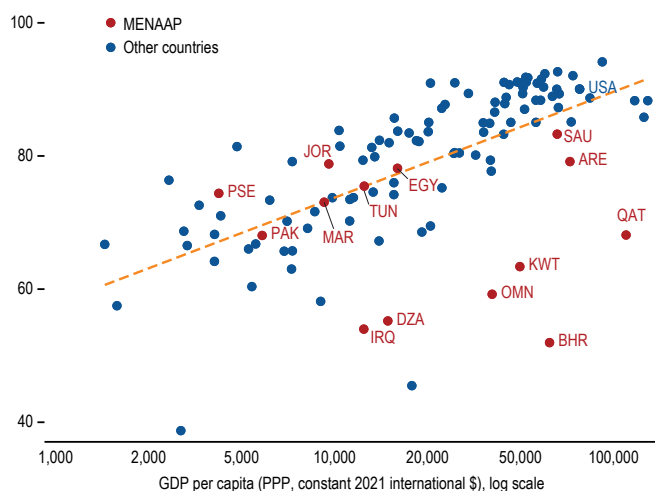
National statistical systems are one measure of whether countries have the local data foundations needed to adapt artificial intelligence (AI) tools to the MENAAP region's contexts. The World Bank's Statistical Performance Indicators (SPI) scores national statistical systems on a scale of 0–100 across five pillars: data use, data services, data products, data sources, and data infrastructure (Stacy and Serajuddin 2024). Statistical capacity generally rises with income, but most MENAAP economies sit below their income group benchmarks. The shortfall is especially visible in the Gulf, where Bahrain, Kuwait, Oman, and Qatar each score more than 20 points below their income peers.

The data use pillar is closest to what AI systems need. It shows a particularly wide gap across MENAAP. It measures whether official statistics are usable by international organizations to produce core indicators such as poverty rates, child mortality, and labor force participation. It is a proxy for whether analytical systems can reliably draw on a country's data. Twelve of the 14 MENAAP economies fall below their income peers on this pillar, with several Gulf economies score near the bottom of the scale despite high income levels (figure B2.3.1, panel a).

FIGURE B2.3.1 Economies with stronger national statistical systems use AI more

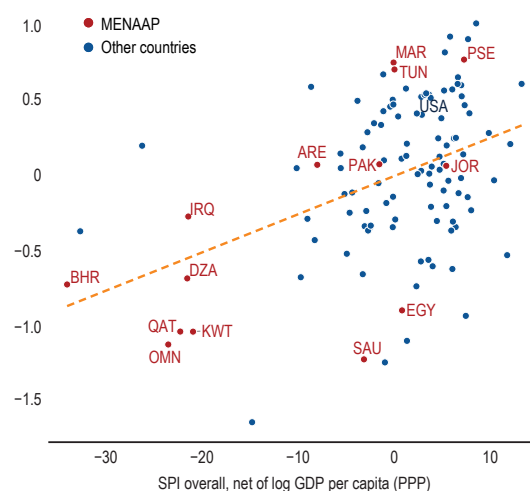
A. SPI performance and income

SPI overall score



B. AI usage and SPI performance, controlled for income

Log AI usage index, net of GDP per capita (PPP)



Sources: Anthropic Economic Index (February 5–12, 2026) and World Bank.

Note: SPI scores are for latest year available (2024 for nearly all). Red markers denote MENAAP economies, and blue markers denote other economies; the dashed line shows the fitted linear trend. AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity; SPI = Statistical Performance Indicators. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

Countries with stronger national statistical systems tend to use AI more intensively, suggesting that data readiness is associated with AI diffusion beyond income levels. Across economies, AI usage rises with both the overall SPI score and the data use pillar, with the relationship holding even after controlling for GDP per capita. Morocco, Tunisia, and the West Bank and Gaza

perform better than income peers on national statistical capacity and use AI more intensively (figure B2.3.1, panel b). By contrast, most Gulf Cooperation Council countries except the United Arab Emirates fall in the lower-left quadrant, combining weaker data system performance with lower AI usage than their income levels would suggest.

AI tools calibrated with data from high-income economies can generate outputs that do not fit MENAAP's legal, cultural, and institutional contexts. Legal templates, compliance frameworks, financial models, and human resource processes built for high-income economies may be culturally inappropriate or legally irrelevant in the region (World Bank 2026f). A small business owner in Amman navigating local tax regulations, a teacher in rural Tunisia designing lessons for a national curriculum, or a farmer in Pakistan seeking agricultural advice all face the same problem: The tool may be technically capable, but it was not built based on their data environment, institutions, or occupational structures.

The JobMatch.ps platform shows how foreign training data can weaken AI performance even when the underlying system is technically sophisticated. Developed by the Palestinian Ministry of Labor, with support from the Belgian Development Agency (Enabel), the platform uses machine learning and natural language processing to match job seekers to vacancies through multidimensional proximity scores across skills, qualifications, experience, and competencies. Its early experience exposed a direct data problem: The initial model was trained largely on European labor market data, reflecting the Belgian partner's institutional context rather than local labor market realities. Differences in occupational structures, credential systems, language usage, and labor market dynamics reduced matching accuracy in the context of the West Bank and Gaza (annex 2A).

The lesson from JobMatch.ps is that closing the data gap requires deliberate local calibration, not simply importing AI systems developed externally. An AI system built on foreign training data will significantly underperform in a labor market it was not designed for, even when the model itself is advanced. Improving performance, therefore, requires investment in local data collection, local calibration and validation, and institutional partnerships.

The SDAIA case study, in annex 2A, shows how national data infrastructure can turn fragmented government records into a foundation for AI development and public service delivery. SDAIA's flagship platforms are the National Data Bank and the Data Marketplace. The National Data Bank applies

a “single source of truth” principle to government data: Rather than each ministry maintaining its own version of core datasets on citizens, businesses, or land, data are held centrally and accessed by agencies through automated sharing protocols. The Data Marketplace complements this architecture by facilitating controlled data exchange, including between public and private actors, allowing private companies to access government datasets for innovation and service development under defined terms, such as data-sharing agreements.

The SDAIA case, in annex 2A, shows how data quality, interoperability, and regular updating are not administrative details but core inputs to reliable AI systems. By centralizing data under a managed infrastructure, SDAIA reduced the fragmentation and duplication that typically constrain AI adoption in large bureaucracies. In Saudi Arabia, data infrastructure is part of the localization agenda: AI systems can be adapted to national institutions, public services, and firms only if they are trained, tested, and deployed on data that reflect local realities.

The usage gap: Limited diffusion across individuals, firms, and governments

The second structural gap is usage. AI use remains limited across three levels: Individuals use AI less intensively than those in income peers, firms adopt it only shallowly, and governments vary widely in their readiness to deploy it for public service delivery. Even where AI tools are contextually adequate, the productivity gains AI promises can be realized only if individuals use AI intensively, firms adopt and use it effectively, and governments deploy it efficiently for public service delivery. Across most countries in the region, individuals are using AI tools less than income peers. Firms are adopting AI only for discrete, low-complexity tasks rather than sophisticated use cases that reorganize work. Governments present a similar picture, with wide variation in the maturity of online service portals that are a prerequisite for AI-enabled public service delivery.

Individuals: AI use lags income peers

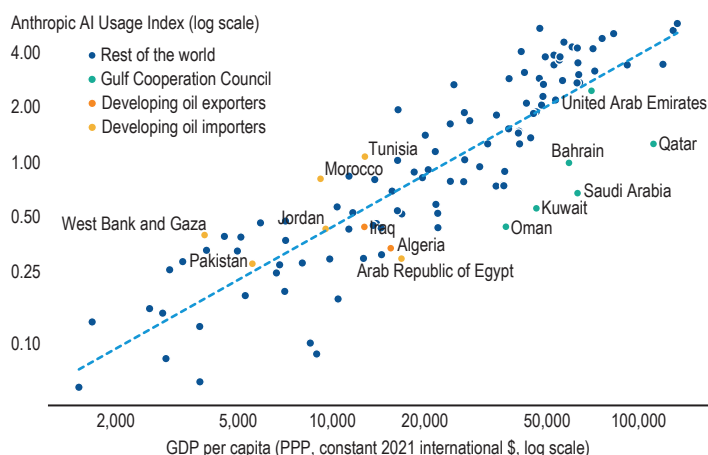
Most MENAAP economies use AI less intensively on a per capita basis than their income levels would predict. Anthropic's AI Usage Index measures a country's

share of total Claude conversations relative to its share of the global working-age population, with a value of 1 indicating usage equal to the world average. Globally, the relationship between income and AI usage is positive. In contrast, in most MENAAP countries, particularly high- and upper-middle-income Gulf economies, usage falls short of their income group benchmarks. Conversely, in several lower-middle-income economies—including Jordan, Morocco, Tunisia, and the West Bank and Gaza—usage exceeds the benchmark (figure 2.16). This divergence points to structural factors beyond income that shape both demand for AI tools and the ability to use them productively.

AI in MENAAP is used only within a narrow group of occupations. To examine how AI usage spreads within countries, Fan (2026) adapts the product space methodology of Hidalgo et al. (2007), mapping each country's AI conversations into a diffusion network of 22 occupation groups. This approach shows not only how much AI a country uses but also which occupations drive that use and how widely it has spread across the workforce.

AI usage across the occupational spectrum falls considerably below the frontier of the technology (figure 2.17).

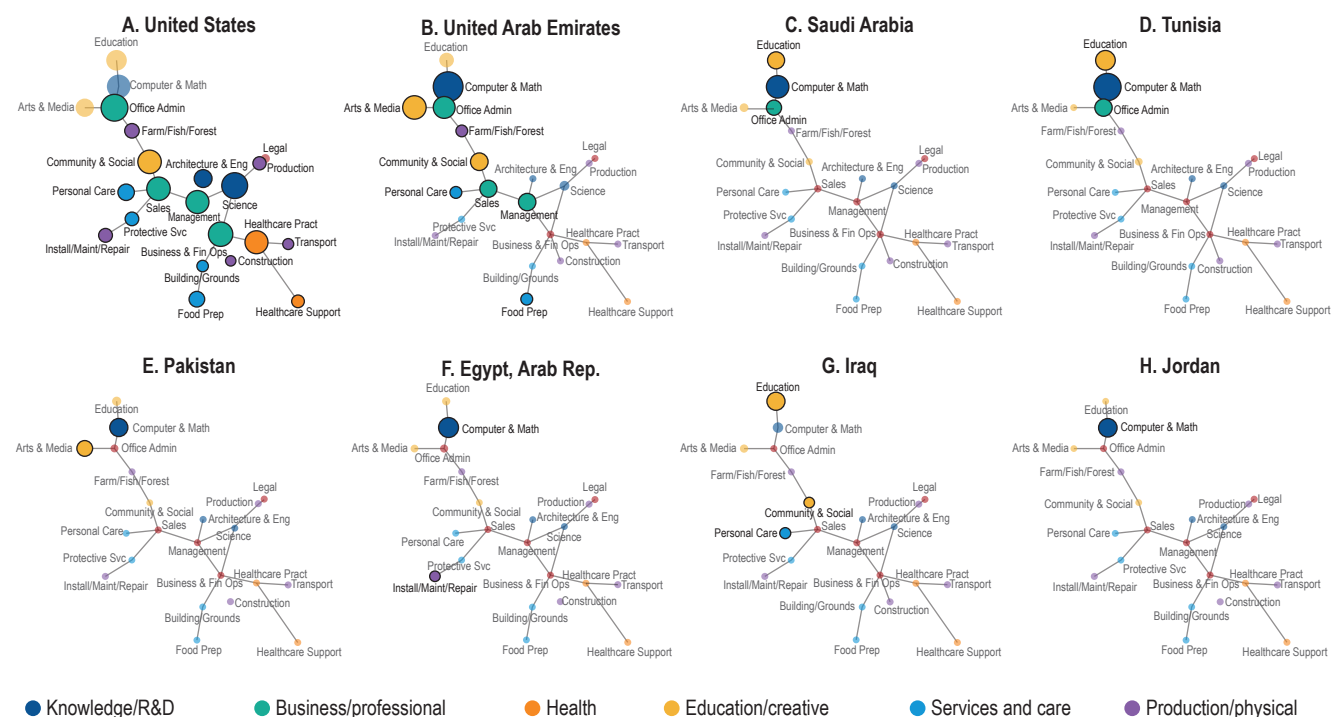
FIGURE 2.16 Most MENAAP economies lag their global income peers in AI usage



Sources: Anthropic Economic Index (February 5–12, 2026) and World Bank estimates of the working-age population from the World Development Indicators.

Note: The Anthropic AI Usage Index is a country's share of total Claude conversations divided by its share of the global working-age population (15–64). An index of 1 indicates per capita usage equal to the world average. Only economies with at least 200 sampled Claude conversations are shown. The dashed line shows the fitted linear trend. AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity.

FIGURE 2.17 AI usage across the occupational spectrum falls considerably below the frontier of the technology



Source: Fan (2026), using data from Anthropic AI Claude conversations.

Notes: Node size is proportional to AI conversations per million people. Highlighted nodes indicate occupations where usage is above the world average. AI = artificial intelligence; R&D = research and development.

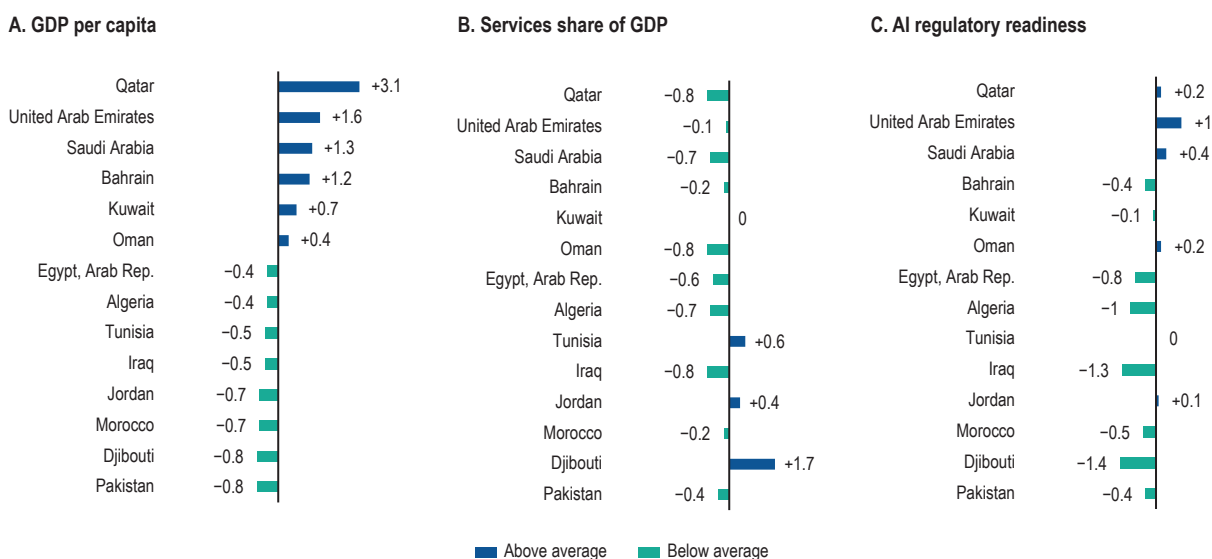
The United Arab Emirates has the broadest occupational footprint in MENAAP, suggesting that AI use is spreading beyond the technical core. It has a revealed comparative advantage in AI usage across 9 of 22 occupation groups, extending beyond software into management, sales, arts and media, food preparation, and personal care. This breadth is consistent with its national AI strategy launched in 2017 that targeted hospitality, retail, and logistics alongside technology. Saudi Arabia records above-average AI usage in three occupation groups: software, office administration, and education. This finding is consistent with a large public sector workforce beginning to integrate AI into administrative and instructional workflows under Vision 2030. Tunisia—the highest per capita user among non-GCC countries—shows a similar three-group pattern but with software dominating more heavily.

AI use is more concentrated in a small number of occupations in the rest of the MENAAP economies. Pakistan records the highest absolute conversation count in MENAAP, but usage is concentrated in arts and media (including graphic design, content creation, and translation) rather than software, potentially reflecting the country's large presence on

international freelance platforms on which these services are in demand (Stephany et al. 2021). Egypt's usage is overwhelmingly concentrated in software, indicating that adoption is confined to a thin layer of technical professionals. In Iraq, the strongest use of AI is in education, followed by personal care and community services. Relative to the United States—the frontier, with AI diffused across the broadest range of occupations—all MENAAP countries shown in figure 2.17 lag considerably, leaving substantial room for AI to spread beyond the narrow professional core where it is currently concentrated.

MENAAP countries trail income peers in AI usage for different reasons. In the GCC, lower-than-expected usage is partly linked to production structures that remain less oriented toward the service tasks current AI tools are best designed to augment. In many non-GCC economies, weaker regulatory readiness appears to be the greatest constraint. Drawing on the Claude conversation data, Fan (2026) estimates a cross-country regression of per capita AI usage on structural characteristics across more than 100 countries. Figure 2.18 presents three determinants from the regression: GDP per capita, services as a share of GDP, and AI regulatory readiness.

FIGURE 2.18 MENAAP lags income peers in AI use due to smaller services sectors in GCC countries and less enabling regulations in the rest



Sources: World Bank World Development indicators for GDP per capita, PPP, and services as percentage of GDP; IMF AI Preparedness Index (Regulation and Ethics subindex); Cazzaniga et al. (2024).

Notes: GDP per capita is measured at PPP rates in constant 2021 international dollars. Services value covers trade; transport; and financial, government, and personal services as a share of GDP. AI regulatory readiness is the Regulation and Ethics subindex of the IMF AI Preparedness Index, which averages the adaptability of the legal framework to digital business models. GDP per capita and services as percent of GDP are drawn from the World Bank's World Development Indicators. The AI regulatory readiness comes from Cazzaniga et al. (2024). AI = artificial intelligence; IMF = International Monetary Fund; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity.

Income differences explain AI usage patterns, but they do not account for all of the variation within the region. Wealthier countries tend to have larger professional workforces, stronger digital infrastructure, and more knowledge-intensive tasks that AI can augment. Yet income alone cannot explain why Saudi Arabia, one of the world's richest countries, uses AI less intensively on a per capita basis than Tunisia, a lower-middle-income economy in the same region. The structure of production and the quality of AI-related regulation may explain these differences.

For the GCC countries, lower-than-expected AI usage partly reflects the fact that service sectors, which are most readily supported by current AI tools, represent a relatively small share of the economy. Current AI tools are most directly useful in sectors such as computing, finance, consulting, legal services, and other professional services occupations in which tasks involve drafting, analysis, coding, and synthesizing data. Hydrocarbon-dependent Gulf economies, which are still heavily shaped by oil extraction and capital-intensive sectors rather than broad professional services work, generate fewer of these AI-suitable tasks per worker. Tunisia, where services account for 63 percent of GDP, adopts AI more than its income level would predict.

For many middle-income economies, weaker AI regulatory readiness represents another important drag on adoption. Governments that establish data protection frameworks, create AI governance institutions, and signal that AI is a policy priority can lower adoption barriers for firms and individuals. The United Arab Emirates was among the first countries in the world to appoint a minister of state for artificial intelligence (in 2017), publish national AI ethics guidelines, and integrate AI objectives into public sector strategy. Its actions help explain why it outperforms Gulf neighbors with comparable or higher incomes. Iraq sits near the other extreme, with weak AI governance acting as a significant drag on diffusion.

Firms: Adoption remains shallow in most sectors

The firm-level usage gap begins before AI: Basic digital access has not translated into deeper digital integration. Most firms in the region have a basic

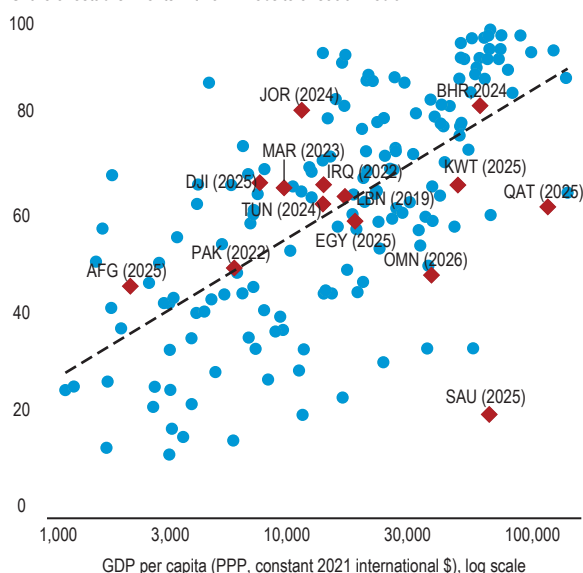
digital presence through a website or social media (figure 2.19, panel a), and Internet disruptions are relatively infrequent. This connectivity has not translated into more integrated business processes, however. Electronic payments remain underdeveloped, with both the share of payments made electronically and the share of sales received electronically low relative to firms' level of connectivity (figure 2.19, panel b). This pattern mirrors the broader digital paradox documented at the worker level, where access to digital tools is expanding but productive use remains limited (Cusolito et al. 2021).

The main constraint in Morocco is not whether firms adopt advanced software but whether they use it intensively enough to generate productivity gains. Nearly all Moroccan firms have basic digital tools, and one-third have adopted advanced software. However, less than half of those adopters use the software intensively, defined as deploying it as a primary rather than a peripheral business function (figure 2.20). These findings draw on the Firm Adoption of Technology survey, developed by Cirera, Comin, and Cruz (2026), which collects detailed information from nationally representative establishments across sectors on the technologies they use to perform key business functions. The survey was conducted in Morocco in 2024 by the World Bank. The gap between adoption and intensive use is where the productivity dividend disappears: Intensive use of advanced digital technologies has significant and large positive effects on labor productivity, whereas adoption without intensive use yields statistically insignificant gains (Cirera and Lee 2025). AI adoption remains especially limited in Morocco, where only 4.3 percent of establishments have adopted big data analytics or AI, even though 40 percent use cloud computing. Firms cite cost as the main barrier to technology adoption.

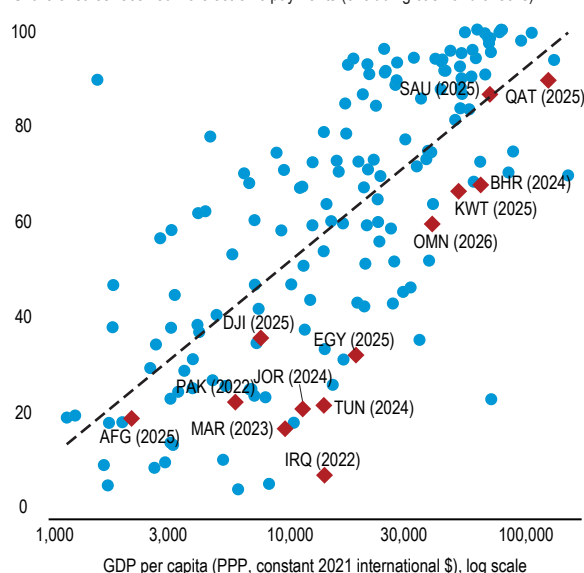
Egypt's household enterprises show how shallow digitalization can leave much of the private sector without the digital foundations needed for AI adoption. One in five households works in a non-agricultural enterprise. Only 3.9 percent of those enterprises have a webpage or electronic platform (figure 2.21, panel a). Among household enterprises using the technology, receiving orders from customers is the primary use case (figure 2.21,

FIGURE 2.19 Digital access is yet to translate into productive use in MENAAP
A. Use of website or social media

Share of establishments with own website or social media

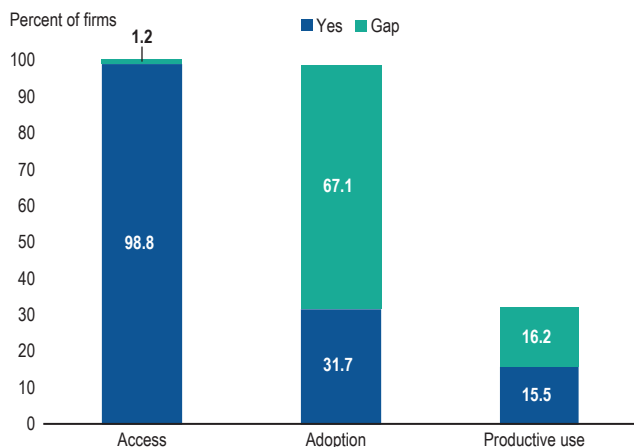
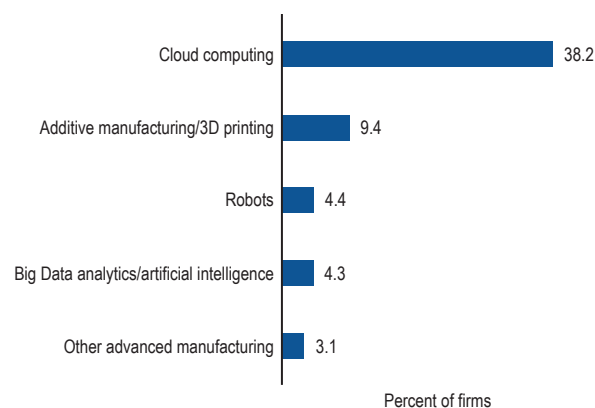

B. Share of payments made in electronic payments

Share of sales received via electronic payments (excluding cash and checks)



Source: World Bank calculations based on data from World Bank Enterprise Surveys.

Note: Data are from the latest World Bank Enterprise Survey for each country conducted in 2015 or later. Dates in parentheses are survey years. Red markers denote MENAAP economies, and blue markers denote other economies; the dashed line shows the fitted linear trend. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>.

FIGURE 2.20 Moroccan firms widely adopted basic digital tools in 2024, but uptake of more advanced technologies remains limited
A. Digital technology adoption gap in business administration

B. Adoption of Industry 4.0 technologies


Source: Data from Cirera and Lee (2025).

Note: Sample includes formal establishments in the manufacturing and services sector with five or more employees. In panel a, the "Access" bar plots the share of firms with access to basic digital technology, such as computers with standard software. The "Adoption" bar plots the share of firms that adopt more advanced digital technologies, such as specialized software or Enterprise Resource Planning in business administration, among firms that have access to basic digital technologies. The "Productive use" bar decomposes the share of firms that adopted advanced digital technologies into those that do and do not use such technologies intensively. AI = artificial intelligence.

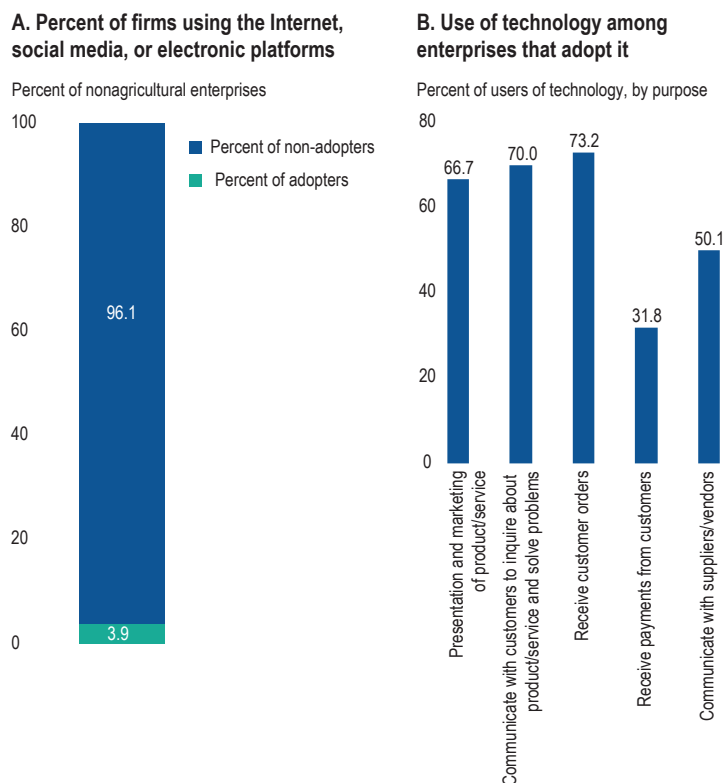
panel b). These enterprises are not on the cusp of digital transformation: 96 percent are micro-sized (fewer than five employees); two-thirds are shops, restaurants, or home- and mobile-based businesses selling directly to consumers; and informality rates range between 56 and 72 percent, depending on the definition used.⁶ Most of these firms are run by men, financed by household savings, and concentrated in wholesale and retail trade and transportation. The digital foundations that AI adoption requires are largely absent.

Saudi Arabia—among the few MENAAP countries with firm-level evidence on AI adoption—has reported adoption rates close to OECD levels. The data, published by the General Authority for Statistics (GaStat), show that almost 28 percent of Saudi establishments had adopted AI in 2024, compared with a 20 percent OECD average in 2025, with the highest adoption rates in ICT services and finance (figure 2.22). The data do not show whether adoption translated into intensive use, task reorganization, or productivity gains.

A follow-up survey in Jordan conducted for the *World Development Report 2026* provides one of the few windows into firm-level AI adoption in the region. Approximately 24 percent of the 358 surveyed firms had adopted at least one AI-related technology (World Bank 2026f). The sophistication of use was limited. Among adopters, 96 percent of firms used AI to generate pictures, videos, speech, audio, or text, and 89 percent used an AI chatbot. Fewer than 5 percent used machine learning, autonomous agents, automated workflows, decision support systems, or AI-enabled physical automation (figure 2.23, panel a). The most common tasks remained finding information; interacting with customers; and drafting, editing, or summarizing text (figure 2.23, panel b).

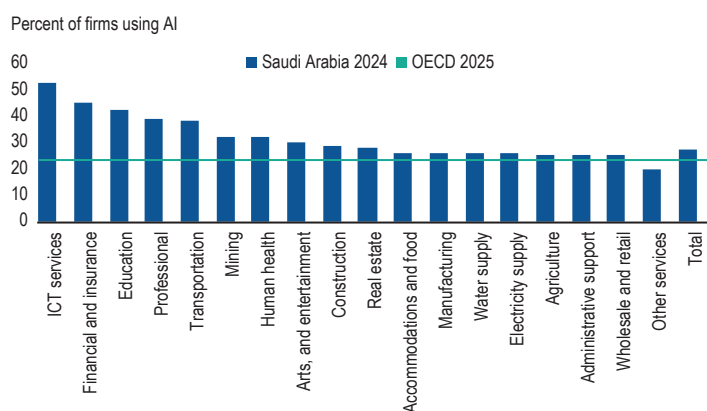
The picture that emerges is one of AI used at the surface—for discrete, low-complexity tasks—rather than embedded into the operational core of the firm. The results of a focus group discussion

FIGURE 2.21 Only a very small fraction of nonagricultural household enterprises in Egypt used the Internet, social media, or electronic platforms in 2023



Source: World Bank calculations using the 2023 Egypt Labor Market Panel Surveys.

FIGURE 2.22 About 28 percent of establishments in Saudi Arabia adopted AI in 2024, above the 20 percent adoption rates in OECD countries in 2025



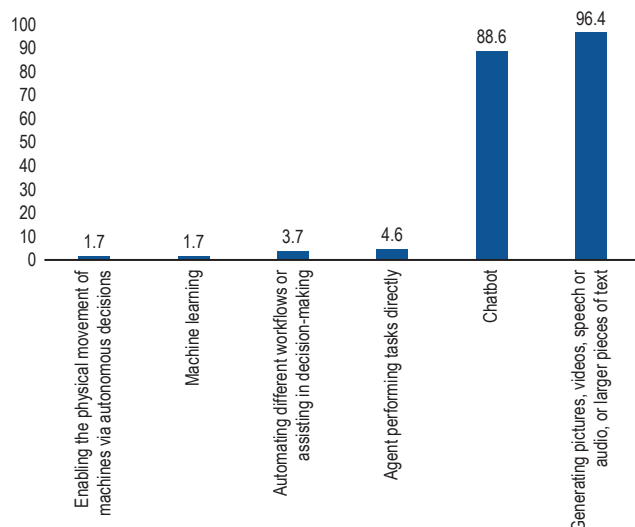
Sources: GaStat, Establishments ICT Access and Usage Statistics, Kingdom of Saudi Arabia, 2024; OECD, ICT Access and Usage by Businesses Database, 2025.

Note: Data for Saudi Arabia sourced from the GaStat Establishments ICT Access and Usage Survey 2024, which follows a methodology aligned with the *Manual to Produce Statistics on the Digital Economy* of the United Nations Conference on Trade and Development, ensuring international comparability. The survey covers establishments across 18 economic activities in Saudi Arabia. Data for comparator countries are drawn from the OECD ICT Access and Usage by Businesses database, which covers 60 indicators based on the second revision of the OECD Model Survey on ICT Access and Usage by Businesses. Data originate from two streams: (1) direct OECD data collection from selected OECD members and key partner countries and (2) Eurostat Statistics on Businesses for OECD countries within the European Statistical System. AI = artificial intelligence; GaStat = General Authority for Statistics; ICT = information and communications technology; OECD = Organisation for Economic Cooperation and Development.

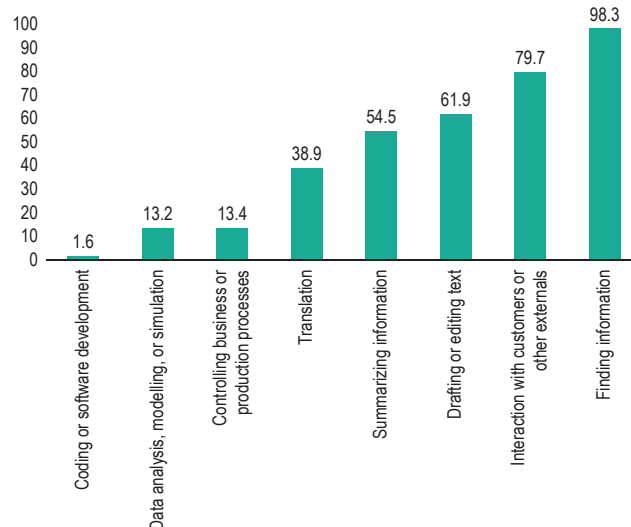
⁶Two definitions of informality are used. The loose definition of formal status is an enterprise that has a commercial registration, a business license, or both. The strict definition is that an enterprise has both a commercial registration and a business license.

FIGURE 2.23 AI adoption in Jordan is concentrated in low complexity uses**A. AI uses**

Percent of firms adopting

**B. AI tasks**

Percent of firms adopting



Sources: World Bank calculations based on the AI Pulse in Jordan and World Bank Enterprise Surveys.

Note: AI = artificial intelligence.

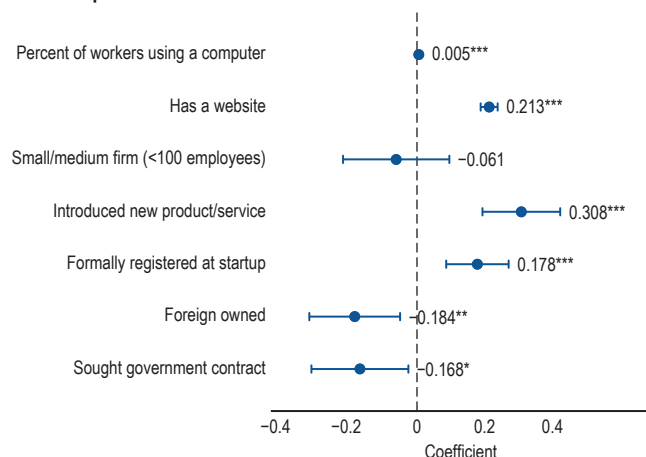
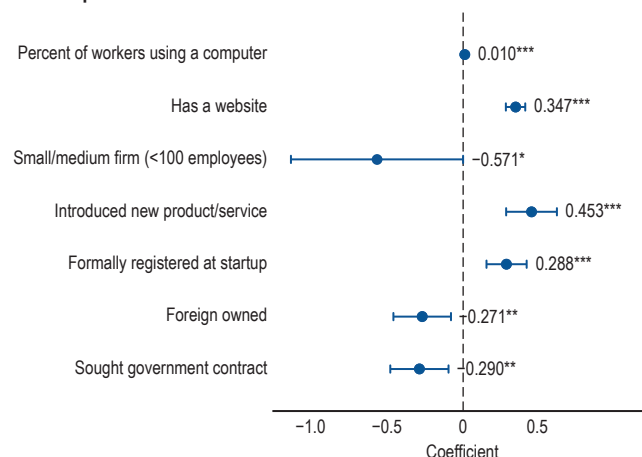
convened by the World Bank MENAAP Chief Economist Office and the Institut Arabe des Chefs d'Entreprises (IACE) in Tunis in June 2026 reinforces this point (annex 2A). It revealed that AI use, while widespread across sectors, is largely individual and confined to publicly available generative tools for drafting, benchmarking, and content generation, disconnected from any firm-level strategy. This finding was the most recurrent one the 17 senior business leaders across banking, manufacturing, technology, agrifood, and professional services cited.

Jordanian firms' limited AI use appears to reflect not only cost concerns but also weak familiarity with the requirements of deeper adoption. The most striking feature of both adopters and nonadopters is the absence of a clearly identified barrier. More than 64 percent of nonadopters and around 56 percent of adopters do not point to cost, privacy or security concerns, regulatory restrictions, lack of data, unmet expectations, skills shortages, or lack of knowledge as the reason for nonadoption or limited use. This finding suggests that many firms may not yet have engaged with AI closely enough to diagnose the constraints they face. The absence of a named barrier may, therefore, reflect limited familiarity with the tools

rather than the absence of real constraints. Among nonadopters who do cite a barrier, cost is the most commonly barrier, with 12 percent of firms reporting it as the main reason. Cost becomes more binding after adoption, with 39 percent of adopters reporting that AI is too expensive as the primary constraint on more intensive use.

The Jordan survey makes it possible to identify which firm characteristics are associated with both adopting AI and using it in more sophisticated ways. The analysis uses two measures of AI uptake (figure 2.24). The first is a binary measure, indicating whether a firm has taken up any AI technology. The second is an AI sophistication index, which captures whether a firm adopts AI agents, AI process automation, or AI-driven robotics; uses AI for more advanced tasks, such as coding or business functions like R&D; and relies on a customized solution developed internally or externally. The findings should be interpreted with caution, as the patterns identified in Jordan may not generalize uniformly across the region.⁷

⁷These results control for sector fixed effects and region (within-country) fixed effects. They are robust to including additional firm-level observable characteristics. Results are available upon request.

FIGURE 2.24 Digital readiness, innovation, and formality at inception are strong predictors of AI usage and sophistication in Jordan**A. AI adoption****B. AI sophistication index**

Sources: World Bank calculations based on data from the World Bank Enterprise Surveys and Follow-up on AI.

Notes: Panel a reports correlates of a binary AI-adoption indicator, estimated by a linear probability model. Panel b reports correlates of a continuous AI sophistication index, estimated by least squares. Each marker is the coefficient on the labeled characteristic from a separate regression of the outcome on that characteristic, the sector indicator, and region (within-country) fixed effects, with no other controls. Robust standard errors are clustered at the AI sector and location strata. Survey weights were used. Whiskers denote 90 percent confidence intervals. AI = artificial intelligence.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

One of the strongest and most consistent firm-level predictors of AI adoption and sophistication is overall digital readiness. Firms with a website have a 21.3 percent higher probability of adopting AI than firms without one—90.3 percent of the mean adoption rate—and score 0.35 units higher on the sophistication index, 95.4 percent of the mean. A larger computer-using workforce is also associated with higher AI adoption and sophistication. Each percentage point increase in the share of computer-using workers is associated with a 0.5 percentage point increase in the probability of AI adoption and a 0.010 unit increase in the sophistication index. At the average level of computer workforce penetration in the sample, 24.2 percent, the implied associations amount to approximately 54.6 percent of the mean adoption rate and 69.0 percent of the mean sophistication index, respectively. Firm size does not significantly predict AI adoption, but smaller firms—firms with fewer than 100 employees—score higher on the AI sophistication index than larger firms. Foreign ownership produces a counterintuitive negative association. One possible explanation is that AI use may occur at the parent company level, reducing the need for subsidiaries in Jordan to adopt AI directly, or that foreign-owned

firms in Jordan tend to operate in sectors where firm-level AI adoption is less prevalent.

Formality at inception is associated with higher AI adoption and sophistication. Firms that entered the formal economy from the outset are 17.8 percentage points more likely to adopt AI and score 0.29 units higher on the sophistication index—75.6 percent and 79.1 percent of their respective means. These findings are consistent with the structured management practices and institutional orientation that formality signals but should be interpreted with caution, as 90 percent of firms in the sample were formally registered at startup, limiting the variation this variable captures.

Firms that introduced a new product or service over the previous three years were more likely to adopt AI. Firms with new products or services were more than twice as likely to adopt AI than those that did not. These firms also scored 0.45 units higher on the sophistication index, 124.5 percent of the mean. Both effects are significant at the 1 percent level and are the largest positive associations in the regression across both outcomes. The fact that less than a quarter of firms in the sample introduced a new product

or service over the period makes the magnitude all the more striking. The consistency and scale of the association across both dimensions of AI uptake points to a deep complementarity between innovation orientation and AI adoption: Firms that innovate are not only more likely to adopt AI, they are also more likely to adopt it more substantively.

The low innovation rate among Jordanian firms is not an outlier but part of a regional pattern. The competitive environment in the region has not generated sufficient pressure on the broader firm population to innovate. The private sector is not dynamic, and firms that are not dynamic do not innovate.

Government contracting was associated with significantly lower AI adoption and sophistication rates. Firms that secured or attempted a government contract the previous year were 16.8 percentage points less likely to adopt AI (71.3 percent of the mean adoption rate) and scored 0.29 units lower on the sophistication index (79.6 percent of the mean). Both effects are notable given that only 23.7 percent of firms in the sample fall into this category. One interpretation is that government procurement in MENAAP may reward relationships and

incumbency over price performance competition, reducing the incentive for firms oriented toward public contracts to invest in productivity-enhancing technologies like AI. The effect is significant at the 10 percent level for adoption and at the 5 percent level for sophistication. Box 2.4 presents findings from an online survey of firms in MENAAP on AI adoption, its constraints, and employment effects.

The IFC case study, in annex 2A, provides an indication of the development stage of the region's AI startup ecosystem through evidence from private-equity (PE) and venture-capital (VC)-backed frontier firms. IFC's VC investments support early-stage businesses with high growth potential, often through scalable disruptive technologies in areas such as agtech, healthtech, and software as a service, including some AI-native firms. These PE-financed companies tend to be younger, larger, more formalized, and more growth-oriented than the average firm and represent the more technologically forward segment of MENAAP's private sector.

AI adoption among these firms appears relatively widespread: 81 percent of companies headquartered in emerging MENAAP economies report using AI,

BOX 2.4 Constraints and employment consequences of AI adoption

Evidence on firm-level adoption constraints remains sparse. To fill this data gap, the World Bank's MENAAP Chief Economist Office conducted an online survey through partnerships with chambers of commerce and business groups across the region. The survey was conducted in June–August 2026, through the Chamber of Commerce and Industry in Kuwait, the Pakistan Business Council and the Overseas Investors Chamber of Commerce and Industry in Pakistan, the Federation of Saudi Chambers of Commerce in Saudi Arabia, and the Institut Arabe des Chefs d'Entreprises in Tunisia. The American Chamber of Commerce MENA also fielded the survey, receiving responses from enterprises in the Arab Republic of Egypt, Jordan, Kuwait, Lebanon, Morocco, Qatar, Tunisia, the United Arab Emirates, and the West Bank and Gaza. The analysis included 196 responses, with representation of a wide range of sectors, including manufacturing, information and communication technology, professional services, and other services.

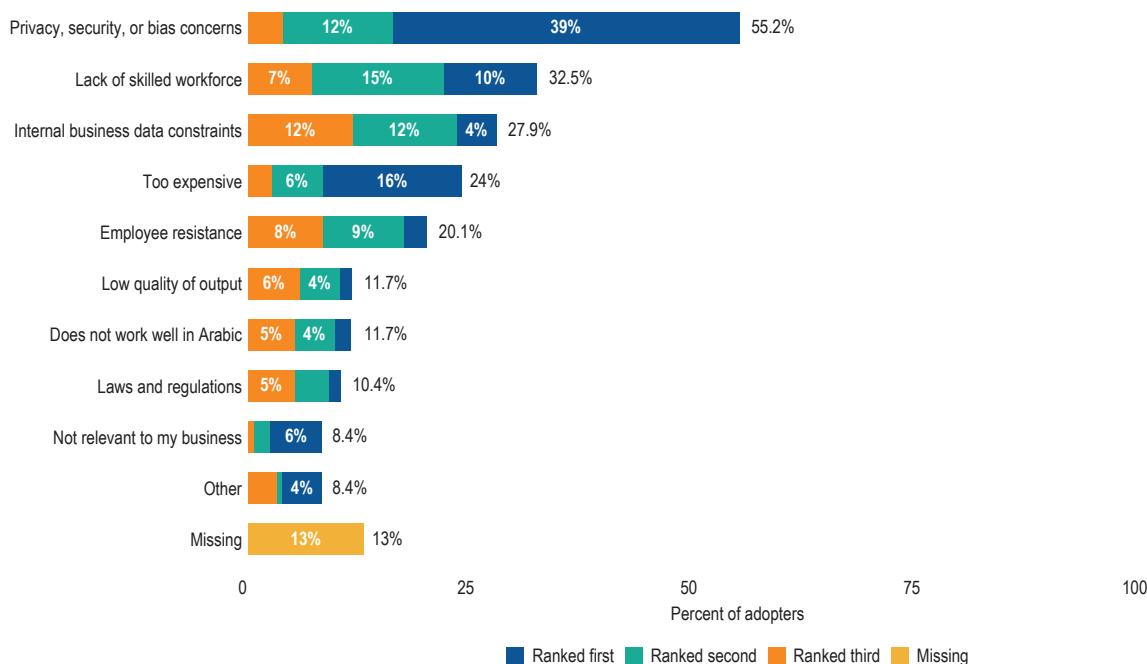
Responding enterprises were biased toward sophisticated artificial intelligence (AI) adopters. Close to 80 percent of firms reported AI usage, a much higher figure than the 24 percent among a more representative sample of Jordanian firms reached through the World Development Indicator's AI Pulse survey. AI use in many cases goes beyond using free chatbots to find information and draft text. Almost 70 percent of firms reported paying for a commercial AI software, and over 30 percent had had one custom built for the firm. Almost half of adopters used agentic AI and AI-powered workflow automation and decision support tools, and over a third reported using AI for advanced tasks, such as coding or software development, controlling business or production processes, and quality control. These observations may reflect selection into the survey of enterprises that are more attuned to AI rather than a pattern of adoption representative of the average business.

BOX 2.4 Constraints and employment consequences of AI adoption (continued)

Among these frontier firms, privacy and security concerns were the main barriers to scaling AI use. Adopters cited them more often than any other top constraint, with over half ranking them among their three leading concerns (figure B2.4.1). The concerns centered on general information security and the protection of sensitive or confidential data. One respondent noted that customers often require on-premises AI deployment and strongly resist cloud-based solutions. Businesses stressed that realizing AI's benefits requires human oversight and robust data governance.

A survey of 48,000 respondents across 47 countries found that only 46 percent of people are willing to trust AI systems, while 70 percent support stronger regulation. These concerns are compounded by major gaps in cybersecurity preparedness: high-income countries have more than 500 computer security incident response teams, whereas only 6 low-income countries have a team affiliated with the globally recognized Forum of Incident Response and Security Teams (World Bank 2026f).

FIGURE B2.4.1 Firms in MENAAP that use AI cite privacy and security issues as the key constraints to scaling its use



Source: Calculations based on an online survey of MENAAP firms conducted by the Chief Economist Office of the MENAAP region, World Bank.

Note: Chart shows percentage of 154 AI-adopting firms, out of 196 firms in the overall sample. A firm counts as an adopter if it reported using at least one of six AI technologies: machine learning, AI chatbots, AI agents performing tasks directly, generative AI for images, video or speech, workflow automation or decision support, and autonomous physical machines. Adopters were then asked to select and rank the three most important constraints to increasing their use of AI, from a list of ten options plus "Other". Bars show the share of adopters naming each constraint among their top three, split by the rank assigned. "Missing" refers to adopters who did not answer the question. Shares do not sum to 100 since each firm could select up to three options. AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

A joint study by the Kuwait Chamber of Commerce and Industry and the International Labour Organization found that Kuwaiti businesses worried about relying on third-party AI solutions. Limited access to system logs and model settings, as well as restrictions on data exports, can weaken transparency, auditability, and firms' ability to adapt systems over time. These constraints were

especially binding for firms seeking to embed AI in core operations and scale its use (ILO 2026).

Limited business capability, such as lack of skills and internal data environment, further constrains AI usage. Around 30 percent of adopters point to lack of skills among employees and internal data constraints. Firms

BOX 2.4 Constraints and employment consequences of AI adoption (*continued*)

expressed concern that employees lacked the skills to use AI effectively and resisted changes in work practices. Internal data constraints included isolated, hard-to-integrate systems and doubts about data reliability. These constraints may be the main bottleneck for early-stage adopters. Limited data quality, shortages of specialized technical skills, and fragmented or nondigitized workflows and legacy information technology systems were the dominant constraints for small and medium-size enterprises in Kuwait, which struggle to move from experimentation to scaling validated AI applications (ILO 2026).

AI adoption did not lead to immediate displacement of jobs. About 30 percent of adopters reshuffled tasks among their employees. Less than 20 percent laid off workers or slowed or froze hiring because of AI; a similar share reported hiring new workers. The net job

effects are ambiguous. Both adopting and nonadopting enterprises are evenly split among expecting an increase, decrease, or no change in employment over the next three years as a result of AI.

A more representative picture of AI-usage patterns across firms is needed, and several questions merit further data collection and research. One is whether AI will deepen or mitigate the region's long-standing lack of market contestability and dynamism. Another is understanding the interaction between management and various firm capabilities, to see whether good management may help firms resolve internal constraints to technology adoption. Monitoring workforce adjustments at a granular level will be fundamental to understanding how productivity evolves at both the firm and aggregate economy levels.

and nearly half of adopters report broad deployment across business functions. However, only 9 percent describe AI as core to their business model. AI is, therefore, spreading quickly across business functions, but for most firms it remains a tool that strengthens an existing business rather than one that fundamentally redefines the business model, as in the case of AI-native firms. These frontier firms may, nevertheless, support economywide innovation and adoption because they adopt new technologies relatively early, adapt them to local conditions before wider diffusion, and transmit knowledge to other firms as workers move across firms.

The next challenge is, therefore, both to deepen AI's economic value among firms that have already adopted it—including through higher-value applications, new products, and new AI-native business models—and to diffuse adoption beyond frontier firms.

Governments: Public service delivery varies widely

Governments face the same usage gap as individuals and firms: The capacity to deploy AI for public service delivery is highly uneven across MENAAP.

AI could help governments expand the quality and reach of services, especially where skilled personnel are scarce or centralized systems can improve prediction, targeting, and enforcement (World Bank 2026f). But these gains depend on the digital channels, data systems, institutional capacity, and accountability safeguards that allow governments to embed AI into service delivery.

Online public service maturity provides a practical measure of this uneven readiness. Figure 2.25 uses the Public Service Delivery Index (PSDI)—one component of the World Bank's GovTech Maturity Index (GTMI)—to benchmark the maturity of online public service portals across MENAAP.⁸

⁸The PSDI is one of four subindexes of the GTMI. It includes nine indicators that measure the maturity of online public service portals, with an emphasis on citizen-centric design and universal accessibility. The PSDI incorporates data from the United Nations Online Service Index alongside new indicators on online portals, electronic-filing services, and electronic-payment capabilities. It is calculated as a weighted average of its component indicators, with more relevant indicators assigned greater weight. Based on their maturity, economies are grouped into four categories: Group A (Extensive): ≥ 0.75 ; Group B (Significant): ≥ 0.50 and < 0.75 ; Group C (Medium): ≥ 0.25 and < 0.50 ; and Group D (Low): < 0.25 . Data for the 2025 update are drawn from self-reported survey responses from 158 participating economies, complemented by publicly available data for 39 nonparticipating

The index captures whether governments have citizen-facing digital channels—including online portals, electronic-filing services, and electronic-payment capabilities—that could serve as entry points for AI-enabled public services.

The figure shows a clear divide: Stronger online service systems are concentrated in the GCC and a few middle-income economies. Most GCC countries score above the average of their global income peers. Several lower-middle-income countries—including Egypt, Jordan, Pakistan, and Tunisia—also perform above their income group average. The weakest scores are concentrated among low-income and fragile economies, suggesting that the foundations for AI-enabled public services are thinnest where public service needs are often greatest.

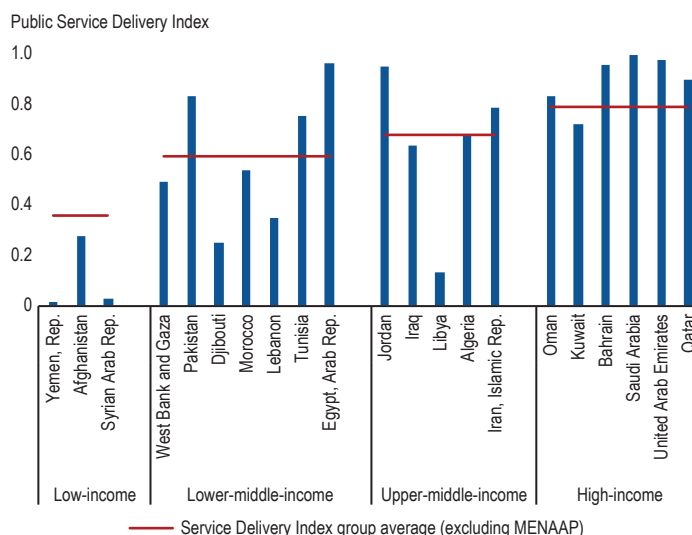
This digital-service divide is part of the broader government AI readiness gap. Frontline AI applications require connectivity, devices, local language support, usability, and training for public employees and citizens; administrative AI systems depend on the quality and accessibility of government data. In many developing countries, governments' core records remain scattered across PDF manuals, fragmented legal texts, legacy systems, or institutional memory, limiting the scope for AI to improve decisions and service delivery even where online portals exist (World Bank 2026f).

Government readiness for AI-enabled public services is uneven across MENAAP, as reflected in the different speeds at which digital portals, data systems, and administrative capacity have developed. Countries with mature portals, better data systems, and stronger administrative capacity are better positioned to experiment with AI and scale useful applications. Countries without these foundations must first build the basic digital and data infrastructure on which AI-enabled services depend.

Unevenness in development rates raises governance risks. Weak evidence, procurement pitfalls, and accountability gaps are especially

economies, covering a total of 197 economies. The PSDI is not intended as a ranking of countries; rather, it provides an overview of global practices in online public service delivery to inform the design of digital transformation interventions.

FIGURE 2.25 MENAAP governments' online public services portals vary widely in maturity



Source: World Bank GovTech Maturity Index, 2025, <https://datacatalog.worldbank.org/int/search/dataset/0037889/govtech-dataset>.

Note: Countries appear in ascending order of GDP per capita PPP for 2025 (2021, constant international dollars) within each income group, based on the World Bank classification for fiscal 2027. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity.

consequential when AI systems affect access to benefits, education, health care, taxation, or enforcement. Governments, therefore, need to pair any AI deployment with data governance, monitoring, standards, and safeguards, without which AI could reinforce rather than reduce existing gaps in public service delivery (World Bank 2026f).

The foundational gaps: Human skills and physical infrastructure

The third structural gap is the foundational gaps in human and physical capital levels. Many MENAAP countries lack the skills and physical infrastructure needed to effectively use AI across the economy. Even where AI tools fit the local context and firms and governments are positioned to use them, many workers are not yet equipped with the digital skills, AI talent, and creative thinking capacities required to use AI productively. The AI engineering talent pool is thin and shrinking, through outflow; digital skills are uneven across countries; and the education systems that will supply tomorrow's workforce are not yet developing the higher-order cognitive capacities that make augmentation most valuable. Infrastructure gaps such as broadband connection and electricity access make AI adoption a remote prospect for large parts of the region.

Demand for digital and AI skills is rising in MENAAP, but supply remains thin and concentrated

Globally, employer demand for AI skills is rising rapidly. Job postings requiring GenAI skills surged by a factor of nine between 2021 and 2024 (World Bank 2026f). Relevant skills go beyond familiarity with a product or ability to perform basic tasks: Effective AI use requires workers to embed these tools into existing workflows, redesign those workflows where needed, create new ones, and adapt continuously as the tools evolve (Steyvers and Kumar 2024).

Online job postings show that demand for digital and AI skills is increasing in MENAAP, too. Analysis based on online job postings data across MENAAP countries from Lightcast classifies approximately 14,000 unique digital skills appearing in these postings into a three-tier framework (Martins-Neto et al. 2026): Basic digital skills cover fundamental literacy, including operating devices, navigating the Internet, and using simple applications; intermediate skills cover the use of office and industry-specific software, such as Microsoft Office, Photoshop, SAP, and Salesforce; and advanced skills cover the development and maintenance of technology, including coding, data science, cybersecurity, and AI development.

Within this taxonomy, 256 skills are classified as AI-specific (capabilities related to systems performing human intelligence tasks such as machine learning and computer vision) and 15 as GenAI-specific (including ChatGPT, prompt engineering, LLMs, and vector embeddings).

Demand for digital and AI skills has risen sharply across MENAAP since the introduction of ChatGPT, but demand for GenAI remains concentrated in occupations within the technical core. Across the region, the share of job postings requiring any digital skills increased substantially between 2021 and 2025 in almost all countries, with double-digit percentage point gains in Bahrain, Lebanon, Pakistan, and Saudi Arabia. The notable exceptions are Morocco and the Islamic Republic of Iran, where the share fell by roughly 15 and 11 percentage points, respectively (figure 2.26, panel

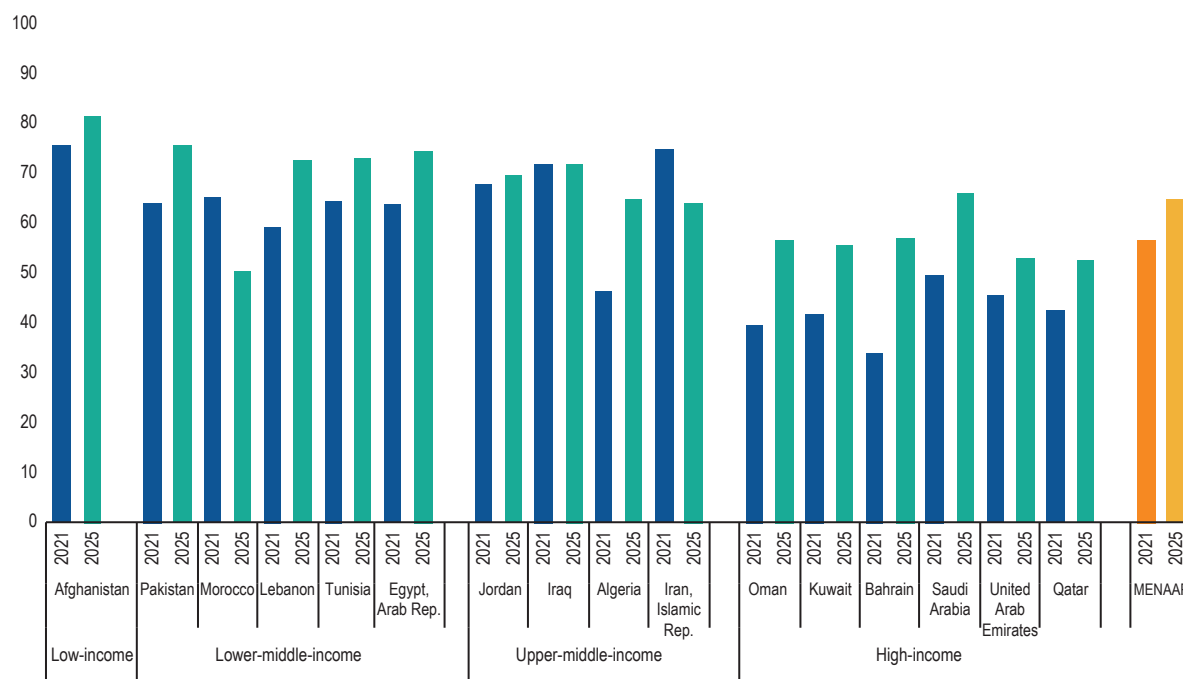
a). Demand for AI-specific skills also accelerated sharply over the same period, more than doubling in most countries and rising by a factor of nine in Bahrain and more than six in Kuwait. Lebanon posted the largest absolute jump, from 1.3 percent to 6.2 percent of job listings (figure 2.26, panel b). GenAI skill demand has not diffused widely beyond ICT, however: 60 percent of GenAI skill demand in MENAAP is concentrated in the ICT sector, compared with 42 percent in high-income countries. Evidence from box 2.5 indicates that GenAI upskilling is accelerating globally and across MENAAP, but women remain underrepresented.

The supply of digital skills varies widely across MENAAP, with GCC countries far ahead. Digital skills can be grouped into three tiers, with each tier measured as the median prevalence across its constituent activities such as basic skills: copying or moving files, sending emails with attachments, and transferring files between devices; intermediate skills: using spreadsheet formulas, installing software, creating presentations, configuring security settings, and verifying online information; and advanced skills: writing computer programs. GCC countries have near-universal basic digital skills and relatively high intermediate levels. Skills outside the GCC are far lower (figure 2.27).

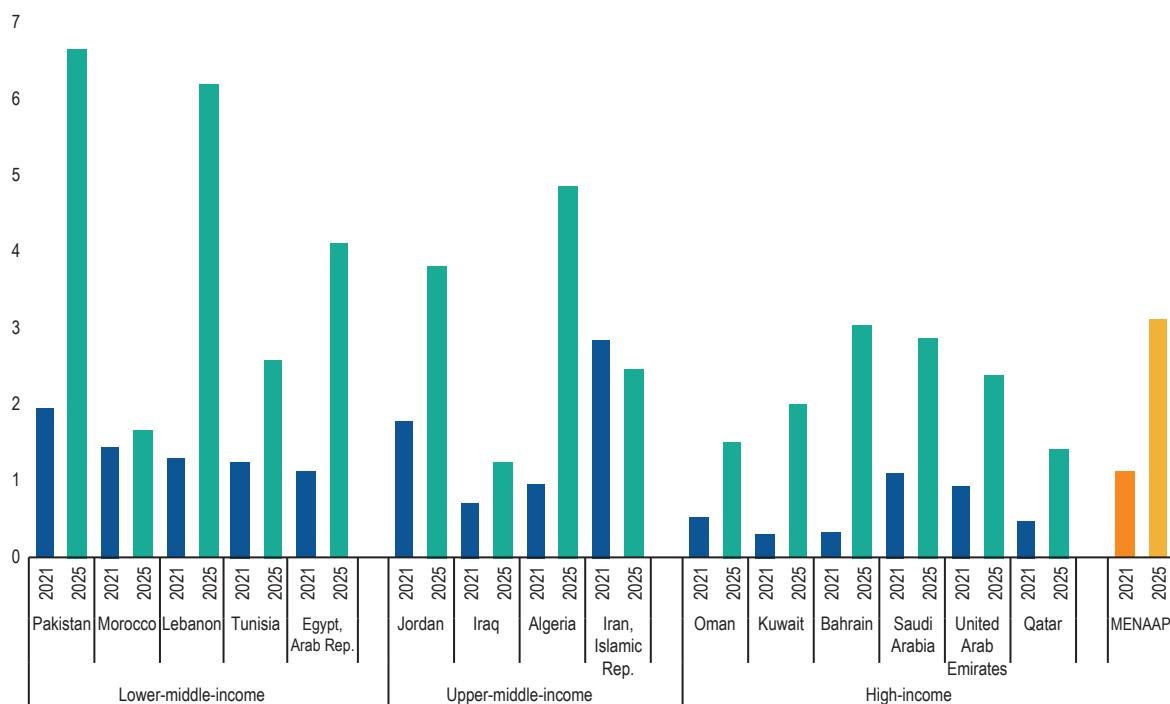
MENAAP's AI engineering talent pool remains small and is increasingly pulled toward the Gulf. AI engineering talent represented only 0.1–0.7 percent of LinkedIn members across the region in 2025. The pool is growing, however, with the share of LinkedIn members with AI engineering skills more than tripling between 2016 and 2024 in Morocco, Pakistan, and Tunisia (figure 2.28, panel a). Much of this talent is migrating, however. GCC countries are the most important destination for AI talent. The United Arab Emirates attracted approximately 4 AI-skilled workers per 10,000 LinkedIn members in 2024, reversing a net outflow of 0.2 in 2019; Saudi Arabia and Qatar also recorded net inflows. By contrast, Egypt, Jordan, Morocco, and Tunisia experienced net losses of AI talent in 2024, with professionals moving both intraregionally (to the Gulf) and internationally (especially to France, the United Kingdom, and the United States) (figure 2.28, panel b).

FIGURE 2.26 Demand for digital and AI skills in MENAAP countries rose after the introduction of ChatGPT**A. Demand for digital skills in selected countries, 2021 and 2025**

Percent of job postings

**B. Demand for AI skills in selected countries, 2021 and 2025**

Percent of job postings



Source: Martins-Neto et al. (2026), based on Lightcast data.

Note: Countries appear in ascending order of GDP per capita PPP for 2025 (2021, constant international dollars) within each income group, based on the World Bank classification for fiscal 2027. AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity.

BOX 2.5 AI upskilling is surging in MENAAP, but women remain underrepresented

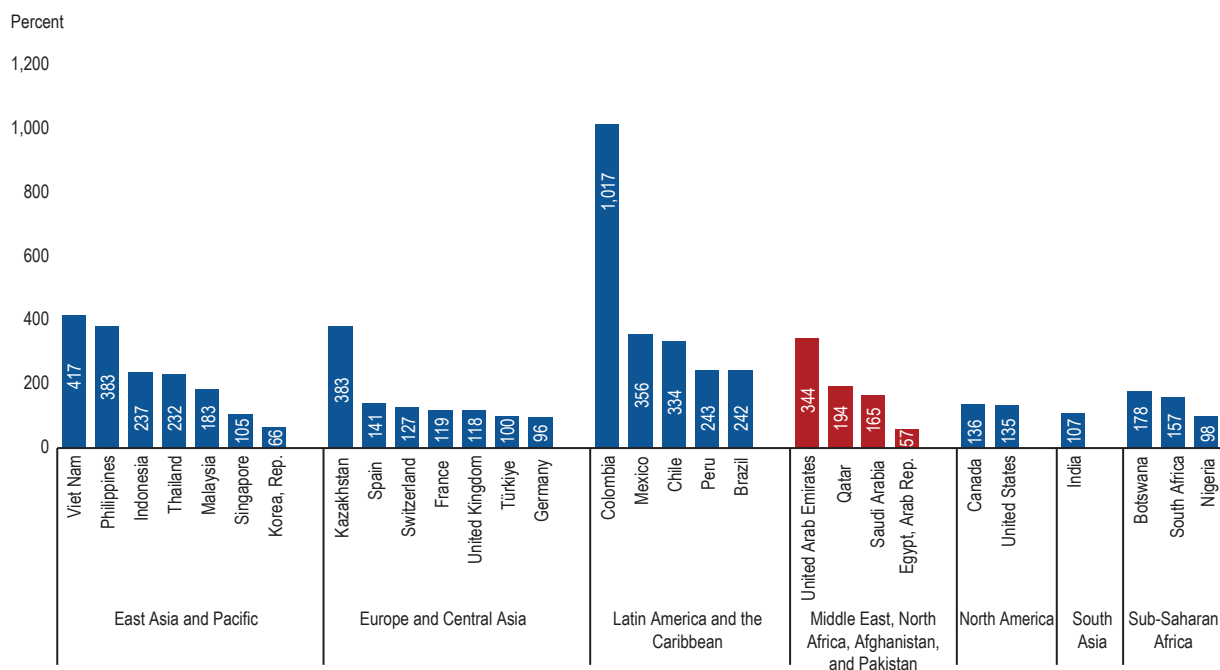
Workers in parts of the region are already responding to the new skill demands created by artificial intelligence (AI). Coursera data point to a global surge in AI learning, especially with regard to generative AI (GenAI), with enrollment averaging 12 people per minute in 2025, up from 8 in 2024 and 1 in 2023. MENAAP is participating in this surge: Year-over-year GenAI enrollment growth reached 344 percent in the United Arab Emirates, 194 percent in Qatar, 165 percent in Saudi Arabia, and 57 percent in the Arab Republic of Egypt (figure B2.5.1, panel a). These increases suggest that demand for AI-related skills is rising quickly among online learners, especially in the Gulf Cooperation Council (GCC) economies, where

broader AI strategies and employer demand are also expanding.^a

Women remain underrepresented among learners across the MENAAP countries covered. In Egypt, Qatar, Saudi Arabia, and the United Arab Emirates, women account for only around one-fifth to one-quarter of GenAI course enrollments (figure B2.5.1, panel b). This gap matters because early upskilling can shape who is positioned to benefit from AI as it diffuses into workplaces. If women are less represented among the first cohorts acquiring GenAI skills, the technology could reinforce existing gender gaps in access to high-growth occupations rather than broaden participation in them.

FIGURE B2.5.1 GenAI course enrollment is surging—globally and in MENAAP—but learners remain predominantly male

A. GenAI enrollment growth year-over-year, 2025



^aResults reflect enrollment patterns on the Coursera platform and may not be fully representative of broader national trends in GenAI skilling, as participation is contingent on Internet access, digital literacy, and awareness of online learning platforms. The Coursera *Global Skills Report* does not explicitly clarify whether enrollment figures include learners auditing courses without payment or certification. To the extent that GenAI courses are offered on a paid basis, enrollment patterns may partly reflect affordability constraints rather than differences in learning interest or outcomes, as professionals in higher-income countries may face fewer financial barriers to enrollment, potentially overstating their engagement compared with learners in developing economies, where cost may constitute a significant access barrier.

BOX 2.5 AI upskilling is surging in MENAAP, but women remain underrepresented (continued)**B. Women enrolled in GenAI courses, 2025**

Percent

50

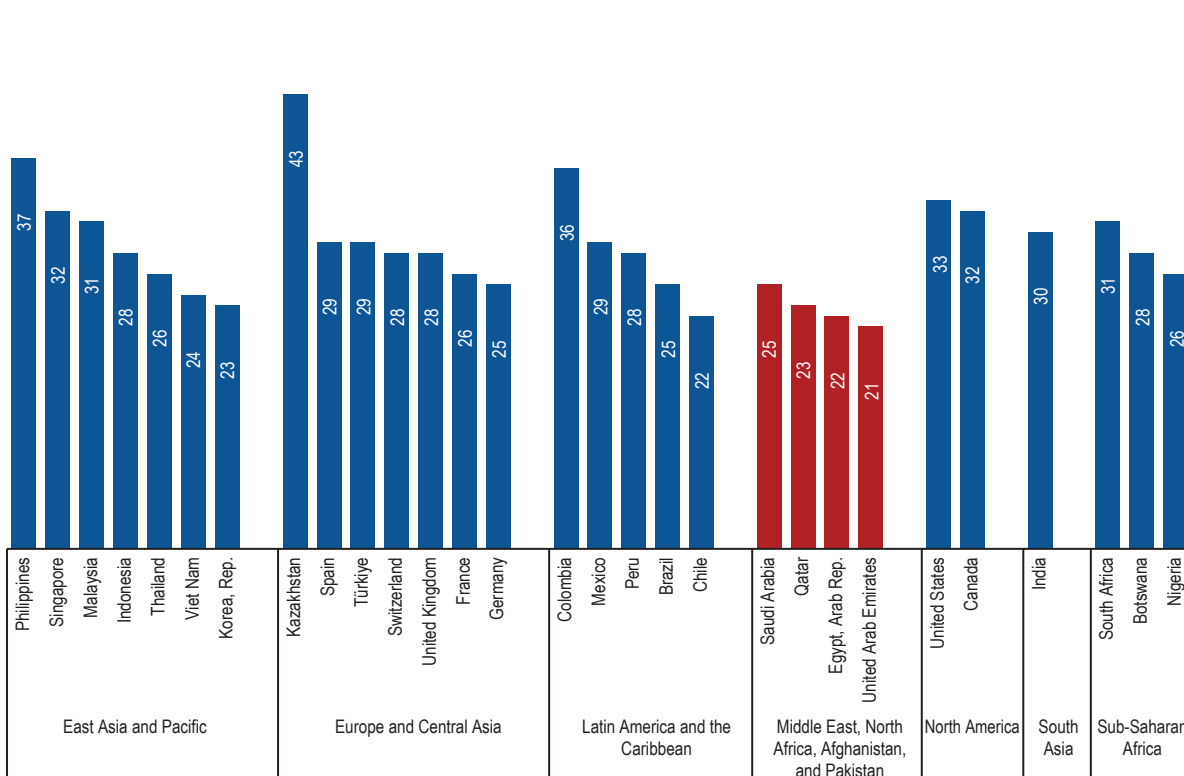
40

30

20

10

0



Source: Coursera 2025.

Note: Growth is measured as the percentage change in the number of enrollments in GenAI-categorized courses between March 2024–February 2025 and the equivalent period in 2024. Data are drawn from Coursera's community of more than 170 million learners and content from over 350 university and industry partners. Active learners are defined as individuals who engaged with at least one Coursera course item within the past year. AI = artificial intelligence; GenAI = generative AI; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

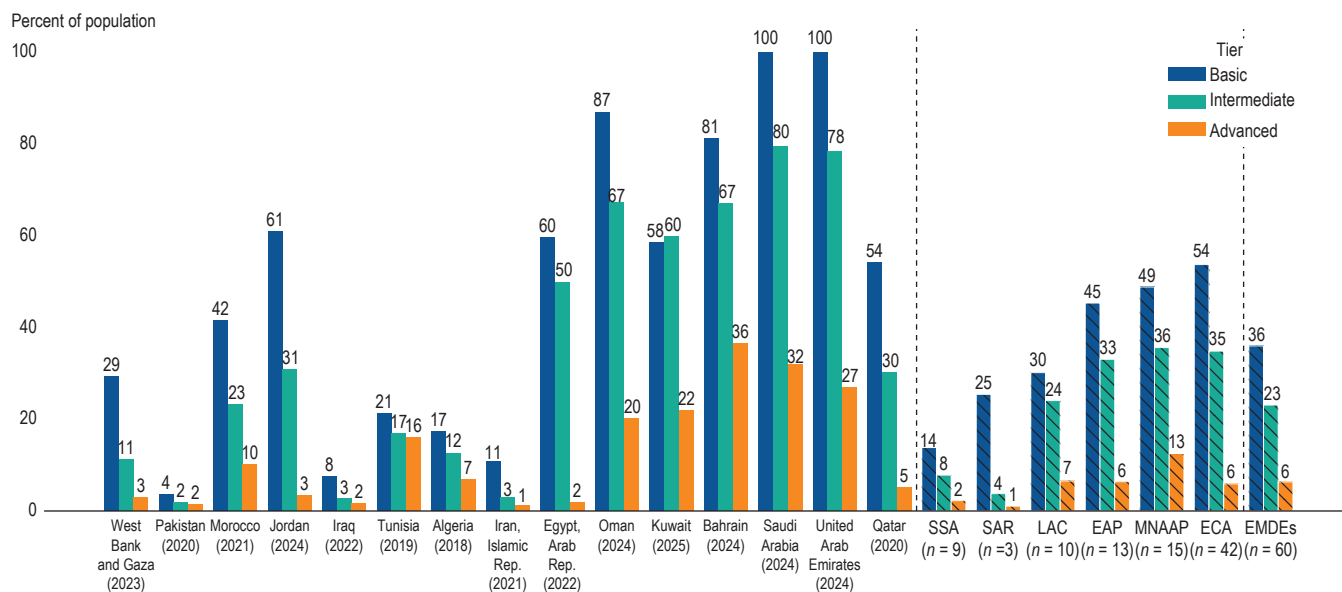
MENAAP's tertiary education systems lean heavily toward STEM, but some countries still show important gaps in the number of ICT and STEM graduates. Most countries record graduation rates from ICT and STEM above their income group averages. There are, however, significant exceptions: the share of graduates majoring in ICT was just 3 percent in Egypt in 2025, and 0 in Iraq in 2004, below the average of their income peers (figure 2.29).

The deeper human capital gap is in the creative thinking capacity that makes AI augmentation valuable. *Creative thinking*—the ability to generate

novel ideas, synthesize across domains, and solve nonroutine problems—is a vital complement to AI. At the most granular level, AI's capabilities are oriented toward nonroutine cognitive and analytical tasks requiring judgment, contextual understanding, and problem-solving (Bick, Blandin, and Deming 2026). These are the cognitive human capabilities that AI cannot yet replicate and that allow workers to use these tools productively.

Creative thinking scores remain low across MENAAP. The results of the 2022 Programme for International Student Assessment (PISA) reveal that most MENAAP countries score well below the

FIGURE 2.27 The supply of digital skills in the region is uneven

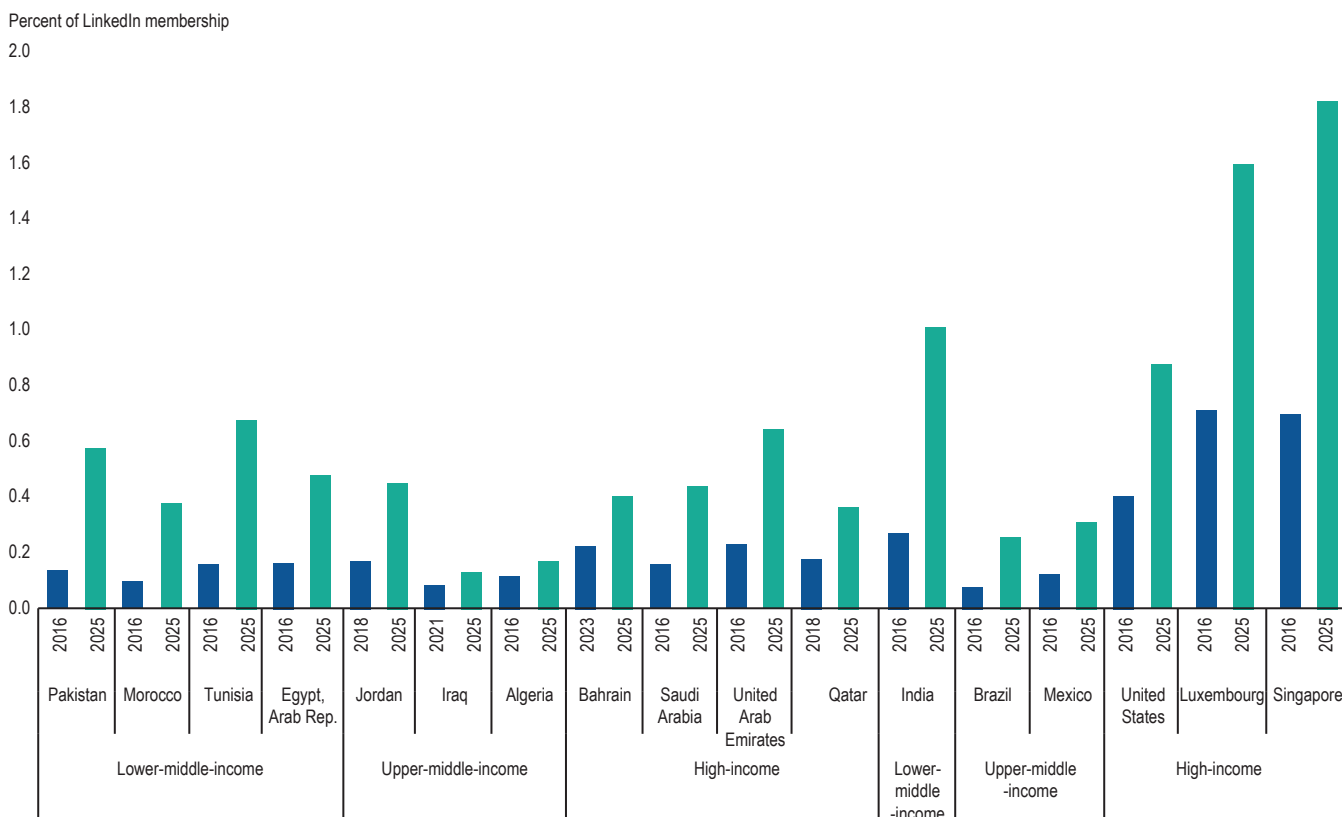


Source: World Bank calculations based on International Telecommunication Union, DataHub.

Note: Countries are sorted in ascending order by GDP per capita, PPP (constant 2021 international \$), in 2025. Regional and aggregate bars (hatched) are unweighted means of country-level tier values across all countries in each group on which data were available. Regional aggregates are ordered by the share of the population with basic digital skills, from lowest to highest. EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = emerging market and developing economies; ITU = International Telecommunication Union; LAC = Latin America and the Caribbean; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity; SAR = South Asia; SSA = Sub-Saharan Africa.

FIGURE 2.28 The supply of AI engineering skills rose between 2016 and 2024, but some countries experienced net losses

A. AI engineering talent, 2016 and 2025

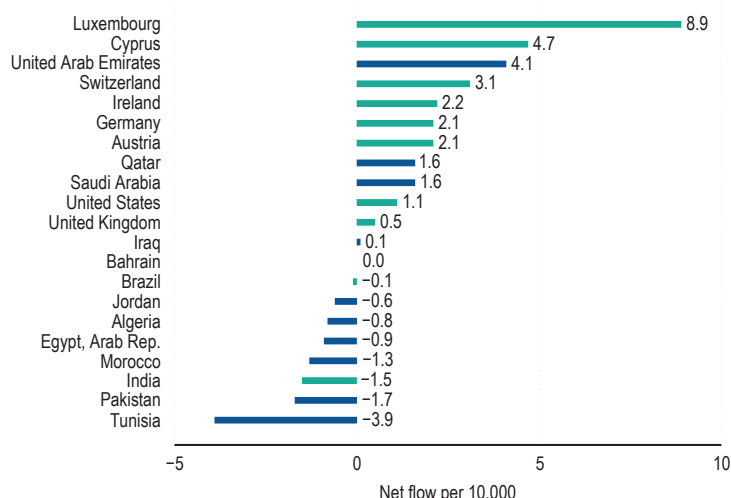


OECD average of 33 points, with wide variation across the region (figure 2.30). This finding is in line with a forthcoming World Bank report on digital skills, which shows that across Egypt, Lebanon, and Saudi Arabia, employers cite a common concern regarding graduate preparedness. Soft and professional skills, including communication, critical thinking, and adaptability, are consistently identified as the most significant gap, ranking above technical or digital skills (World Bank, forthcoming-d). The implication is that expanding digital access and AI adoption will not, on its own, translate into productivity gains without the higher-order reasoning and creative capacity needed for genuine AI augmentation.

Foundational learning enables productive AI use, which AI can, in turn, strengthen foundational learning. A winter school—learning programs held during the winter break—experiment in Balochistan, Pakistan, highlights how difficult it can be to translate AI's potential into learning gains in resource-constrained settings with low attendance (annex 2A). An RCT found that a teacher-led

FIGURE 2.28 The supply of AI engineering skills rose between 2016 and 2024, but some countries experienced net losses (continued)

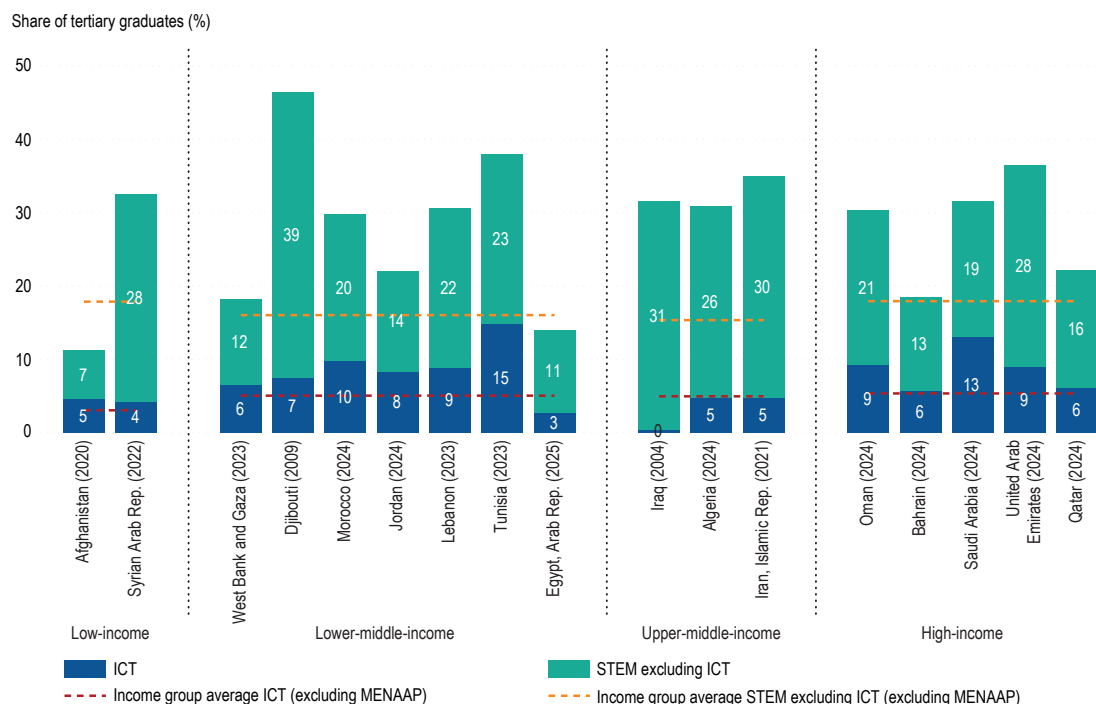
B. Net inflows of AI engineering talent, 2024



Source: World Bank calculations based on data from LinkedIn.

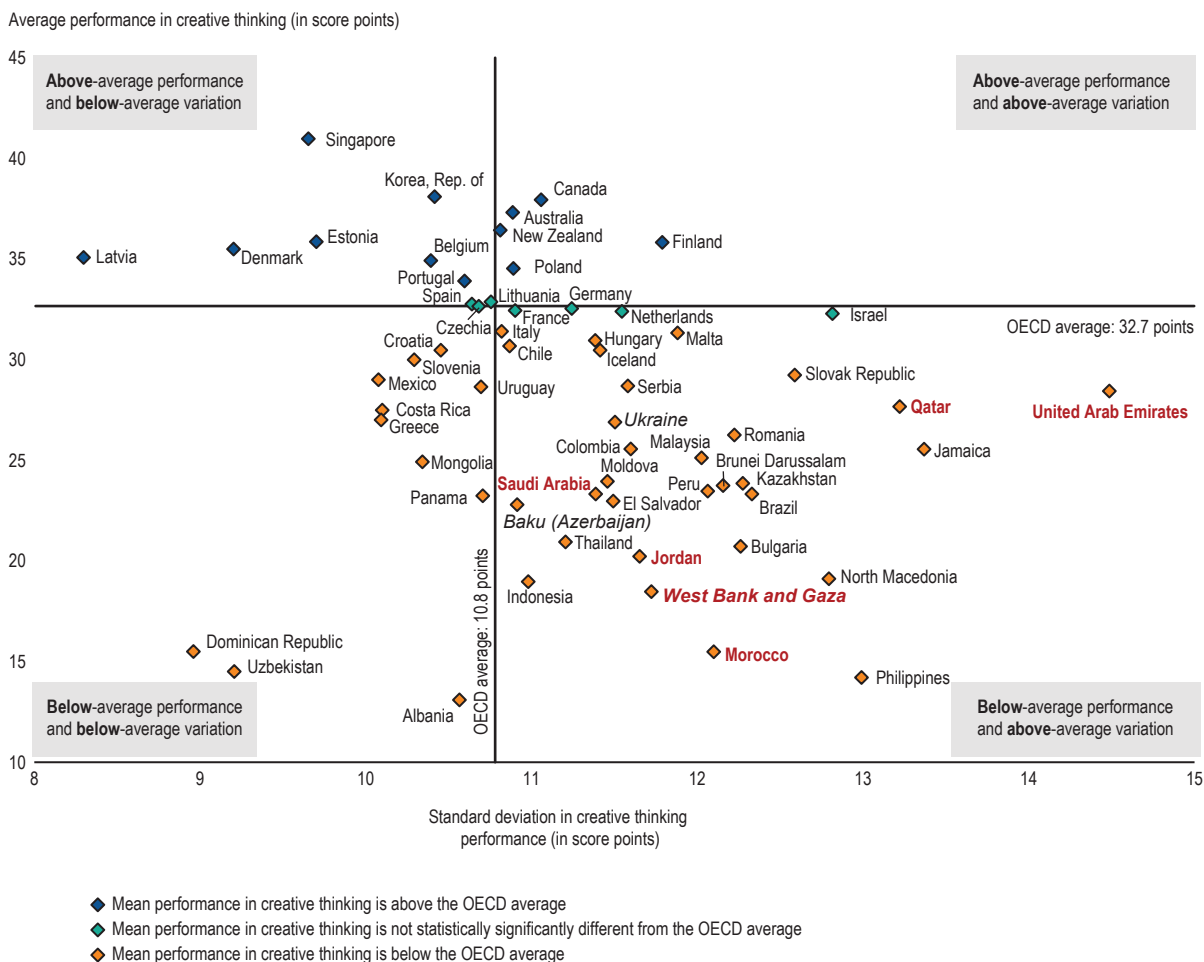
Note: In panel a, "AI engineering talent" is defined as a LinkedIn member who added at least two AI engineering skills to his or her profile and/or has been employed in an AI job. Country of a member is identified from self-reported locations on member profiles and does not reflect the nationality of the individual. In panel b, net AI talent inflow in each country is scaled by the number of LinkedIn members in each country. Migration is identified by the change in the self-reported locations on member profiles. For details, see <https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/PDF/ai-data-partnerships-methodology.pdf>. AI = artificial intelligence.

FIGURE 2.29 Tertiary education in MENAAP leans heavily toward STEM, but gaps remain in some economies



Source: UNESCO Institute for Statistics.

Note: STEM includes graduates from programs in the natural sciences, mathematics, statistics, information and communication technologies, engineering, manufacturing, and construction. Countries appear in ascending order of GDP per capita PPP for 2025 (2021, constant international dollars) within each income group, based on the World Bank classification for fiscal 2027. Income group averages for ICT and STEM excluding ICT are computed from non-MENAAP countries only, using the most recent available year per country. ICT = information and communications technology; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; STEM = science, technology, engineering, and mathematics.

FIGURE 2.30 Creative thinking—a key complement to AI—remains weak across MENAAP, with wide variation across economies

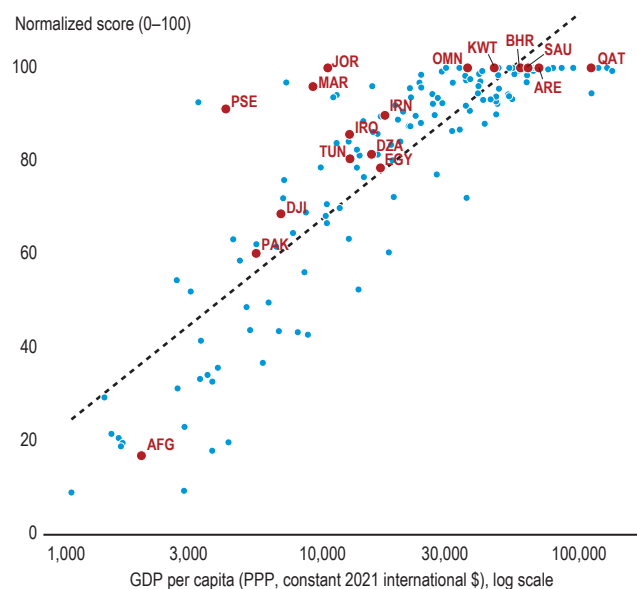
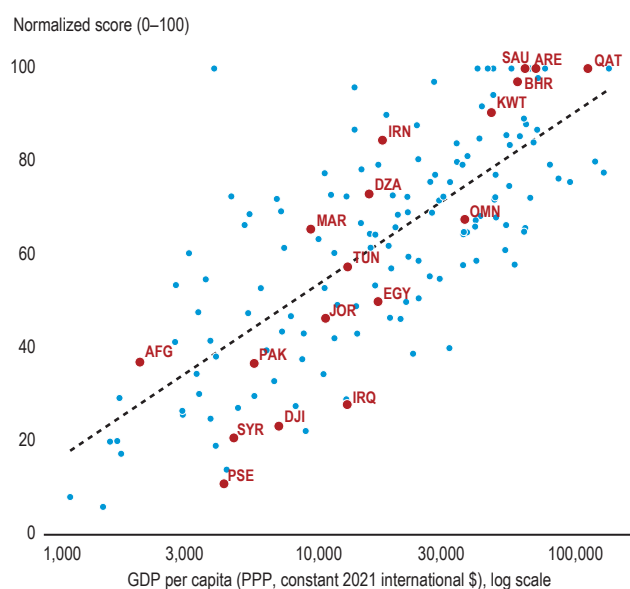
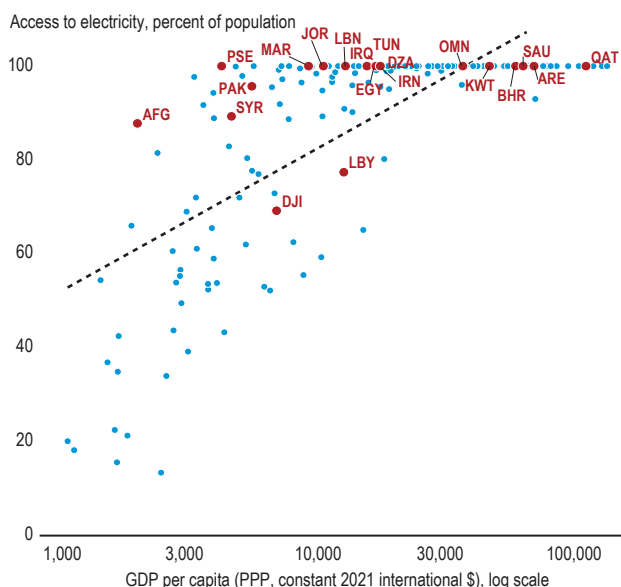
Sources: OECD, PISA 2022 Database, table III.B1.2.1; PISA 2022 Results (Volume III): Creative Minds, *Creative Schools* (OECD 2024).

Note: *Creative thinking* is the ability to engage productively in the generation, evaluation, and improvement of ideas. PISA 2022 assessed it as an innovative domain through 32 open-ended, human-coded tasks spanning three ideation processes (generate diverse ideas, generate creative ideas, evaluate and improve ideas) and four domain contexts (written expression, visual expression, social problem solving, and scientific problem solving). Scores are reported on a 0–60 scale, where a score is the expected number of items a student would answer correctly across the full item pool. The figure plots the average performance in creative thinking with an OECD average of 32.7 score points and standard deviation of 10.8 points. AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; OECD = Organisation for Economic Cooperation and Development; PISA = Programme for International Student Assessment.

instruction program improved foundational learning despite low attendance and implementation challenges, whereas an AI-assisted version produced no statistically significant gains. Attendance was low and infrastructure constraints substantial. Learning outcomes improved primarily when students participated consistently, suggesting that in settings facing basic challenges such as weak infrastructure, limited resources, and low participation, AI tools alone may be insufficient to improve outcomes and can be harder to deploy effectively than conventional interventions.

MENAAP's infrastructure foundations for AI remain uneven

Limited access to reliable electricity and connectivity restricts who can use AI and narrows the range of applications that can be deployed. AI tools depend on analog complements that are often treated as separate from the technology itself—power, broadband access, devices, and the networks that allow firms, workers, and public agencies to stay connected. An AI tool cannot help a nurse triage patients, advise a farmer, support a teacher, or

FIGURE 2.31 Uneven broadband penetration and electricity access limit the physical foundations for AI adoption**A. Internet usage****B. Mobile broadband subscriptions****C. Electricity access**

Sources: International Telecommunication Union, ICT Development Index 2026; World Bank, World Development Indicators.

Note: The dashed line is the ordinary least squares fit on the full sample. In panel a, the sample covers 150 economies, including 17 in MENAAP (Afghanistan, Algeria, Bahrain, Djibouti, the Arab Republic of Egypt, the Islamic Republic of Iran, Iraq, Jordan, Kuwait, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Tunisia, the United Arab Emirates, and the West Bank and Gaza). All 17 use 2024 indicator values and 2024 GDP per capita. Seven of them—Bahrain, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates—score 100. MENAAP values are International Telecommunication Union estimates for Afghanistan, Algeria, Djibouti, Egypt, the Islamic Republic of Iran, Iraq, and Qatar; all others are reported by national regulators or statistical offices. In panel b, the sample covers 154 economies, including 18 in MENAAP (the 17 in the sample in panel a plus the Syrian Arab Republic, which uses 2022 data, the most recent year available in its World Development Indicators series). In panel c, the sample covers 195 economies, including 20 in MENAAP (all except the Republic of Yemen). MENAAP economies with access of less than 99.5 percent are Djibouti (69.2 percent), Libya (77.4 percent), Afghanistan (87.8 percent), Syrian Arab Republic (89.3 percent), and Pakistan (95.7 percent). In the remaining 15 economies, 100 percent of the population has access to electricity. Red markers denote MENAAP economies, and blue markers denote other economies; the dashed line shows the fitted linear trend. International Organization for Standardization country codes available at <https://www.iso.org/obp/ui/#search>. AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan; PPP = purchasing power parity.

assist a tax inspector if the electricity is unavailable or the connection is unreliable. Reliable electricity and connectivity substantially expand the reach, continuity, and productive potential of AI tools (World Bank 2026f).

Across MENAAP, Internet use is often above what income levels would predict, but uneven broadband penetration and gaps in electricity access still limit the physical foundations for AI adoption. Figure 2.31 tracks three inputs needed for AI-enabled work: Internet usage, broadband subscriptions, and access to electricity. The pattern is not one of uniformly weak connectivity: In many countries, the share of the population using the Internet is relatively high (figure 2.31, panel a). Afghanistan stands out as the exception, with less than 20 percent of its population using the Internet. The sharper constraint lies in the quality and depth of connectivity, reflected in broadband subscriptions, and in the basic reliability of electricity access. Eight MENAAP countries—Djibouti, Egypt, Iraq, Jordan, Oman, Pakistan, Syrian Arab Republic, and the Republic of Yemen—fall below the benchmark line, indicating lower mobile broadband subscriptions than income peers (figure 2.31, panel b). Although electricity access is universal in most MENAAP countries, large shares of the population in Afghanistan, Djibouti, Libya, Pakistan, and Syrian Arab Republic still lack access to electricity (figure 2.31, panel c). Where broadband coverage remains thin or electricity access incomplete, the question is not whether firms and workers can move to sophisticated AI use but whether they can sustain the digital use on which AI depends. Closing the foundational physical capital gap is, therefore, a necessary precondition for AI adoption and usage; without it, AI's productivity potential will remain concentrated in the countries, firms, and workers already connected to reliable digital infrastructure.

Small AI can provide a practical near-term pathway to AI-enabled services in MENAAP despite infrastructure gaps in electricity and connectivity. The *World Development Report 2026* defines “small AI” as affordable, purpose-built tools that can operate with low-bandwidth connections, basic mobile phones, and intermittent power (World Bank 2026f). These tools are different from frontier

systems that depend on large-scale computing and continuous high-speed connectivity and energy supply. Small AI tools can work through SMS, voice calls, lightweight applications, or offline functions in a wide range of contexts. A farmer in a connectivity-constrained district, for example, can receive a crop disease diagnosis through an offline mobile application; a nurse with a basic smartphone can access clinical decision support without a continuous server connection. The infrastructure constraint is, therefore, not binary: Limited foundational physical capital narrows the range of feasible AI applications but does not preclude adoption altogether. Small AI can extend what is possible under constrained conditions. MENAAP countries should, therefore, pursue a sequenced strategy of deploying lightweight, locally adapted tools now while building the infrastructure needed for more sophisticated AI adoption at scale.

From divide to opportunity

The region's divergence in AI capabilities can become an opportunity. At one end of the spectrum, Saudi Arabia and the United Arab Emirates are positioning themselves as active shapers of the AI transition by developing models, expanding compute capacity, and building advanced digital infrastructure. Other countries in the region can contribute to different parts of the AI ecosystem—as adapters, data providers, and innovators of niche sector-specific products. They will generate much of the demand for Arabic-language and locally calibrated AI tools that global incumbents are less well positioned to provide. This divide is, therefore, not only a gap in capability; it is also the basis for a regional opportunity if the Gulf's emerging AI supply capacity can be connected to the broader region's localization needs.

Saudi Arabia and the United Arab Emirates as regional AI producers

The rise of Saudi Arabia and the United Arab Emirates in Global AI Vibrancy Index rankings reflects their commitment to national AI development, from research and investment to infrastructure, policy, and talent. The Global AI Vibrancy Index, published by Stanford University's Human-Centered AI Institute,

offers a composite measure of national AI development across 42 indicators and 8 pillars: R&D, private investment and talent concentration, infrastructure, policy and governance, responsible AI, education, public opinion, and diversity in the AI talent pool (figure 2.32).

Saudi Arabia rose from 33rd in 2017 to 19th in 2024, while the United Arab Emirates rose from 32nd in 2017 to 8th in 2024 (figure 2.32). These gains reinforce the section's central message: Saudi Arabia and the United Arab Emirates are not only adopting AI strategies, they are building the ecosystem foundations that position them as regional AI producers.

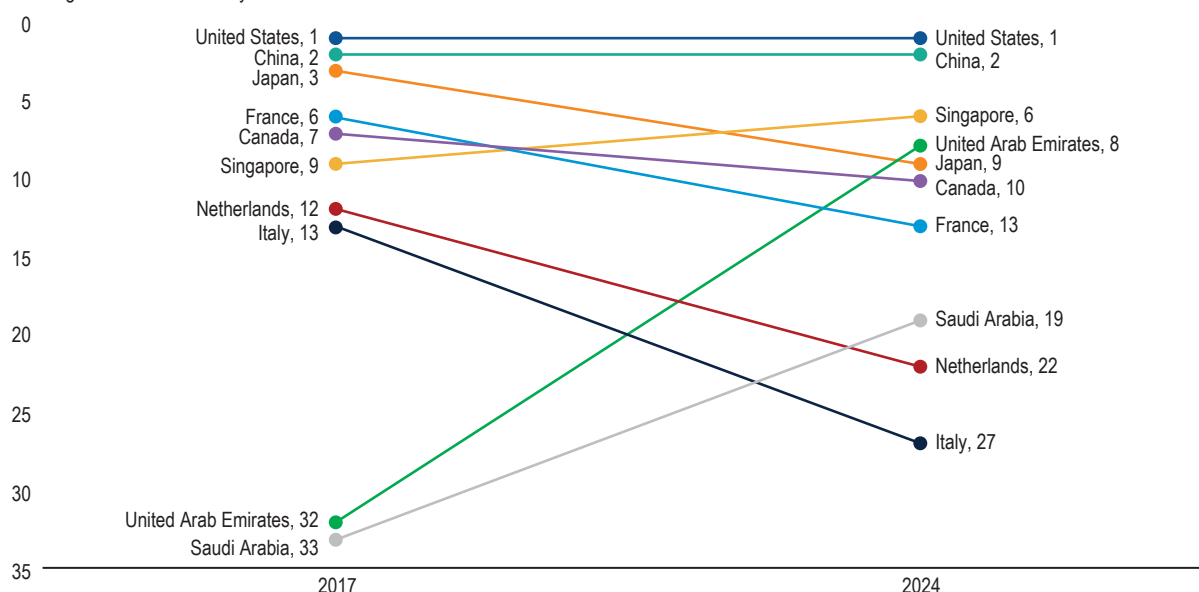
The scale of AI buildout in Saudi Arabia and the United Arab Emirates is being driven less by conventional private technology investment than by sovereign wealth funds. In both countries, sovereign wealth funds are the main engine behind the large-scale investments in compute, data centers, models, and global technology partnerships (BlackRock 2024; Microsoft 2024; Mubadala 2024; OpenAI and SoftBank 2025). In Saudi Arabia, the Public Investment Fund (PIF) has made HUMAIN the

flagship vehicle for this strategy. Launched in May 2025 as a PIF-owned company chaired by the Crown Prince, HUMAIN is designed to operate across the AI value chain, including data centers, cloud infrastructure, advanced AI models, and applications. It places AI infrastructure within the broader diversification logic of Vision 2030: Sovereign capital is being used to build compute, attract global technology partners, and create domestic AI capabilities (PIF 2025).

The United Arab Emirates is following a similar sovereign-capital model through MGX, the AI investment platform launched by Abu Dhabi, with Mubadala and G42 as founding partners. MGX's mandate spans AI infrastructure, semiconductors, and core AI technologies and applications. It has become a vehicle for deploying Abu Dhabi's capital into global AI infrastructure as well as domestic capability building. Its participation in the Global AI Infrastructure Investment Partnership with BlackRock, Global Infrastructure Partners, and Microsoft—initially seeking to unlock US\$30 billion in PE capital, with up to US\$100 billion in total investment potential—and in the Stargate Project alongside OpenAI, SoftBank, and Oracle

FIGURE 2.32 Saudi Arabia and the United Arab Emirates dramatically improved their global rankings on AI in recent years

Ranking on Global AI Vibrancy Index



Source: HAI Institute, Global AI Vibrancy Tool 2017–2024, <https://hai.stanford.edu/ai-index/global-vibrancy-tool>.

Note: Rankings are among 36 countries. AI = artificial intelligence; HAI = Stanford Human-Centered AI Institute.

illustrates how Gulf sovereign wealth funds are moving from passive investors to strategic architects of the AI infrastructure stack.

Sovereign investment carries risks, however, because it can favor selected firms and crowd out private investment. Sovereign wealth funds are well suited to finance the large upfront costs associated with compute infrastructure, data centers, and foundation models. They can bridge financing gaps, absorb early risks, and help attract global technology partners. But broad-based productivity gains necessitate private sector involvement. The key policy challenge is to use sovereign capital to lower entry barriers and crowd in entrepreneurs and investors while maintaining contestable markets and transparent governance.

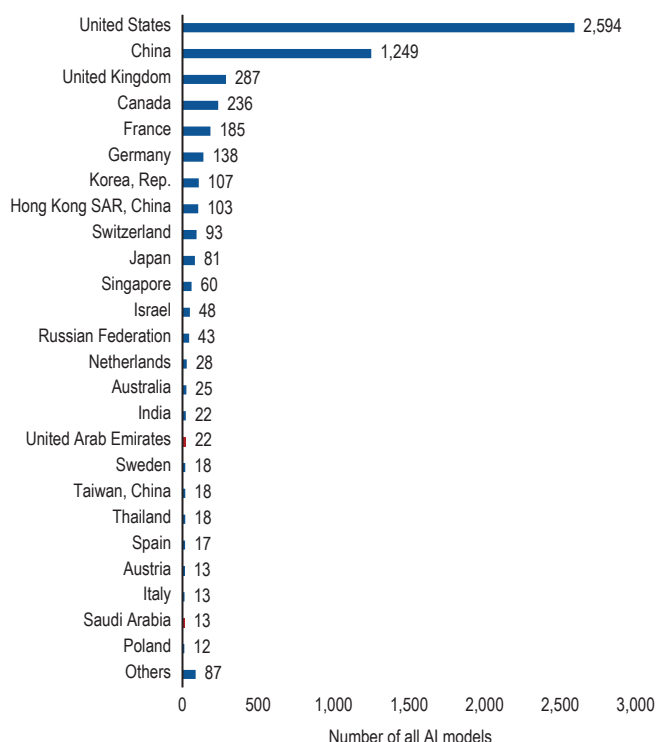
Saudi Arabia and the United Arab Emirates are emerging as the region's leaders in AI model development. Panel a of figure 2.33 shows the cumulative number of AI models developed between 1950 and April 2026 by country of the developing

organization. These data are drawn from the Epoch AI Models Dataset, a collection of over 3,500 machine learning models spanning a broad range of domains and scales. Panel b shows the cumulative number of notable models, defined as models meeting at least one of the following criteria: more than 5,000 citations, training compute cost exceeding US\$1 million, significant use with over 1 million monthly active users, state-of-the-art performance on a recognized benchmark, or equivalent historical significance. Both panels display the top 25 countries by model count. Saudi Arabia and the United Arab Emirates are the only MENAAP countries to appear in this top 25, placing them alongside Canada, China, France, Germany, the United Kingdom, and the United States as countries actively contributing to the frontier of AI model development.

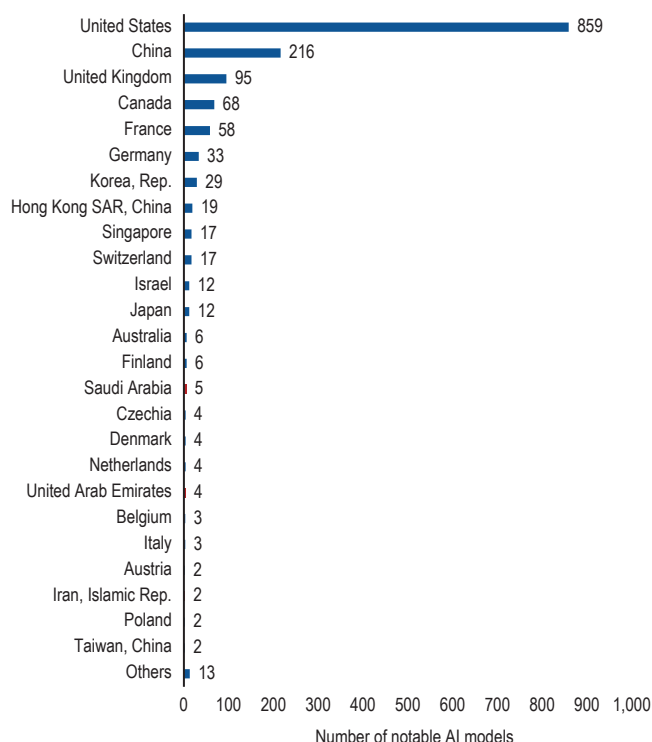
The physical layer of AI—high-performance computing and data center capacity—is where the divide is sharpest and most consequential. The TOP500 list, published twice a year, ranks the 500 most

FIGURE 2.33 The United Arab Emirates and Saudi Arabia are among the top 25 global leaders in AI model development

A. Total number of AI models developed

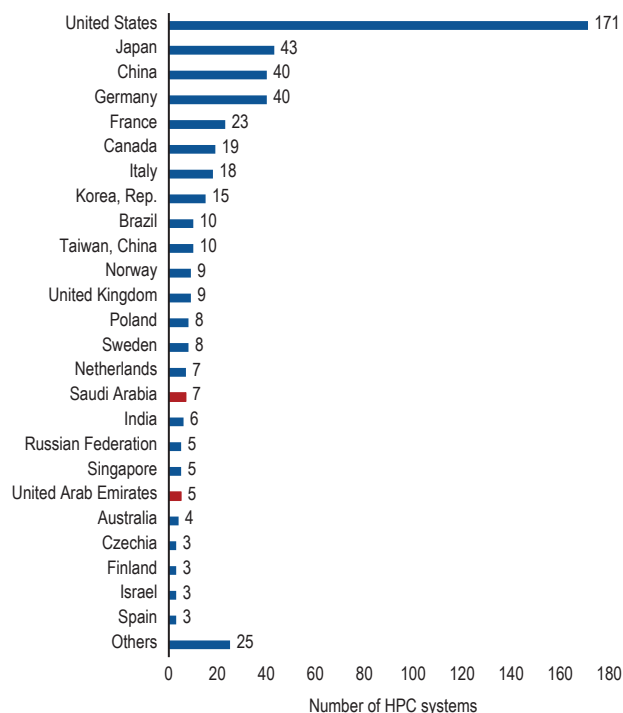
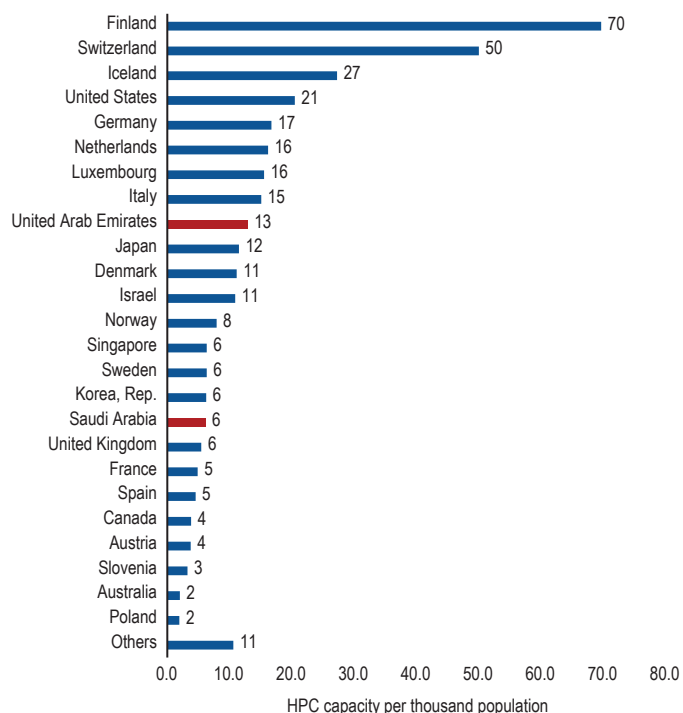


B. Number of notable AI models developed



Source: Epoch AI, AI Models Dataset, <https://epoch.ai/data/ai-models>.

Note: AI = artificial intelligence.

FIGURE 2.34 The United Arab Emirates and Saudi Arabia are regional leaders in HPC capacity**A. TOP500 HPC, November 2025****B. HPC capacity in selected countries, November 2025**

Source: TOP500, November 2025, <https://top500.org/lists/top500/2025/11/highs/>.

Note: HPC = high-performance compute.

powerful nondistributed computer systems in the world by performance on the High-Performance Linpack benchmark.⁹ It provides the most authoritative global measure of supercomputing capacity. Saudi Arabia and the United Arab Emirates are among the top 25, placing them alongside China, Japan, the United States, and major European economies in terms of absolute computation infrastructure (figure 2.34, panels a and b). When adjusted for population size, Saudi Arabia and the United Arab Emirates rank even higher. They are the only MENAAP countries to appear in the TOP500 list in absolute and per capita terms.

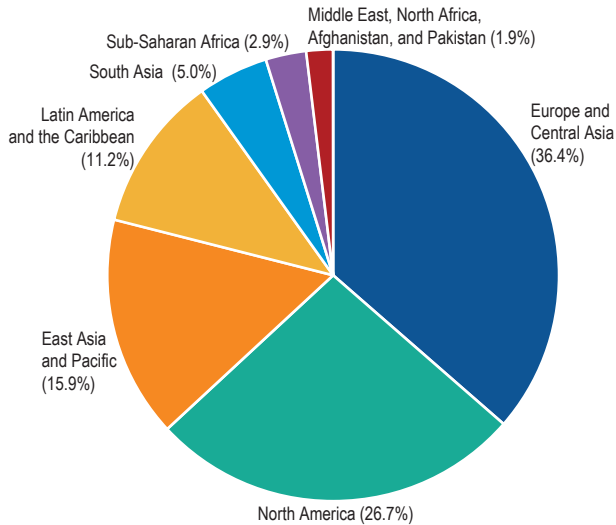
⁹Performance is measured using the High-Performance Linpack (HPL) benchmark, which measures a system's floating-point computing power by solving a dense system of linear equations (Rmax, expressed in Teraflop/s). The list, which has been compiled since June 1993, covers installations across government, research, and commercial institutions worldwide. The current edition covers 42 countries, with a total combined performance of 14.99 Exaflop/s across all 500 systems. The entry-level threshold for inclusion in the November 2025 list stands at 2.57 Petaflop/s on the HPL benchmark. Country classification is based on the location of the hosting institution.

Saudi Arabia and the United Arab Emirates anchor the region's data center capacity, with Pakistan also emerging as a major data center host. PeeringDB—the primary global reference for interconnection data—tracks 5,857 active facilities across 158 economies as of June 2026.¹⁰ Within MENAAP, Pakistan, Saudi Arabia, and the United Arab Emirates host the largest number of data centers (figure 2.35). The broader regional footprint remains small, however, with MENAAP hosting only 1.9 percent of the world's data centers.

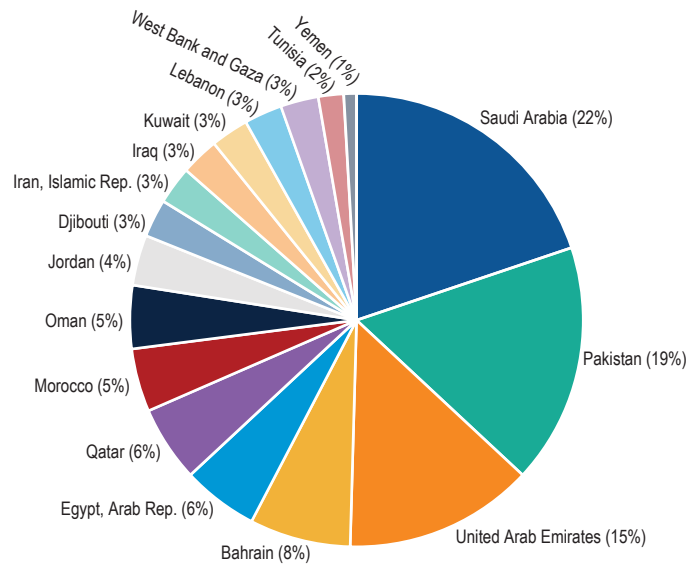
¹⁰PeeringDB is a freely available, user-maintained, nonprofit, member-based organization established to support the practical needs of network operators. It serves as the primary global reference for interconnection data. It facilitates interconnection of networks at Internet Exchange Points, data centers, and other interconnection facilities. It is community-driven and run by volunteers. PeeringDB collects information on peering policies, traffic volumes, and the geographic presence of participating networks. Data are crowdsourced by a network of researchers and network operators and updated daily. Since March 2016, PeeringDB has operated on a modernized data schema and application programming interface, improving scalability, security, and data validation.

FIGURE 2.35 Saudi Arabia, Pakistan, and the United Arab Emirates host the largest number of data centers in the region; MENAAP’s global share remains small

A. Share of connected data centers region, June 2026



B. Number of data centers by MENAAP economy, June 2026



Source: PeeringDB, Interconnection Database, June 2026.

Note: Connected data centers are active data centers registered in PeeringDB as of June 28, 2026. Sample includes 158 economies. MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

Other MENAAP countries are also taking actions to adopt and adapt AI technologies. In Morocco, the government is investing in AI entrepreneurship and innovation and is leveraging AI for better service delivery to citizens and businesses. Jordan is positioning itself as a tech hub and is already applying AI in sectors such as education and health to support learning and enable preventive screening and diagnostics in remote areas. Egypt is investing in AI infrastructure and is developing AI talent to prepare youth for the jobs of the future and for responsible AI adoption. Pakistan is positioning itself as a talent-led AI services exporter and is investing in a domestic AI ecosystem. It is also developing “small AI” solutions to deliver better digital services tailored to local contexts and languages. Meanwhile, the West Bank and Gaza is one of the first fragility, conflict, and violence-affected economies in the region with an AI strategy. Box 2.6 highlights how different MENAAP countries are positioning themselves with respect to AI, while Box 2.7 examines the impact of the presence of data centers on nearby businesses.

Companies offering AI technologies and applications are emerging across MENAAP. Data from

CB Insights show that, although more than three-quarters of the region’s AI technology companies are based in Pakistan, Saudi Arabia, and the United Arab Emirates, they are emerging across the region (figure 2.36, panel a). These firms apply AI across a wide range of technology markets, such as sales and marketing, industry and logistics, and cybersecurity (figure 2.36, panel b). Their continued growth and regional diffusion can accelerate the development of domain-specific AI applications for end users.

Localization is the regional opportunity, but usage and foundational capital gaps must close alongside it

The role of Saudi Arabia and the United Arab Emirates in compute, data center capacity, model development, and AI governance could help close the localization gap across MENAAP if efforts are connected to regional needs. Global frontier developers can improve general Arabic performance; they are less likely to hold the local data partnerships, institutional knowledge, and dialect-specific expertise needed to adapt AI tools to MENAAP’s public services, firms, and workers. The emerging capabilities in Saudi Arabia and the United Arab Emirates,

BOX 2.6 AI ambition and positioning in MENAAP

The *World Development Report 2026* defines a five-layer artificial intelligence (AI) stack—compute, infrastructure, data, models, and applications—within a broader value chain (World Bank 2026f). Economies in the MENAAP region are positioning themselves at different points of the AI stack according to their relative strengths in capital, talent, market size, and institutions.

Targeted GCC Investors

Saudi Arabia and the United Arab Emirates are deploying sovereign wealth funds at scale to build full-stack AI ecosystems; other Gulf Cooperation Council (GCC) economies specialize in selected layers. **Bahrain** and **Kuwait** are focusing on deep sectoral AI integration, especially in government operations. **Oman** is targeting the semiconductor supply chain, with a US\$5 billion initiative spanning chip design, assembly, testing, and silicon manufacturing. It has trained more than 250 Omanis in chip design and launched two chips. **Qatar** is positioning itself as a strategic adopter and producer of AI applications. The US\$20 billion Qai-Brookfield partnership and Fanar support specialized research and applications, consistent with the emphasis of the country's national strategy on innovation and efficient AI adoption.

Market-Led Hub Builders

Egypt and Morocco are pursuing sovereign AI ambitions, positioning themselves as regional AI hubs. Infrastructure investments underpin these goals. **The Arab Republic of Egypt** is leveraging its position as a subsea cable corridor between Europe and Asia to attract hyperscale investment, with several data center projects, including a new US\$400 million venture, announced in 2026. **Morocco's** Nexus AI Factory is a US\$1.2 billion infrastructure project to scale high-performance compute, run entirely on renewable energy.

Talent and Ecosystem Builders

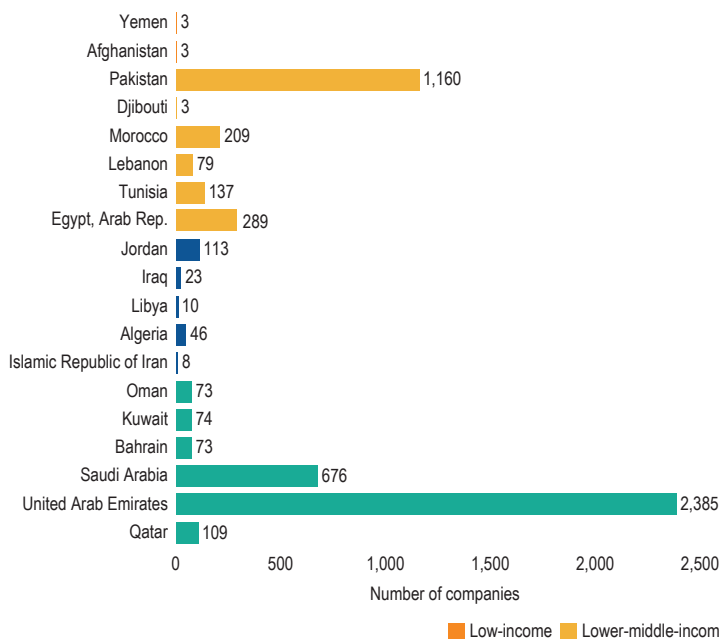
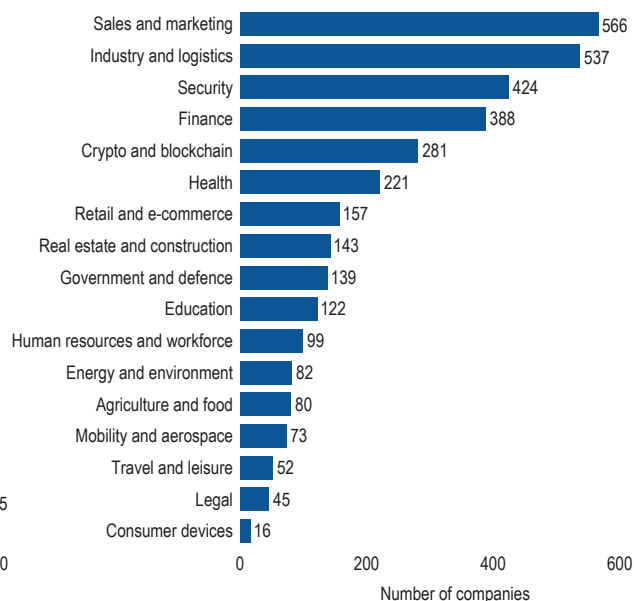
Jordan is strategically focused on ecosystem development, emphasizing research and development, business environment reform, capacity building, and public sector applications to overcome limited capital and market size. While Pakistan positions itself as a talent-led AI services exporter drawing on 75,000 annual IT graduates and a record USD 4.6 billion in FY2025/26 ICT services exports, its overarching ambition is AI sovereignty: building a domestic ecosystem where AI serves national priorities. A USD 1 billion program through 2030 reflects this ambition and spans different layers, supporting shared GPU infrastructure, a sovereign multilingual model, 1,000 AI PhD scholarships, and training for one million non-IT professionals.

therefore, create structural openings to supply regionally grounded and locally calibrated AI tools.

Translating the two countries' advanced AI capabilities into a regional localization agenda would require close cooperation with other MENAAP countries. For Saudi Arabia and the United Arab Emirates, this means investing not only in models and infrastructure but also in regional language resources, data-sharing arrangements, sector-specific applications, and governance frameworks that can operate across jurisdictions. For the rest of MENAAP, it means building the institutional capacity to procure, test, and adapt AI tools. Such cooperation would not unlock the region's usage,

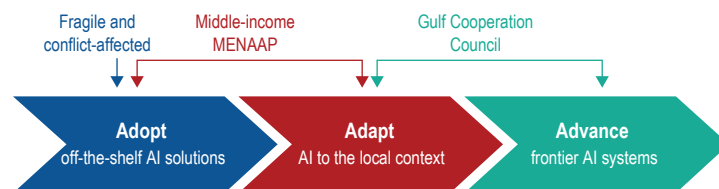
human capital, or physical capital constraints, but it could lower one important barrier: the lack of AI systems that fit the region's languages, data environments, and business contexts.

MENAAP economies can narrow the localization gap by pursuing the AI pathway—adoption, adaptation, or advancement—that best matches their capabilities. The *World Development Report 2026* lays out three pathways for developing countries: adopting off-the-shelf AI solutions, adapting AI to the local context, and advancing frontier AI systems (World Bank 2026f). The distinction between *adoption* and *adaptation* is important for the chapter's framework: usage and foundational infrastructure

FIGURE 2.36 AI technology companies in MENAAP are active across a range of technology markets
A. Number of AI companies, by country

B. Number of AI companies in MENAAP, by technology market


Source: CB Insights.

Note: AI companies are companies active as of July 2026 that CB Insights categorizes as in the AI technology market. Panel b shows the number of AI companies that are also in other technology markets. Bars sum to more than the number of firms represented, because companies could be in more than one technology market. AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

FIGURE 2.37 AI pathways in MENAAP depend on the state of development of each economy


Source: Based on World Bank (2026f).

Note: AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

gaps chiefly constrain whether countries can take up and deploy existing tools, whereas localization and AI skill gaps matter more for adapting those tools to local languages, data, and institutions. Figure 2.37 highlights these tiered AI pathways for MENAAP economies. As advancement is highly costly, only a handful of countries in the region are likely to compete at the cutting edge of AI development. A wider set of countries—in the GCC and among middle-income economies—stand to benefit more from the adaptation path. Some tools, such as LLMs, are easier to scale; many others require customizations specific to a country, sector, or institution, leaving room for local developers to fill these gaps. Building

a vibrant AI innovation ecosystem—including investments in creating local data and data partnerships, access to cloud and compute, and AI startup support—could, therefore, be on the agenda of other MENAAP economies. Fragile and conflict-affected states and other economies facing severe institutional and economic constraints are likely better served by focusing on adopting existing AI solutions, prioritizing the identification of the most useful tools and support for their use. This approach brings near-term benefits while laying the foundations for more localized solutions over time.

Localization is the clearest regional opportunity, but it cannot be addressed in isolation: The localization, usage, and foundational human and physical capital gaps need to be tackled simultaneously, because they compound one another. Better localized tools will not generate broad productivity gains if firms and governments use them only superficially. Deeper usage will remain limited if workers lack the skills, creative thinking capacities, connectivity, and electricity needed to use AI productively. Investments in skills and infrastructure will also

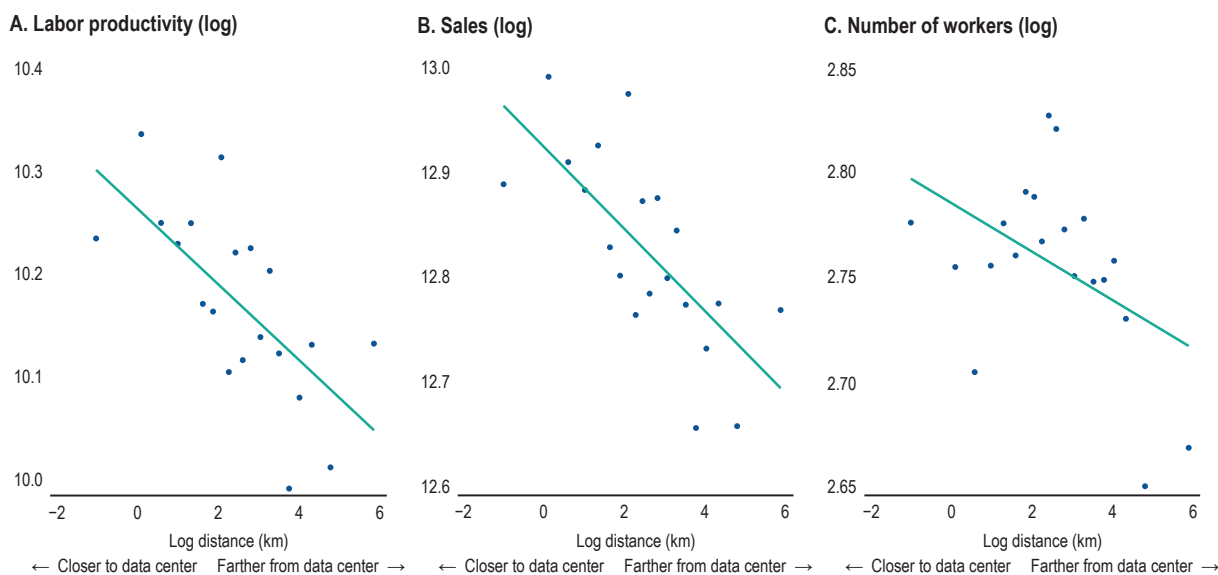
BOX 2.7 Do data centers benefit nearby businesses?

The rapid global expansion of data centers raises many important policy questions, ranging from their environmental impact to security risks, from costs on consumers to regulation of data privacy. An important question is whether proximity to a data center affects firm performance. A joint research initiative between the Chief Economist Offices of the World Bank for Asia and MENAAP, together with the Enterprise Survey team, is exploring this question.

Data centers benefit nearby firms through better infrastructure, greater access to technology, and more reliable and faster access to data. But they may also strain power and water networks, potentially hurting firms and households in the vicinity. To understand the net effect, researchers combined geo-located firm data from World Bank Enterprise Surveys with data center locations from the S&P Global database. The sample covers around 60,000 firms across 117 countries.

The results show positive correlations between data center proximity and various firm outcomes. Firms closer to data centers tend to have higher labor productivity, higher sales, and more workers (figure B2.7.1). Firms are divided into equal-sized bins along the distance axis, with the mean outcome plotted against the mean distance within each bin. The figure controls for firm-level factors such as firm age; firm size; multinational affiliation; formal training; manager tenure; export intensity; foreign ownership; bank account; fixed asset investment; and country, year, and sector fixed effects, so that the relationship shown reflects within-country variation only. The correlation does not reveal whether data center proximity contributes to firm performance or owners of data centers simply build them in areas with thriving and productive firms that are likely to be their customers. A forthcoming research agenda will use more sophisticated methods to disentangle whether data centers drive these outcomes or simply select into high-performing areas.

FIGURE B2.7.1 Firms closer to data centers tend to have higher productivity, sales, and employment



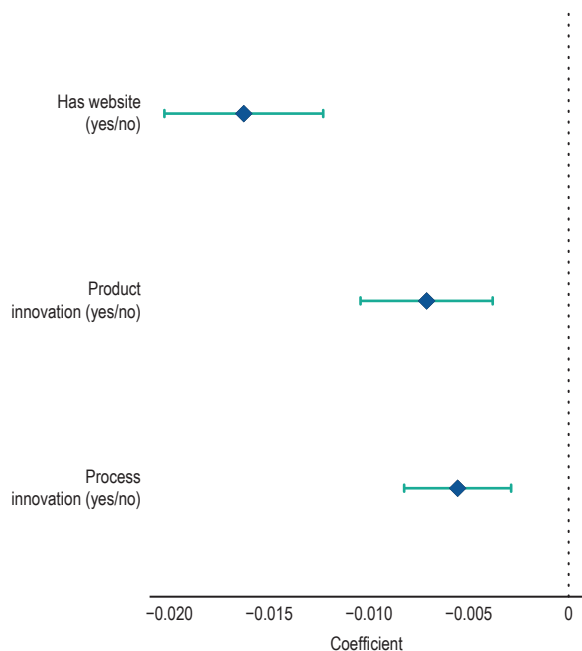
Sources: World Bank calculations based on the World Bank Enterprise Surveys and the S&P Global data on data centers.

Note: Binned scatter plots of firm outcomes against log distance to the nearest data center (km). Each dot shows the average outcome within a bin of log distance; the line shows the linear fit. Outcomes are in logs. Estimates include country fixed effects and firm-level controls for log firm age, log firm size (excluded when the outcome is number of workers), part of a larger firm, formal training offered, top manager experience in sector, direct exporter, foreign ownership, bank account, fixed asset investment, and whether the firm has a website. Estimation uses survey weights.

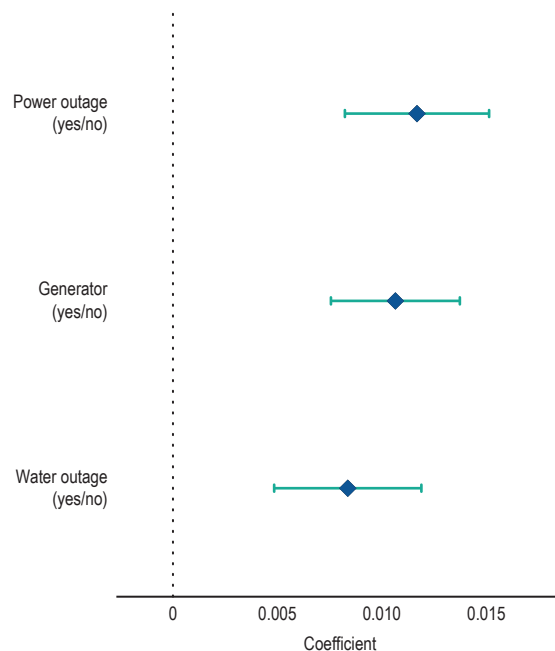
BOX 2.7 Do data centers benefit nearby businesses? (continued)

FIGURE B2.7.2 Firms closer to data centers are more digitally connected and innovative, and experience fewer utility disruptions

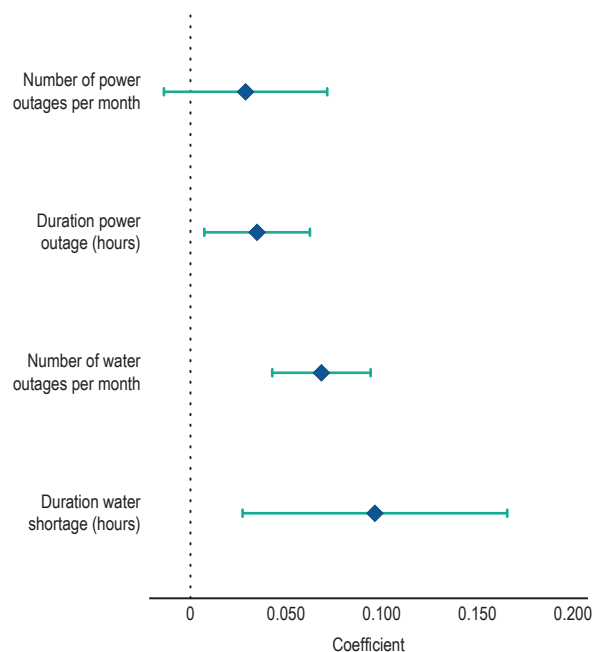
A. Digital and innovation



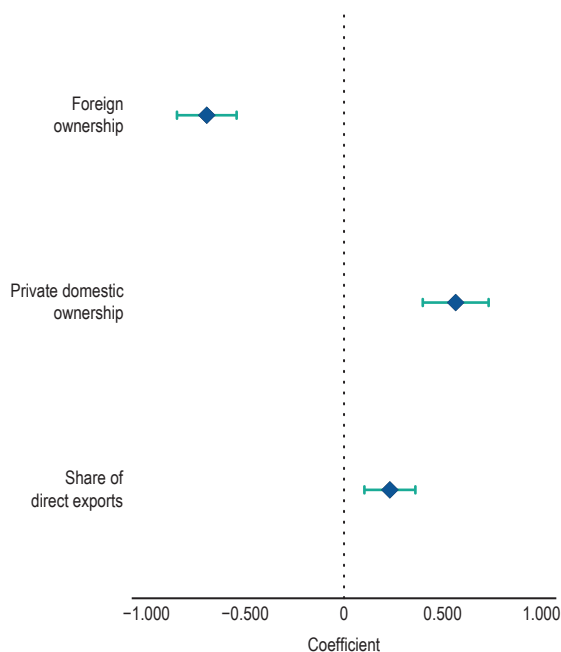
B. Infrastructure: Incidence



C. Infrastructure: Intensity



D. Export orientation and ownership



Sources: World Bank calculations based on World Bank Enterprise Surveys data and S&P Global data on data centers.

Note: Coefficients on log distance to nearest data center; 90 percent confidence intervals are shown. Negative coefficients indicate that the outcome is higher for firms closer to a data center. All specifications include country, year, and 2-digit ISIC Rev. 4 sector fixed effects. Controls include log firm age, log employment, multinational affiliation, formal training, manager tenure, export intensity, foreign ownership, bank account, and fixed asset investment (excluded when the variable is itself the outcome). Standard errors are clustered at the sector-size-location stratum level. Estimation uses survey weights. ISIC = International Standard Industrial Classification.

BOX 2.7 Do data centers benefit nearby businesses? (continued)

These patterns are formalized using regressions that also include country, year, and sector fixed effects and a set of firm-level controls. Three findings stand out. First, firms closer to data centers have higher labor productivity, sales, and employment. The relationship between proximity to data centers and labor productivity holds across income levels, firm sizes, and sectors. Second, nearby firms are more digitally connected and innovative. They are more likely to have a website and to report product and process innovations

(figure B2.7.1, panel a). Third, firms near data centers experience fewer power and water outages and shorter disruption durations (figure B2.7.1, panels b and c), suggesting that data centers co-locate with—or attract—more reliable utility infrastructure. One surprising finding is that firms near data centers report a lower share of direct exports, while foreign-owned firms tend to be located closer to data centers (figure B2.7.1, panel d). The export result warrants further investigation.

have lower returns if the tools available to workers and firms are not adapted to the region's languages, data environments, and business contexts. Progress, therefore, cannot come from treating the three gaps as separate agendas. It requires closing them in parallel, so that localized tools, effective use, and the human and physical foundations for adoption reinforce rather than constrain one another.

Priorities in how countries address each gap may differ depending on the binding constraints they face. The *World Development Report 2026* on AI discusses the role of governments as enablers, users, and regulators of AI, along with corresponding sets of policies (World Bank 2026f). Table 2.1 adapts them to address the three structural gaps identified in MENAAP. In the online survey conducted for this report, firms in the region ranked privacy, security, and bias concerns as the biggest constraints to scaling AI use. Addressing them through clear regulations, governance, and localization measures is a priority across the region. Improving the business environment—cutting barriers to technology adoption and investment while leveling the playing field—further enables adoption. Survey respondents also pointed to the need to train and upskill staff, improve internal data and system integration, and strengthen strategy and governance to benefit from AI. Enhancing firm capabilities across these dimensions is critical to deepening usage beyond superficial and often isolated use cases. On the public side, stronger institutional capacity to identify where AI adds value, build internal skills and governance, and make data AI-ready would allow

governments to fully benefit from AI. The SDAIA case study shows that there is work to do even among advanced governments.

AI can help address parts of the skills gap only if it is used to ease specific constraints in education systems rather than treated as a broad solution. One practical channel is time reallocation. In many school systems, principals spend much of their working time on administrative tasks rather than instructional leadership, which research identifies as a key driver of student outcomes (Robinson, Lloyd, and Rowe 2008). Teachers face a similar constraint, especially in lower-middle-income countries, where many enter the profession with incomplete subject or pedagogical preparation while also managing administrative responsibilities. AI tools that automate routine reporting, scheduling, communications, and preparation tasks could help shift how educators spend their time—not by changing the purpose of schooling but by reducing the time absorbed by low-value administrative work.

Early evidence suggests that AI is already being used in education for preparation, feedback, and instructional support. Its value depends on whether it changes how teachers allocate their efforts. Globally, roughly two in five teachers and school leaders report using AI tools in their work (GSL 2024; OECD 2024), with lesson planning among the most common entry points. This use is plausible, because lesson preparation is time-intensive, and GenAI can help generate differentiated materials, adapt content to different skill levels, and reduce the workload of

TABLE 2.1 Coordinated policies are needed to address the localization, usage, and foundational capital gaps at the same time

Gap/area	Policies
Localization	
Data ecosystems	• Digitalize data, and strengthen data governance • Create new data, in local languages, and sector-specific datasets • Forge data partnerships • Generate frontier research data
Compute	• Expand accessibility and affordability of cloud-delivered AI • Establish regionally shared high-performance compute • Build data centers for frontier workloads
Innovation ecosystem	• Close the financing gap for AI producers • Establish incubators and accelerators • Support research partnerships • Facilitate talent mobility • Reform procurement
Usage	
AI governance for enhanced trust, security, and privacy	• Adopt AI and data regulations and governance • Reduce regulatory uncertainty
Reform of business environment	• Reduce regulatory barriers to technology adoption and investments • Promote dynamism, and level the playing field • Promote firm capabilities for productive AI use
Strengthening of institutional capacity in government	• Integrate data and systems • Build skills and governance • Strengthen capacity for strategy, evaluation, and monitoring
Foundational capital	
Foundational infrastructure	• Establish a reliable, high-performance electricity grid and Internet networks • Expand access to digital devices • Expand access to the cloud
Foundational skills and AI literacy	• Enhance foundational skills • Integrate AI in the classroom • Embed AI literacy in the curriculum
Workforce-skilling programs	• Train the workforce for AI technical skills • Support adult learning systems • Support firm-based training • Build skills information systems

Source: Based on World Bank (2026f).

Note: AI = artificial intelligence.

course design. Evidence from Sierra Leone shows that teachers preferred a WhatsApp-based AI assistant over standard web searches because it was more relevant, accessible, and less data intensive in a low-resource setting (Björkegren et al. 2025). Evidence from Brazil points to a similar mechanism on the student side: Automated essay grading and feedback did not replace teachers but shifted their attention away from mechanical correction and toward discussion of argumentation, structure, and clarity, with students in the treatment group performing better on a national college entrance exam (Ferman, Lima, and Riva 2021). For MENAAP, the implication is narrow but important: AI will not close human capital gaps

on its own, but well-designed tools could help teachers and school leaders spend more time on the tasks where human judgment and interaction matter most.

Regulation and governance will be decisive in determining whether AI can scale safely, equitably, and with public trust. The *World Development Report 2026* offers a sequential and practical framework for trustworthy AI: start with voluntary standards; use existing laws to manage current risks; develop rules that can adapt over time; and work with other countries to keep frameworks compatible (World Bank 2026f). Voluntary standards on testing, auditing, transparency, and risk management

can provide an early, flexible foundation, but they cannot fully address risks where business incentives conflict with the public interest.

The next step is to apply existing legal frameworks to AI-related harms rather than wait for standalone AI legislation. Data protection, consumer protection, human rights, intellectual-property, and cybersecurity laws can already address many risks. Governments can then review these frameworks to identify gaps, introduce targeted rules where needed, and strengthen enforcement; regulatory sandboxes can support safe testing of new applications. International and regional cooperation, alongside meaningful participation by developing countries in standards-setting, can help prevent conflicting requirements across markets and ensure that global rules reflect diverse country circumstances.

Annex 2A Evidence from Case Studies

Case study 1. AI adoption by Tunisian firms: Evidence from a focus group discussion

On June 8, 2026, the World Bank's Middle East, North Africa, Afghanistan, and Pakistan (MENAAP) Chief Economist Office, in partnership with the Institut Arabe des Chefs d'Entreprises, held a focus group discussion about artificial intelligence (AI) in Tunis with 17 senior business leaders from 15 firms spanning the Tunisian private sector. They represented banking and financial services, capital markets, leasing and factoring, accounting and audit, information technology (IT) and systems integration, manufacturing, agri-food and retail, education and vocational training, energy and environment consulting, and think tank research.

Current state of AI adoption

The overarching picture that emerges is of a private sector that is broadly aware of AI's strategic importance, actively experimenting at the margins but largely operating without formal strategy, governance, or infrastructure adequate to translate that experimentation into organizational-level productivity gains.

The most prevalent form of AI use across nearly all represented sectors is what firms described as “primitive” or “basic” adoption: the use of publicly available generative AI tools (such as ChatGPT, Claude, and Gemini) for content generation, document drafting, benchmarking, and presentation preparation. Across accounting and audit, manufacturing and agri-food, capital markets and financial advisory, and energy and environment consulting, AI adoption remains at an earlier, exploratory stage, concentrated in generative AI (GenAI) tools for research, benchmarking, and documentation, although firms expressed clear ambitions to progress toward more sophisticated applications. Within the IT sector, adoption also appears to have developed organically, with limited evidence of formal strategic direction. In the broader business community, the prevailing pattern is individual use of AI tools to support personal productivity, largely separate from firm-level strategy.

The banking sector emerges as the most structurally advanced AI adopter among participating firms, although maturity varies sharply across the three institutions represented. The leading bank has moved well beyond generic chat interfaces into a diversified portfolio of live and in-development applications—including automated legal risk monitoring, computer vision for infrastructure security, an internal natural language processing (NLP) search tool, and AI startup incubation—anchored by a commitment to on-premise models as a data sovereignty safeguard. A second bank is still developing its AI strategy and governance framework while piloting the use of AI to personalize client offers. At a third bank, heavy grassroots AI tool usage among staff has outpaced structured deployment, leaving daily, unmanaged use of public AI platforms as an active compliance risk the institution is now working to contain.

Advanced AI usage cases are found in the education and research sectors. A university demonstrated the most comprehensive strategy, spanning the full student lifecycle, from predictive dropout analytics and a course-specific chatbot to virtual reality–assisted medical training, career guidance, and a formal ethics policy targeting academic integrity. A think tank has built an internal AI maturity

index and already operates at the agentic AI stage, with its AI agents working quasi-independently on knowledge production while staff shift toward validation roles. The institution estimates that up to 80 percent of its core knowledge work could soon be automated and is targeting agent training by 2027.

Drivers of adoption

Across sectors, participants converged on a consistent set of motivating factors. Productivity and efficiency gains were as the dominant driver, and almost

all participants cited automation of repetitive processes freeing capacity for higher-value work. One capital markets participant commented that AI's true purpose is to liberate human intelligence, delegating routine data manipulation to machines so that people can focus on the strategic judgment AI cannot replicate. In accounting and audit particularly, participants also noted AI's potential to spur innovation and new business models.

Competitive pressure is an emerging structural driver. At the firm level, one leasing and factoring sector participant noted that foreign clients increasingly expect AI readiness as a condition of continued business, turning adoption into a market access requirement in internationally exposed sectors. More broadly, fear of falling irreversibly behind competitors was described as a powerful motivator. One participant compared AI to the Internet, warning that firms that delay adopting this unavoidable disruptive innovation will simply lose time. AI arriving through purchased IT tools adds another layer of pressure, pushing firms toward adoption regardless of readiness.

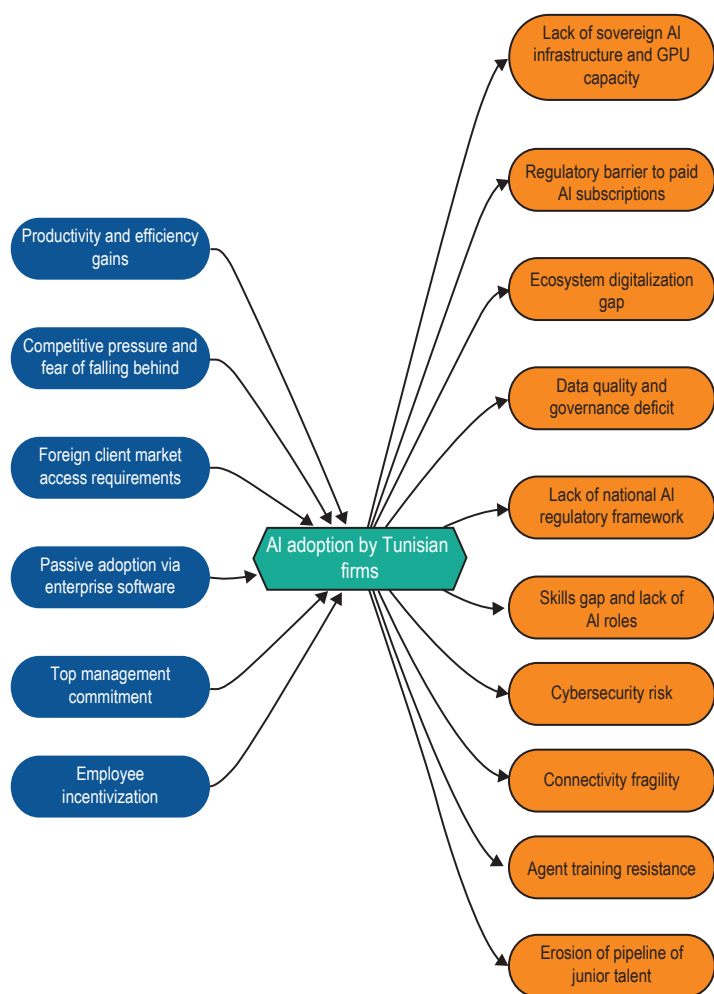
Internal leadership determines whether these drivers translate into adoption. Senior management commitment is a key determinant. Adoption is more likely to become structured when leaders treat AI as a strategic priority; limited management engagement can slow progress even when IT teams are motivated. Employee incentives may also support adoption, by aligning staff interests with the gains generated by AI-related initiatives.

These drivers operate alongside a set of constraints that temper the pace and shape of adoption. Figure 2A.1 summarizes the enabling and constraining forces identified in the focus group discussion.

Barriers and constraints

The most consistently cited constraint is security concerns stemming from the absence of national graphics processing unit (GPU)–capable computing and sovereign cloud capacity. One manufacturing firm reported relying on an international cloud platform to pilot an AI solution, raising compliance concerns. The absence of a national AI regulatory framework compounds these security

FIGURE 2A.1 Productivity gains, competitive pressure, and leadership commitment drive AI adoption among focus group firms in Tunisia, but infrastructure, regulatory, data, and skills gaps constrain it



Source: World Bank synthesis based on qualitative evidence from 17 senior business leaders across 15 firms who participated in a focus group discussion in Tunis, June 8, 2026.
Note: AI = artificial intelligence; GPU = graphics processing unit.

concerns: Tunisia has no comprehensive legal regime governing AI use or AI-related data protection, creating uncertainty that slows investment and leaves firms without clear rules for employee use of AI tools.

A second barrier is uneven digital readiness across the business ecosystem. Firms cannot fully integrate AI into their operations when clients, suppliers, and public institutions remain only partially digitalized.

Data quality and governance represent a related prerequisite many firms have not yet met. In the agrifood sector, for example, years of enterprise resource planning (ERP) investment were required simply to centralize data before AI deployment became conceivable.

Human capital constraints operate at multiple levels. Beyond the shortage of AI engineers and managerial AI literacy—and the near-total lack of dedicated AI roles—participants stressed that technical skills must be paired with soft skills and human judgment, which remain irreplaceable anchors of a successful AI transition.

A more forward-looking risk concerns agentic AI. Citing evidence from the United States, one participant noted that employees may systematically underperform when training AI agents that could displace their own roles—a dynamic not yet documented in Tunisia but one that firms deploying agentic AI will need to pre-empt through credible workforce transition commitments rather than rhetorical reassurance.

A related organizational risk is the erosion of pipelines of junior talent. As AI absorbs tasks once performed by entry-level staff, some participating firms are already reducing junior hiring, threatening the foundational experience on which deeper domain expertise is built.

Security and systemic risks further complicate adoption. The absence of cybersecurity governance frameworks enables data leakage, as employees routinely input sensitive information into public AI platforms without institutional controls. One

participant noted that attempting to block such tools provoked immediate staff pushback, leaving institutions caught between security exposure and operational necessity. Cybersecurity must, therefore, be built into AI adoption from the outset, not treated as an afterthought.

Path forward

Participants proposed a multilayered response combining national-level programs, infrastructure investment, and firm-level leadership commitments. They called for a national AI modernization program targeting small and medium-size enterprises—combining training, infrastructure access, and advisory support, financed through public budgets, financial institutions, and development finance, with the World Bank raised as a potential anchor—alongside a national AI convention (“Les Assises de l’IA”) to unite academic institutions, businesses, and international partners around concrete commitments. They stressed the need for political will at the highest level of government, without which programs risk remaining fragmented and voluntary.

Participants identified sovereign data infrastructure as a critical prerequisite. Although costly, a national data center and GPU-capable computing center are indispensable, as firms with data protection obligations are otherwise forced into constrained on-premise solutions, and smaller firms cannot host AI independently. The quality of AI output ultimately depends on data quality, which cannot improve without domestic infrastructure to process it.

At the firm level, genuine leadership commitment, dedicated AI specialists, and skilled data analysts are essential. Participants favored decentralized support for firms over centralized IT institutions, which they viewed as having absorbed resources without delivering commensurate gains in digitalization. They also argued that support programs should help firms progress more quickly toward agentic AI rather than requiring them to move sequentially through intermediate stages that may soon become obsolete.

Participants called for a national AI framework balancing data protection with room for experimentation with cybersecurity governance—defining what

data employees may share with AI platforms and how to enforce it—built in from the start.

Participants also saw an opportunity for Tunisia to become a regional AI producer, not merely a consumer, leveraging its advanced math education, engineering talent, and geographic position.

Case study 2. Impact of AI-assisted teachers: Evidence from a winter school in Pakistan

A randomized controlled trial (RCT) of a pilot learning camp for elementary school students on school break found that a teacher-led, targeted-instruction program raised foundational learning, whereas a version of the program in which an AI tool supported teachers did not produce a statistically significant effect. The results point to the difficulty of making AI-assisted tools work in settings marked by low attendance and weak school infrastructure.

AI's potential to support foundational learning

Education is a major testing ground for AI's promise in public service delivery. Skilled instruction is scarce; AI tools could, in principle, help fill this gap.

Foundational literacy and numeracy remain major challenges across emerging market and development economies (EMDEs). Data from the World Bank's Global Education Policy Dashboard show that, in 14 of 17 assessed systems, less than 10 percent of grade 4 students meet expected literacy and numeracy standards. A key factor is the mismatch between instructional level and student learning level, compounded by high absenteeism and extended school breaks, which can erase months of learning, with the largest losses among younger and disadvantaged children (World Bank et al. 2022).

Targeted instruction, often delivered outside regular class hours and aligned with students' actual learning levels, has shown promise in closing the learning levels gap. Examples include remedial instruction by teaching assistants during school hours (Banerjee et al. 2007) and structured learning camps outside of school hours that allow educators to target the

right level rather than covering the curriculum (Banerjee et al. 2016). Scaling such approaches, however, is challenging, because they require substantial teacher time and expertise, both of which are scarce in many EMDEs. Computer-assisted learning offers one potential way to expand reach by personalizing instruction and reducing reliance on intensive one-on-one support. Studies find positive impacts on learning outcomes in Cambodia (Ito et al. 2021); China (Lai et al. 2015a, 2015b); India (Muralidharan, Singh, and Ganimian 2019); and wartime Ukraine (Dinarte-Diaz et al. 2025).

GenAI could further enhance these tools by making digital tutoring more capable and easier to use. Early evidence from an RCT of an AI tutor in secondary schools in Nigeria is encouraging (De Simone et al. 2025), but the evidence base on AI-assisted learning in EMDEs remains limited.

Winter school experiment in Balochistan

A recent RCT in Balochistan, Pakistan, evaluated both the effectiveness of a structured learning camp in addressing learning losses during the long winter break and whether AI-enabled teaching support could improve its impact (Asad et al. 2026). The study took place against a backdrop of weak learning outcomes. Only half of grade 5 students in Pakistan can read a simple story in Pashto, Sindhi, or Urdu, and just 46 percent can complete two-digit division (ITA 2024). Learning challenges are particularly acute in Balochistan, a low-income, conflict-affected province where a lengthy winter school closure, lasting from mid-November to early March in colder areas, further disrupts learning.

In partnership with the provincial education department, the RCT implemented a 6-week winter school program for public school students in grades 2–5 in Quetta during January–February 2026. The study compared three groups of students: a control group, which received no winter school instruction; a winter school built around a targeted instruction program (TIP); and a winter school in which AI supported teachers. The TIP helped elementary students regain grade-level proficiency in Urdu, math, and English through structured assessments and instructional materials delivered by trained

teachers. In the AI arm, teachers used a mobile application that generated customized lesson plans, produced and graded assessments, and delivered coaching feedback based on recordings of classroom interactions. Unlike in most previous RCTs of AI-assisted learning in EMDEs, students did not interact directly with the technology; only teachers used the AI tool. Both winter school models operated in multigrade classrooms, requiring teachers to adapt instruction to students with different grade levels and learning needs. The intended advantage of the AI tool was to reduce teachers' preparation burden while improving their ability to tailor instruction to individual student needs.

The learning losses and winter school attendance patterns observed in the RCT mirror broader evidence from EMDEs. The study's primary outcome measure is a composite test score capturing student performance in English, math, and Urdu. Between November 2025 and April 2026, students in the control group experienced an average decline of 0.11 standard deviations (SDs), suggesting significant learning loss over the winter break. Participation in the winter schools was limited, with average attendance reaching only 26.3 percent across both treatment arms. Attendance fell as the distance between students' home schools and assigned winter school sites increased, indicating that travel requirements constrained participation. Attendance rates also

varied widely across schools, reflecting implementation challenges during the program's first rollout, including inadequate heating facilities as temperatures fell below freezing for several days, which likely hindered student attendance.

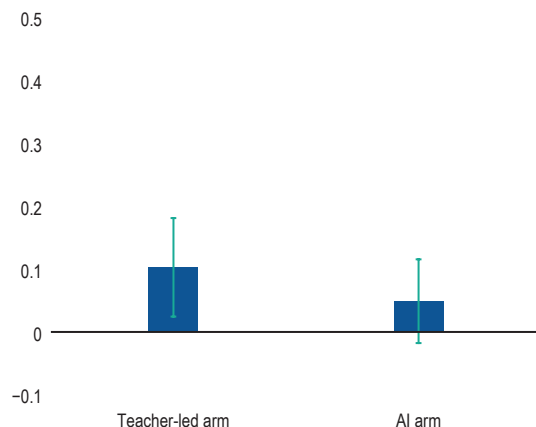
Preliminary findings indicate that the teacher-led TIP intervention improved learning outcomes, despite considerable implementation challenges. Although students were assessed only after school resumed in April, more than 10 weeks after the winter schools ended, assignment to the TIP arm increased composite test scores by an average of 0.10 SDs, a statistically significant effect (figure 2A.2). By contrast, the estimated impact of assignment to the AI-assisted arm was 0.05 SDs and not statistically distinguishable from zero. The magnitude of the TIP effect is particularly notable given both the low attendance rates and the extended period without formal instruction between the intervention and the endline assessment. Indeed, the estimated gain from the TIP arm was large enough to fully offset the average winter learning loss observed among students in the control group.

The effectiveness of the intervention appears closely linked to student participation. Using a noncausal dose–response estimator, the researchers found that students attending at least 40 percent of sessions scored 0.26 SDs higher on the composite

FIGURE 2A.2 Attending winter school in Pakistan improved learning; AI-assisted tools did not

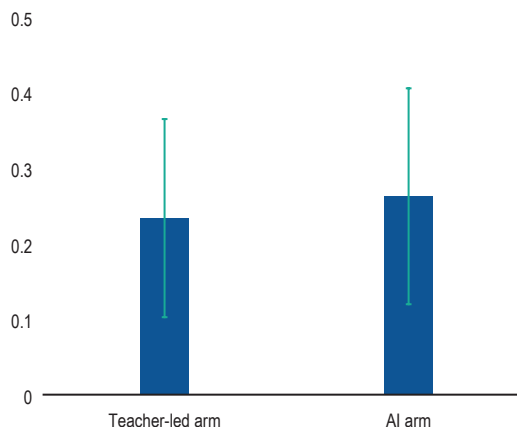
A. Impacts of winter school

Impact on composite test score (%)



B. Impacts among high-attendance students

Impact on composite test score (%)



Sources: World Bank (2026g); Asad et al. (2026).

Note: Bars show coefficient estimates; whiskers show standard errors estimating the impact of two arms on a composite student test score combining performance in English, math, and Urdu. AI = artificial intelligence.

assessment than students that attended fewer sessions, regardless of whether they were assigned to the teacher-led or AI-supported arm. The results indicate that improvements that raise attendance could unlock substantially larger learning gains. Sustaining student participation remains a challenge, as almost 1 in 10 students dropped out of school between November and May.

Implications for use of AI in learning tools

Although the findings are preliminary, the winter school experiment offers several lessons for the design of AI-enabled education programs. It adds to a growing body of evidence showing that targeted instructional interventions can generate meaningful improvements in foundational learning. At the same time, the results highlight the difficulty of translating AI's potential into measurable gains in settings where schools face basic constraints, including limited infrastructure, weak learning environments, and scarce teaching resources.

Several explanations may account for the muted effects of the AI-supported model. Current AI tools may be better suited to improving short-term instructional efficiency than to producing durable learning gains; more intensive teacher-led approaches may be more effective at building foundational skills that persist over time. Alternatively, AI support could inadvertently reduce rather than complement teacher effort. Distinguishing between these mechanisms will require further research and be critical for developing more effective AI-assisted learning interventions.

Case study 3. AI-enabled job matching and skills forecasting: Evidence from the West Bank and Gaza

Data and institutional constraints—including fragmented data across institutions, inconsistent funding of statistical institutions, and lack of a comprehensive labor market information system—impede effective labor market policy design in the West Bank and Gaza. Two AI applications offer lessons for leveraging AI for labor market information systems relevant for similarly data-scarce environments.

AI-assisted skills forecasting for TVET design

Technical and vocational education and training (TVET) plays a critical role in addressing unemployment and skills mismatch in the West Bank and Gaza. Before 2023, approximately 160 TVET institutions trained around 13,000 graduates a year across industrial, commercial, information and communications technology (ICT), home economics, agriculture, and hospitality (Ministry of Education and Higher Education 2018; Ministry of Labor 2020). Evidence from the West Bank and Gaza suggests that TVET graduates often achieve stronger employment outcomes than peers who pursue other education pathways (Hilal 2019). Yet the sector has long faced persistent challenges, including outdated curricula and teaching methods, limited appeal among youth, weak institutionalized links with employers, and insufficient alignment between training programs and private sector demand.

The USAID Forsah TVET program, which ran from January 2023 to January 2025, aimed to strengthen the ability of 12 TVET programs to respond to labor market demands by improving the relevance and quality of programs, expanding accessibility for youth, and institutionalizing private sector partnerships. Skills forecasting—a method of predicting current and future in-demand skills—was a foundational component of the program. The system was designed but not fully implemented because of the premature closure of the project in January 2025.

The program developed a hybrid methodology designed to partially compensate for the weakness of official labor market data by triangulating multiple data sources. The quantitative backbone combined sector-level economic indicators—employment, output, productivity, and investment—with TVET system data on enrollment patterns and graduate outputs, as well as targeted surveys of employers, graduates, students, and prospective trainees. Digital labor market signals, including online job postings and vacancy data, provided supplementary evidence on emerging occupations and skills demand. These sources were complemented with forward-looking

qualitative inputs from structured consultations with private sector firms, industry associations, and training providers. Rather than assigning fixed weights to individual sources, the approach used an iterative triangulation process in which quantitative indicators established a baseline and survey data, digital signals, and stakeholder consultations were used to validate, refine, and update sector assessments. This continuous and iterative process was designed to enable TVET institutions to adapt dynamically as labor market conditions evolve (figure 2A.3).

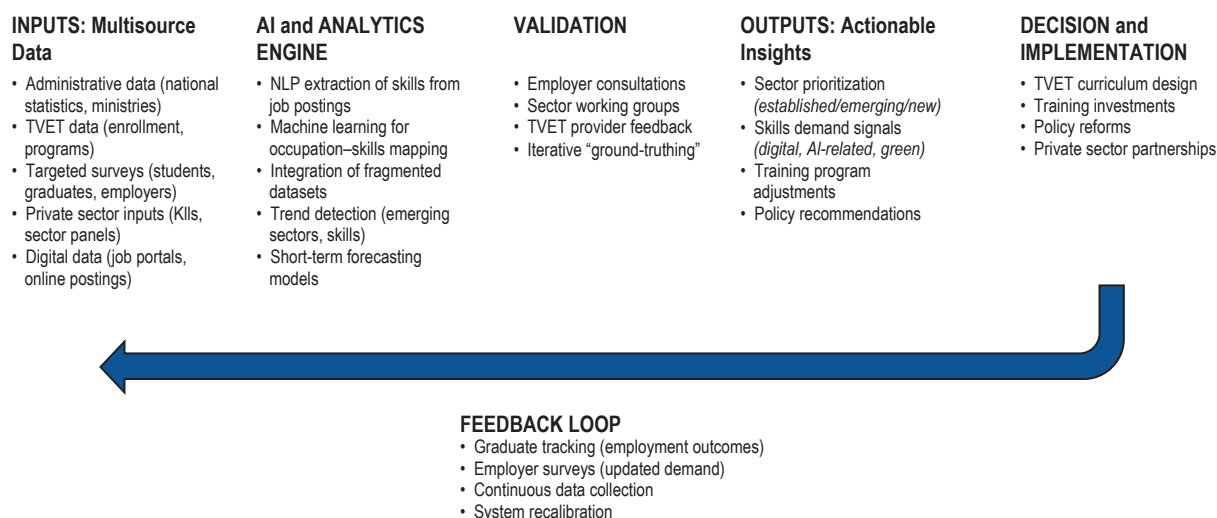
AI expands the range and volume of data that can be analyzed. Natural language processing (NLP) was used to efficiently analyze large volumes of text contained in online job postings—such as those posted on Jobs.ps—as well as employer-generated data, including vacancy announcements, job descriptions, applicant records, skills assessments, and hiring outcomes. AI also facilitates the triangulation of information from multiple sources. NLP, machine learning classification models, and predictive analytics techniques were used to identify trends and relationships across multiple fragmented data sources, enhancing the short-term skills-forecasting model. Although the proposed system was not implemented at sufficient scale to permit formal evaluation of forecast accuracy, it

demonstrates how AI-enabled approaches can expand the range of data available for forecasting and improve the timeliness of labor market intelligence in data-constrained environments.

Data collection remains indispensable. The hybrid approach exposes what AI cannot fix in data-constrained settings. AI may enable the analysis of online job postings, but they offer only a partial view of labor demand. Many vacancies—particularly at small firms, family businesses, and informal enterprises and in sectors such as construction, agriculture, retail, and personal services—are filled through personal networks or direct referrals rather than digital platforms. As a result, AI analysis of online vacancies may overrepresent larger, formal, urban, and digitally active employers while underrepresenting occupations for which hiring remains offline.

Employers are often the most reliable source of information on emerging skills needs. Although administrative and vacancy data can indicate occupational demand, it is engagement with employers that provides the most reliable information on specific competencies required within those occupations—a distinction that matters for curriculum design. Employers also provide early signals of technological and business changes that are not

FIGURE 2A.3 AI can strengthen skills forecasting by integrating fragmented data sources, but complementary data collection remains essential



Source: World Bank.

Note: AI = artificial intelligence; KIs = key informant interviews; NLP = natural language processing; TVET = technical and vocational education and training.

yet reflected in official data, including shifts in production processes, adoption of new technologies, and evolving certification requirements.

The Forsah TVET experience demonstrates that AI can make the most of existing data, but it does not resolve the lack of information. In contexts where the digital labor market footprint is limited; informal employment is widespread; and reliable, forward-looking information is missing, complementary surveys and direct employer engagement remain critical.

Strengthening institutional capacity for data collection and stakeholder engagement remains a priority in fragile settings. Fragmented employer data, weak incentives for firms to share information, and the absence of standardized reporting mechanisms are some of the key challenges in data collection. Working through trusted intermediary organizations such as business associations and chambers of commerce and demonstrating how data sharing can improve recruitment outcomes and access to qualified talent can help address these challenges.

Development of an AI-enabled job-matching platform

JobMatch.ps was developed by the Ministry of Labor in the West Bank and Gaza, with support from Enabel (the Belgian Development Agency), and implemented with technical support from Insights for Research, Polling and Training and from Nobl.ai. The platform operates as the primary national digital employment platform, aggregating vacancies from multiple partner job portals (such as Jobs.ps) and employers and integrating labor market data from universities and vocational training institutions to provide a unified system. As of June 2026, 622,104 job seekers, 43,403 employers, and 5,800 active vacancies were registered, covering approximately 95 percent of online job advertisements in the West Bank and Gaza.

The platform's core innovation is moving beyond conventional keyword-based filtering (which reduces matching to a binary question of whether a candidate's listed qualifications match a job's requirements) toward a semantic matching model

that estimates multidimensional proximity between candidates and vacancies. On the demand side, NLP models process job advertisement text to extract the underlying skills, experience requirements, and competencies associated with a position. On the supply side, candidate resumés and profiles are transformed into quantitative scoring vectors using AI-assisted methods such as factor analysis across multiple dimensions (technical skills, educational credentials, language proficiency, and work experience). The matching algorithm ranks candidates and job opportunities according to the distance between each candidate and vacancy vector. This approach can enhance match quality and surface matches that may not emerge under a binary filtering model.

Qualitative evidence from implementation suggests that the platform has strengthened the visibility of job opportunities, expanded access to candidate pools for employers, and improved the government's ability to collect and analyze labor market information. Additional monitoring and evaluation will be required to assess impacts on employment outcomes, matching quality, and hiring efficiency.

Training on local data is critical. The project initially adopted a matching model developed by the Belgium-based company Nobl.ai, which had been trained and validated using European labor market datasets containing large volumes of vacancy and candidate data as well as established occupational and skills taxonomies. The model performed poorly in the context of the West Bank and Gaza. Employers used terminology, credential systems, and occupational classifications that diverged from the occupational and skills frameworks on which the model had been trained. They may place an emphasis on locally recognized university degrees, vocational specializations, Arabic-language competencies, and sector-specific experience gained through informal employment. As a result, the system was less effective at identifying equivalencies between candidate qualifications and employer requirements in the labor market. Retraining the model on local and regional data was necessary to improve matching quality.

Need for data collection

Taken together, the two use cases highlight that AI is a powerful tool for making better use of data that already exist—processing them faster, at scale, and with greater analytical sophistication—but that AI cannot compensate for data that do not exist. Investments in strengthening data infrastructure are, therefore, critical. This infrastructure needs to include common occupational and skills taxonomies; interoperable databases linking education, training, vacancies, job seekers, graduates, and employment records; standardized data-sharing protocols across ministries and private sector; data privacy and governance safeguards; and institutional capacity to update, validate, and use data. Hybrid and AI-enabled approaches can mitigate data gaps, but long-term sustainability requires strengthening these underlying systems.

Case study 4. The SDAIA and data governance as a foundation for AI in Saudi Arabia

Saudi Arabia's Vision 2030 diversification agenda has made digital transformation and AI central pillars, positioning the country as a regional and global AI competitor. At the heart of this effort sits the Saudi Data and Artificial Intelligence Authority (SDAIA), an institution established in 2019 with a dual mandate: to govern the national data ecosystem and to serve as the strategic accelerator for AI adoption across government and the economy.

Institutional architecture

SDAIA reports directly to the prime minister, signaling the highest level of political commitment to data and AI as national priorities. Within this structure, it operates through three specialized subentities, each with a distinct functional role.

The National Data Management Office (NDMO) is SDAIA's primary regulatory arm. It is responsible for setting data management standards, enforcing the Personal Data Protection Law (PDPL), and overseeing cross-border data transfers. The NDMO translates the national legal framework into 191 operational controls across 15 governance domains

and tracks compliance with these controls by more than 214 government entities through the National Data Index (NDI), which provides a systemwide view of data governance performance.

The National Center for Artificial Intelligence (NCAI) functions as SDAIA's research, development, and advisory arm. It leads work on AI adoption in priority sectors, publishes AI ethics and governance guidelines, and provides strategic AI advisory services to government ministries and agencies. Through the SDAIA AI Index, the NCAI also measures government entities' readiness to adopt AI technologies, establishing a national baseline for tracking progress.

The National Information Center (NIC) is the backbone of the infrastructure. It manages Deem Cloud, the government's cloud platform, and operates critical national digital platforms, including Nafath, the national single sign-on system; Tawakkalna, a government "super app" for citizen services; and the Government Service Bus, which enables interoperability between public agencies.

Together, these three entities give SDAIA extraordinary reach across the data and AI landscape. This design has enabled rapid institution-building, but it has also introduced structural tensions.

Data infrastructure and national platforms

SDAIA has built a substantial national data infrastructure that underpins both government service delivery and AI development. The National Data Bank (NDB) and the Data Marketplace are the two flagship platforms. The NDB applies a "single source of truth" principle to government data: Rather than each ministry maintaining its own version of core datasets (on citizens, businesses, or land), authoritative data are held centrally and accessed by agencies through automated sharing protocols. The Data Marketplace facilitates controlled data exchange, including between public and private actors, enabling private companies to access government datasets for innovation and service development under defined terms (such as in data-sharing agreements).

These platforms are consequential for AI development, because the availability of high-quality, interoperable, and consistently updated government data are one of the most critical inputs to training and deploying reliable AI systems. By centralizing data under a managed infrastructure, SDAIA seeks to reduce the fragmentation and duplication that typically constrain AI adoption in large bureaucracies.

Complementing the data infrastructure is SDAIA's human capital agenda. The SAMAI ("One Million Saudis in AI") initiative has already trained more than 1.2 million people in AI-related skills, exceeding its original target. This scale of capacity building is notable not only as a quantitative achievement but as a signal of the government's commitment to making AI literacy a broad national asset rather than a narrow technical specialization.

Legal and regulatory framework

Saudi Arabia's data governance legal framework has developed substantially over the past 5 years. Its centerpiece is the PDPL, issued in 2021, amended in 2023, and fully enforceable since September 2024. The PDPL establishes individual rights over personal data, conditions for lawful processing, requirements for cross-border data transfers, and enforcement mechanisms, with SDAIA serving as the supervisory authority.

The PDPL is supported by national standards developed by the NDMO. These standards translate the law's requirements into practical controls for government and private sector entities. The NDI provides the main instrument for monitoring implementation, allowing SDAIA to assess entity-level maturity and identify areas where further support or improvement may be useful.

AI governance is also continuing to evolve. The NCAI has taken important initial steps by publishing AI ethics guidelines and governance principles, providing a foundation for responsible adoption. As Saudi Arabia expands the use of AI across sectors such as health, finance, justice, and public services, this foundation could be complemented over time by a more comprehensive and binding regulatory framework. Greater clarity on algorithmic

accountability, impact assessment, auditability, bias mitigation, and liability could help reinforce public trust and support the responsible scaling of AI in line with the country's broader digital transformation.

Structural design choices and governance considerations

SDAIA's broad institutional mandate brings regulatory, promotional, operational, and enforcement functions within a single authority. The NDMO regulates and enforces data protection rules, the NCAI promotes AI adoption and investment, and the NIC operates critical digital infrastructure. This integrated design can support rapid implementation and close alignment across functions. As the data and AI ecosystem becomes more complex, clearer internal safeguards and role differentiation could further reinforce the independence and transparency of regulatory decisions.

The concentration of these functions also creates a governance tradeoff common to institutions that are scaling rapidly: The authority responsible for enforcing data protection rules also has a mandate to advance AI adoption and digital economic growth. These objectives will often be complementary, but they may occasionally require careful balancing—for example, when a major AI deployment raises data protection questions or compliance requirements affect the pace of a priority initiative. Formal safeguards and transparent review processes can help manage such situations and further strengthen regulatory credibility and trust in decision-making.

A related consideration is coordination across institutions. SDAIA's mandate intersects with those of the Digital Government Authority (DGA), which leads digital transformation across the public sector, and the National Cybersecurity Authority (NCA), which sets cybersecurity standards and governs cloud security. Given their shared interests in areas such as cloud governance, data standards, and security requirements, more systematic coordination could further strengthen alignment. Existing memoranda of understanding and the separation of responsibilities provide a useful foundation. Building on these arrangements through a standing coordination structure—such as a permanent

joint committee or working group hosted by SDAIA with representation from the DGA and the NCA—could support regular information exchange and help minimize gaps or duplication. Similar coordination could be beneficial between SDAIA/NDMO and the General Authority for Statistics, which is responsible for statistical coordination. Formal collaboration, including agreement on shared definitions of authoritative data, could help align these closely related functions.

SDAIA's experience illustrates the potential of a centralized approach to data and AI governance. In 7 years, Saudi Arabia has established a data protection framework, developed national data infrastructure, introduced a government AI readiness index, and expanded AI-related training to more than 1 million people. Together, the NDMO, NCAI, and NIC provide an integrated institutional structure for advancing data and AI governance, supported by high-level political commitment. The experience underscores the importance of strong data governance in supporting digital transformation, business innovation, job creation, and the trusted data foundations needed for safe and responsible AI.

SDAIA's combination of regulatory, promotional, and operational functions reflects governance tradeoffs, including balancing rapid implementation with regulatory independence, coordination efficiency with transparency, and national data sovereignty with international interoperability. As the data and AI ecosystem continues to expand, continued coordination among institutions and sustained investment in governance, infrastructure, and capabilities will be important to maintaining this momentum. Saudi Arabia's experience provides a useful reference for how a centralized, well-resourced institutional model can establish the foundations of a national data and AI governance system while continuing to adapt as the ecosystem matures.

Case study 5. AI adoption in PE- and VC-backed companies in MENAAP

The International Finance Corporation (IFC) is one of the largest institutional investors in private equity (PE) and venture capital (VC) in EMDEs, investing both directly in companies and indirectly

through PE and VC funds (Strusani et al. 2025). PE investments by IFC provide capital to support companies' expansion across traditional sectors, such as agriculture, manufacturing, financial services, and health care. IFC's VC investments—both direct and through VC funds—support early-stage businesses with high growth potential, often through scalable disruptive technologies in areas such as agtech, healthtech, and Software as a Service (SaaS), including some AI-native firms. IFC conducts annual reporting on companies in its portfolio, tracking firm characteristics, financial and operational metrics, and development outcomes. These data are self-reported by direct investees or, for indirect investments, collected and submitted by PE and VC fund managers on their underlying portfolio companies. The fiscal 2026 round of the PE/VC Development Impact Questionnaire, which was administered between late March and June 2026, included a module of 15 questions on the adoption of AI (Smeets and Olarte-Rodriguez 2026).¹¹

Globally, 1,662 companies answered at least one of the AI-related questions. Within the MENAAP sample¹², 88 percent of companies (192 of 218) are headquartered in EMDEs, led by the Arab Republic of Egypt (80 companies), Tunisia (42), Jordan (25), Morocco (21), and Pakistan (12), with a handful of firms in Algeria, Iraq, Lebanon, and the West Bank and Gaza.¹³ The sample also includes a smaller number of companies headquartered in high-income economies in the region, including the United Arab Emirates (22) and Saudi Arabia (4).

The companies covered by the survey can be considered frontier firms (Smeets and Olarte-Rodriguez 2026). Firms that secure equity financing tend to be younger, larger, more formalized, and more

¹¹The survey covers both direct investees and indirect investees, which receive financing through IFC-backed funds that typically invest in 15–20 companies.

¹²As in the rest of the report, MENAAP sample in this case study excludes Malta and Israel.

¹³The location of a company's headquarters does not necessarily indicate where its underlying economic activity takes place. Companies frequently redomicile their holding entities to major financial centers or technology hubs while retaining substantial operations, employment, and customer bases in EMDEs.

growth-oriented than the average firm. The results should, therefore, be read as indicative of AI adoption in the more technologically forward segment of MENAAP's private sector rather than as representative of firms across the region.

Across economies, productivity growth is often disproportionately concentrated in a relatively small group of frontier firms (de Nicola, Mattoo, and Timmis 2025; Iacovone et al. 2025; Syverson 2024). These firms matter beyond their own performance, because they adopt new technologies relatively early, adapt them to local conditions before wider diffusion (Andrews, Criscuolo, and Gal 2015), and transmit knowledge to other firms as workers move across firms (Stoyanov and Zubanov 2012). Through these channels, the stock of local knowledge developed by frontier firms may help facilitate the broader diffusion of AI across a wider population of firms. The IFC survey sheds light on where frontier firms in the region stand in terms of AI adoption, as an indication of how diffusion is unfolding almost four years after the launch of ChatGPT-3.5.

Above-average adoption by frontier firms

AI adoption among frontier firms in EMDEs in MENAAP appears relatively widespread in 2026. Among companies headquartered in such countries, 81 percent report using AI in their internal processes, products and services, or both. This figure is around 10 percentage points above the average across all countries and broadly comparable with adoption among frontier firms in emerging Europe and Central Asia and in Latin America and the Caribbean. Within emerging MENAAP, Egypt and Tunisia report especially high adoption; Jordan and Morocco trail farther behind. Adoption reaches 100 percent among the 26 firms headquartered in Saudi Arabia and the United Arab Emirates.

AI adoption among MENAAP frontier firms is concentrated in internal business functions but is often accompanied by use in products and services. The usage purpose for which a company applies AI determines where the benefits land. The deployment of AI for internal business functions typically

targets productivity gains, whereas use in products and services typically targets revenue growth and product differentiation for customers. Around 60 percent of adopters headquartered in MENAAP economies use AI both internally and externally. Internal-only use accounts for another 35 percent of adopters; external-only use is rare, consistent with global patterns. The prevalence of joint use suggests that the capabilities required for AI deployment, including data, skills, and infrastructure, can support multiple use cases across the firm.

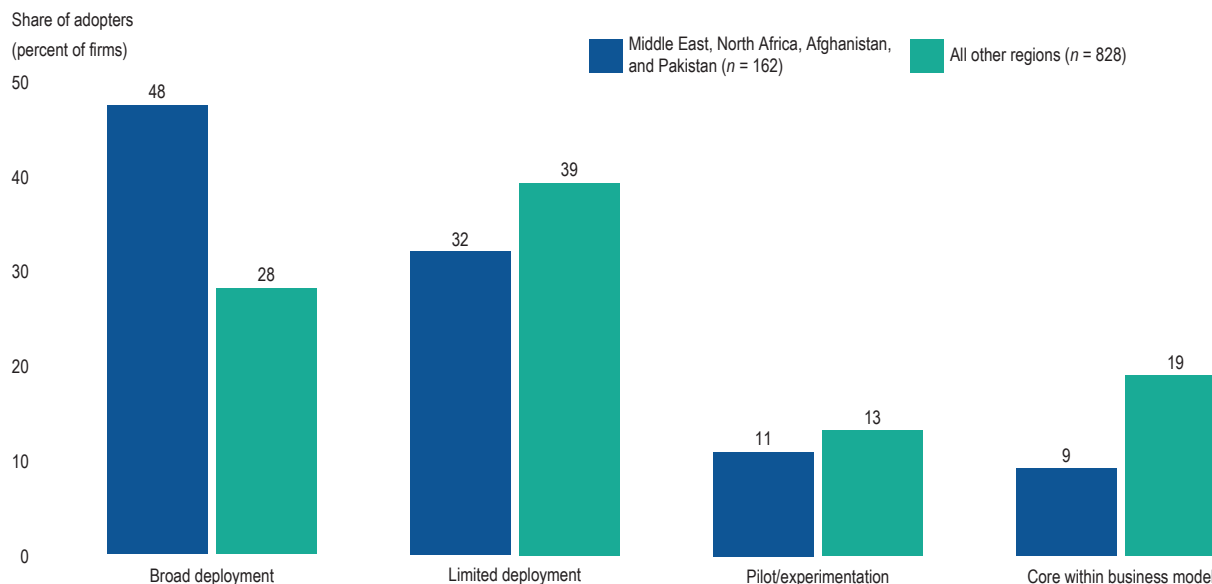
Uneven integration into the core business model

The survey results suggest that many frontier adopters have progressed to broad AI deployment across business functions. Nearly half of adopters headquartered in the MENAAP region report broad deployment, compared with 28 percent in other countries. Broad deployment does not necessarily mean that AI becomes central to how the company creates value, however: Only 9 percent of adopters in MENAAP describe AI as core to their business model, compared with 19 percent in other countries (figure 2A.4). Thus, AI is spreading quickly across business functions, but for most firms, it remains a tool that strengthens an existing business rather than one that fundamentally redefines the business model, as in the case for AI-native firms (Kim and Koning 2026).

Half of adopters headquartered in MENAAP economies report that their current level of AI use is appropriate; elsewhere just a quarter report doing so. Conventional constraints, such as data availability and technical infrastructure, are identified as barriers by relatively small shares of firms compared with firms in other countries.

This finding does not necessarily mean that MENAAP firms face few constraints. It may indicate that many have already found applications that meet their immediate needs and do not yet see a compelling reason to deepen adoption. The next frontier may, therefore, be less about convincing firms to begin using AI and more about demonstrating where deeper integration can generate additional value, including through the introduction of

FIGURE 2A.4 AI is broadly integrated across business functions, but its role in shaping firms' core business models remains limited



Source: International Finance Corporation's FY2026 AI questionnaire.

Note: Figure shows highest level of deployment stage each firm reports across internal and external AI uses. Sample includes one record per company. When a company is reported by more than one investor, direct investors' reporting is prioritized. Sample excludes nonadopters, 188 adopters who reported no level, and 0 adopters whose only reported level was "Not in place." Bars sum to 100 percent within each group. The MENAAP region is excluded from the comparison series, so the groups are mutually exclusive. AI = artificial intelligence; MENAAP = Middle East, North Africa, Afghanistan, and Pakistan.

new AI-native business models (Kim and Koning 2026). This finding is consistent with the relatively small share of MENAAP firms that currently consider AI core to their business model.

An advanced segment of MENAAP's private sector has adopted AI quickly and moved much of it into regular use by 2026. However, AI is core to the business model of relatively few frontier firms.

The next challenge is, therefore, twofold: to diffuse AI adoption beyond frontier firms and to deepen its economic value among firms that have already adopted it. Deepening usage requires moving beyond the adoption of readily available AI tools toward identifying applications with a higher value addition that expand firm capabilities and enable the development of new products and business models.

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The conflict that erupted in early 2026 continues to be the principal source of macroeconomic risk for the MENAAP region. Key trade routes have been severely disrupted—especially for the oil and gas exporters who depend on the Strait of Hormuz—and energy costs have spiked. Unlike in previous energy shocks, Persian Gulf oil and gas exporters face the largest growth downgrades, while the effects were more contained in middle-income countries. Conflict has compounded humanitarian needs and existing vulnerabilities in fragile settings. In many economies, higher interest rates and increased uncertainty are delaying investment decisions and increased social protection needs are putting pressure on already strained fiscal resources. Against this near-term background, this report examines how artificial intelligence (AI) will reshape labor markets and productivity across the region in the longer term. Wide differences in capacity and readiness will prevent the region from capturing the full potential of AI. Weak private sector dynamism and inadequate innovation ecosystems remain binding constraints. Three mutually reinforcing gaps—in localization, usage, and foundational human and physical capital—need to be addressed simultaneously. Advances in leading economies, such as Saudi Arabia and the United Arab Emirates, can create opportunities for regional collaboration and generate shared gains across the region.

