

University of Groningen

The Falling Productivity in West Asian Arab Countries Since the 1980s

Erumban, Abdul Azeez

Published in:
International Productivity Monitor

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2023

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Erumban, A. A. (2023). The Falling Productivity in West Asian Arab Countries Since the 1980s: Causes, Consequences, and Cures. *International Productivity Monitor*, 44, 89-199.
http://www.csls.ca/ipm/44/IPM_44_Erumban.pdf

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

The Falling Productivity in West Asian Arab Countries Since the 1980s: Causes, Consequences, and Cures

Abdul A. Erumban¹
University of Groningen

Abstract

This article analyzes the macro trends in real per capita GDP and productivity in 12 West Asian Arab countries, distinguishing between the oil-rich GCC economies and the non-GCC West Asian Arab economies. We use a panel data econometric analysis to understand the trade-off between productivity and job creation in the region. Further, we examine the sources of aggregate labour productivity growth in terms of a) structural change and within-industry productivity improvements and b) capital deepening and total factor productivity growth. Although the nature of productivity problems in the two groups of countries - the GCC and non-GCC West Asian Arab economies - differ, the challenges in addressing those are substantial for both. Developing a vibrant private sector that can foster productivity growth is a common challenge for both groups of countries. The inability to embrace innovation and technology and to translate investment in capital to productivity are important impediments to boosting productivity growth. Focusing on technology and innovation, continuing the efforts to diversify away from oil, and upskilling the local workforce are essential to creating more productive jobs for the native population.

The literature widely agrees on the importance of productivity for long-run economic growth (Krugman, 1994). In the neoclassical supply side perspective, global change to labour productivity growth is considered a source of sustained long-term economic growth, achieved with exogenous technological change (Solow, 1957). The demand-side explanations of the relationship between labour productivity and

¹ Assistant Professor, Faculty of Economics and Business, Global Economics Management, University of Groningen, Groningen, The Netherlands. The underlying research for this article has been done for the report “Productivity growth, diversification and structural change in the Arab States”, submitted to the International Labour Organization (ILO). The author is thankful to ILO for its enduring support and financial assistance. The author acknowledges previous research collaborations with Bart van Ark, Klaas de Vries, and Abbas Al-Mejren on GCC’s productivity dynamics and the several engagements with the Conference Board Gulf Centre that directly and indirectly helped this article. The article benefited from comments by Bart van Ark, Paolo Salvai, José Luis Viveros Añorve, Andrew Sharpe, and two anonymous referees for which the author is thankful. The usual disclaimer applies. Email: a.a.erumban@rug.nl

GDP growth, such as Kaldor (1966) and Verdoorn (1949, 2002), focus on the increasing rate of return, especially in the manufacturing sector. Manufacturing output growth enhances productivity both in the manufacturing as well as in the non-manufacturing sector.

Empirically, at the aggregate level, the correlation of labour productivity trends with GDP growth and per capita GDP growth is strong although not perfect.² Moreover, despite the multi-dimensional characteristics of economic well-being, which makes the relationship between productivity and well-being less straightforward, empirical studies establish a strong relationship between the two, suggesting productivity is a valuable indicator of welfare.³ Attaining productivity growth at the aggregate economy level, through improved productivity in firms and industries, and also through moving resources to more efficient activities, is therefore crucial for sustaining long-run growth and welfare.

This article aims to delve into the productivity dynamics in West Asian Arab countries in terms of the trade-off between productivity and job creation, and the roles of structural change and overall efficiency gains in driving aggregate labour productivity. The Arab economies, consisting of oil-resource-rich economies with very high levels of per capita GDP, and

impoverished non-oil economies, are generally classified as emerging and developing economies (IMF, 2022). While the oil-rich economies suffer from institutional weakness and resource dependency, the non-oil Arab countries share the usual challenges that many developing economies face, such as poverty, corruption, weak infrastructure, and lack of physical and social capital, alongside institutional weakness. In spite of the importance of productivity and structural change for economic growth these aspects are seldom considered in understanding the growth dynamics of the Arab countries.

In this article, we first provide an overview of the growth in per capita GDP and labour productivity in West Asian Arab countries since 1950. This helps us demonstrate the productivity problem that the region faces and place it in the larger global context, exposing how severe and unique the problem is in the region. Subsequently, we analyze the region's productivity problem on three different dimensions:

- The trade-off between labour productivity and employment creation in generating economic growth in the region compared to the global, emerging, and advanced economies are examined. This exercise aims to understand whether the region has been compromising on productivity

2 The term per capita GDP throughout this article refers to 'real per capita GDP' unless mentioned otherwise. The two terms - per capita GDP and real per capita GDP, may be used synonymously in the article.

3 See Oulton (2022) for a recent study. Note that while the welfare effects of productivity gains may be more apparent in productivity levels - higher productivity levels are associated with higher levels of well-being. Productivity growth, which helps countries eventually attain higher productivity levels, is considered the most important long-term source of sustainable improvement in living standards (Sharpe and Fard, 2022). Basu *et al.* (2022) further shows that when TFP is measured using prices and quantities as perceived by consumers, the welfare gaps between countries are due to TFP gaps rather than gaps in human or physical capital stocks.

by overly relying on job creation.

- The role of structural change, i.e. the relative importance of the within industry productivity growth and worker reallocation across industries, in driving aggregate labour productivity growth is analyzed., and
- The proximate sources of labour productivity, i.e. total factor productivity and capital accumulation, in the region, are examined from a comparative perspective.

The study covers 12 West Asian Arab economies: six Gulf Cooperation Council (GCC) economies, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates (UAE), and six other West Asian Arab economies, which we call 'non-GCC economies', Iraq, Jordan, Lebanon, Syria, Yemen, and the Occupied Palestinian Territory (PSE, hereafter Palestine).⁴ Throughout the article, the reference to "West Asian Arab economies" or simply "Arab economies" corresponds to the aggregate of the six GCC and six non-GCC economies mentioned earlier. Note that this study does not cover any of the North African countries, which are often considered while comparing economic dynamics in the Arab world (e.g. Rauch and Kostyshak, 2009; Saleh, 2021).

The distinction between GCC and non-

GCC economies is of high importance, as the productivity and growth dynamics in the two groups of countries are quite distinct. Therefore, we provide a comparative picture of the two stories whenever possible. The period of the analysis is 1950-2019, wherever the data is available.⁵ Most data used in the study are from The Conference Board Total Economy database (TED), World Bank World Development Indicators (WDI), ILOSTAT, and the United Nations National Accounts Statistics (UNNAS). Since the TED does not contain Palestine, we have extended the TED data using additional data from other sources, including the Palestinian Central Bureau of Statistics (PCBS).⁶

The article is organized into six main sections. Section 1 provides an overview of the trends in GDP, per capita GDP, and labour productivity growth in the West Asian Arab economies. In section 2, the article examines the trade-offs between productivity and employment to see whether the region's employment-driven growth have negative effect on productivity. Section 3 examines the within-industry and between-industry productivity effects on aggregate labour productivity growth. Section 4 examines the role of capital deepening and total factor productivity in driving aggregate labour productivity growth. Section 5

4 In a recent study on the historical growth dynamics in the Middle East and North African economies, Saleh (2021) treats the six GCC and Yemen as the Arabian Peninsula and the other five economies (together with Israel) as the Levant. However, given the economic similarities of Yemen with the countries in the Levant group, rather than the ones in the GCC, we combine Yemen with this group and call them non-GCC economies. Saleh's study also covers Egypt, Iran, Turkey, and the North African economies (Algeria, Libya, Morocco, and Tunisia).

5 All data on per capita income and labour productivity are available for the entire period of 1950-2019 for countries other than Palestine, for which the data is available only since 1970.

6 See Data Appendix for more details.

highlights some critical challenges and opportunities for the region to achieve productivity growth. The last section concludes.

GDP, Per Capita GDP and Labour Productivity Growth in the West Asian Arab Economies

Table 1 provides the growth rates of GDP, per capita GDP, labour productivity, and employment in the GCC and non-GCC Arab countries, in comparison with advanced economies, emerging economies, and the global economy. The results are provided for six sub-periods during the last 70 years, which are 1950-1960, 1960-1970, 1970-1982, 1982-1992, 1992-2009, 2009-2019. This periodization is based on five break points identified using the Bai and Perron (1998, 2003) structural break tests in the region's GDP, per capita GDP and labour productivity (GDP per worker). Despite its limitations, Bai and Perron's approach was the most feasible approach to identify a periodization that can be used across a heterogeneous group of countries in our sample.⁷ It is hard to justify using a periodization derived based on events in any of the individual countries

in our sample for all countries and the region as a whole. An alternative is to use an arbitrary periodization, such as growth rates by decades. Therefore, we opted for a widely used approach to identify structural breaks in the data and use it as the basis for our periodization.

We discern several facts from the table. First, taking 12 Arab countries (six GCC and six non-GCC economies) in the region together, the period of high GDP, per capita GDP, and labour productivity growth during the seven decades since 1950 was the first two decades following the oil discovery. The region's growth acceleration during this period, which was even faster than the global growth rates, was driven by the GCC (Table 1). The oil fortune seems to have supported these countries in tapping their catch-up potential during this period. Previous studies also documented the impressive growth in the region during this period (e.g. Girgis, 1973).⁸ The continued economic spin-offs from oil discovery resulting in substantial public investments in infrastructure, health, education, and public sector enterprises (Yousef, 2004), resulted in high growth in per capita GDP and labour productivity in the GCC oil-rich economies. The non-GCC Arab

7 Bai and Perron's (1998, 2003) method allows us to identify the phases of growth solely derived from the data, minimizing the residual sum of squares of the regression of the natural log of the relevant variable on the time trend over several years of the data. It should be noted that the breaks in this analysis are identified using the aggregated data for the entire region, which includes the oil-rich GCC economies and other Arab economies. Therefore, the breaks may not necessarily be aligned with country-specific events, and also, the impact of global events such as oil price rises may be lessened by the fact that we have countries with and without oil resources in the sample. However, some of these events may also have a common impact on all the countries in the region, which is more likely reflected in the breakpoints identified.

8 Girgis (1973) suggests that during 1958-1967 the Arab region grew faster than developed economies at the time and even faster than the growth rates of advanced economies during the industrial revolution. This fast growth, however, is not surprising as the region had significant potential for technological catch-up. The countries Girgis (1973) considered consisted of some countries which are not on our list (Algeria, Libya, Morocco, Sudan, Tunisia, and Egypt) and some which are on our list (Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia, Syria, and Yemen).

Table 1: GDP, Per Capita GDP and Labour Productivity, Average Annual Percent Change, 1950-2019

	1950-1960	1960-1970	1970-1982	1982-1992	1992-2009	2009-2019
GDP						
World	4.9	5.4	3.4	2.8	3.3	3.1
Advanced economies	4.8	5.2	3.0	3.0	2.3	2.0
Emerging & developing economies	5.1	5.7	4.1	2.4	4.5	4.2
Emerging Asia	4.6	4.5	5.0	5.7	6.6	5.6
West Asian Arab Economies	6.9	8.5	5.9	0.5	3.8	2.9
GCC	7.3	10.4	6.4	1.9	3.4	3.4
non-GCC	6.5	5.3	6.4	-3.1	5.5	1.3
Per capita GDP						
World	3.2	3.8	2.1	1.6	2.3	2.3
Advanced Economies	3.5	4.1	2.2	2.3	1.6	1.5
Emerging & developing economies	2.7	3.4	1.7	0.6	3.2	3.1
Emerging Asia	2.5	2.1	2.8	3.8	5.4	4.8
West Asian Arab Economies	3.6	4.1	0.4	-3.4	0.1	0.4
GCC	3.6	5.1	0.1	-2.3	-0.7	1.0
non-GCC	3.8	2.1	3.2	-6.0	2.9	-1.3
Labour productivity						
World	3.4	3.9	1.7	1.3	2.1	2.1
Advanced Economies	3.6	4.0	2.0	2.0	1.5	1.0
Emerging & developing economies	2.9	3.6	1.2	0.3	2.8	3.1
Emerging Asia	2.3	2.7	1.7	3.2	5.2	5.0
West Asian Arab Economies	3.8	4.3	1.2	-3.7	-0.5	-1.0
GCC	3.5	5.1	1.1	-2.7	-1.3	-0.8
non-GCC	4.5	2.7	3.6	-6.2	2.3	-1.5
Employment						
World	1.5	1.5	1.7	1.5	1.2	1.0
Advanced Economies	1.2	1.1	1.0	1.0	0.8	1.0
Emerging & developing economies	2.1	2.1	2.9	2.1	1.7	1.2
Emerging Asia	2.3	1.8	3.3	2.5	1.4	0.5
West Asian Arab Economies	3.1	4.2	4.7	4.3	4.3	3.9
GCC	3.9	5.3	5.4	4.6	4.7	4.3
non-GCC	2.1	2.5	2.8	3.1	3.2	2.8

Note: Labour productivity is measured as GDP per worker. Growth rates are calculated as log changes. The sum of employment and labour productivity growth adds up to GDP growth. West Asian Arab Economies consist of six GCC economies (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) and six non-GCC economies (Iraq, Jordan, Lebanon, Syria, Yemen, and the Occupied Palestinian Territory). For the list of countries in the global, advanced, and emerging groups, see Appendix Table 1. Regional growth rates are a weighted average of individual country growth rates, using nominal value-added weights. All growth rates are calculated as log changes. *Source:* Author calculation using The Conference Board Total Economy Database, April 2021.

economies also seem to have benefitted from exporting labour to the GCC in the early phases of oil discovery. Emigration to GCC's oil economies, which national governments of these countries have generally supported, has been a gainful opportunity to create jobs for citizens and gain remittance incomes in these countries (Kapiszewski, 2015), helping their domestic income, production, and consumption growth.

Second, with the rise in oil prices in the 1970s, growth in income, output, and productivity has weakened globally. Although

it produced an initial positive effect on oil-exporting GCC economies, the effect was not sustained longer. The GCC economies witnessed a slowing growth during the 1970-1982 decade, as they seemed to have intensified their resource reliance. More importantly, the per capita GDP growth was barely positive, showing stagnation in the standard of living that they achieved during the fast phase of post-oil discovery growth. The non-GCC economies, however, did see some improvement; their productivity and per capita GDP growth improved by about one percentage point from

the previous decade.

Third, labour productivity growth was quite close to per capita GDP growth in all the regions in the first two periods. That seems to have changed in the 1970s when the Arab economies in general, and the GCC in particular, showed an enormous disconnect between the two. In the rest of the world, per capita GDP grew much faster than productivity, while that did not happen in the Arab world. This implies that jobs have become increasingly less productive in the region. Although the disconnect in the region eased in the 1980s, that was accompanied by contractions in both indicators. The link, however, appears to be improving in the post-global financial crisis era.

Fourth, 1982-1992 was a decade of economic losses for the West Asian Arab countries in general, and for the non-GCC economies, in particular. The region lost much of its previously made per capita GDP and labour productivity gains. The fall in global oil demand and the subsequent decline in oil prices in the early 1980s lowered economic growth in all the GCC

economies. Furthermore, with the Iraq war, the region's challenges during this period were quite high, and the Iraq economy shrunk substantially. No single country in the non-GCC economy group improved economic growth, leading to substantial deterioration in people's economic well-being.

Fifth, the long-term GDP growth improved in the Arab countries during the 15 years prior to the global financial crisis.⁹ A similar rising trend is observed in the emerging markets in general during the 1992-2009 period from the previous decade. However, the improvement in the Arab world's GDP growth was not enough to offset the rise in the region's population. The GCC witnessed continued erosion in per capita GDP and labour productivity.¹⁰ The non-GCC economies witnessed an improvement from the contraction of productivity and per capita GDP in the previous period, yet the growth rate remained lower than in the 1970s.

Sixth, in the most recent period, 2009-2019, the per capita GDP and labour productivity continued to suffer in the West Asian Arab economies, with mini-

⁹ The average growth rate for 1992-2009, which includes the crisis years 2008 and 2009, is lower by 0.1 percentage point, compared to the 1992-2007 (when the crisis years are excluded) growth rate for the region as a whole, with the GCC growth lower by 0.2 percentage points, and the non-GCC group showing no difference between the two periods. At the same time, the financial crisis has lowered global GDP growth by nearly half a percentage point – the average global growth for 1993-2007 (excluding the crisis years) was 3.6 percent, compared to 3.1 percent reported in Table 1. In an earlier study, Erumban and van Ark (2018) documented a more than one percentage point loss in global GDP growth due to the global financial crisis, from 4.2 per cent in 2000-2007 to 2.7 per cent in 2008-2015. Comparing the decade after the global financial crisis, 2009-2019, with 1992-2007 (excluding the crisis years 2008 and 2009), we note that the impact has been substantial even on long-term growth.

¹⁰ It may be noted that the financial crisis has further lowered the average real per capita GDP growth in the Arab region by nearly half a percentage point which was solely driven by productivity losses in the GCC. The per capita GDP growth in the West Asian Arab region (GCC) for 1992-2009 was 0.1 (-0.7) per cent compared to 0.5 (-0.1) per cent for 1992-2007. Inclusion of crisis years in the calculation of average growth rates did not change the per capita income growth rates in the non-GCC economy group. In comparison, the global economy's per capita GDP growth was lower by 0.3 percentage points at 2.3 per cent during 1992-2009 compared to 2.6 per cent growth during 1992-2007. A similar pattern exists in the case of labour productivity as well, suggesting a somewhat larger productivity-reducing impact of the crisis on the GCC compared to non-GCC Arab economies group and the global economy.

mal growth in per capita GDP and continued erosion in productivity. GDP growth rate remained at 0.2 percentage points lower than the 1992-2009 period globally, whereas it declined by almost one full percentage point in the Arab economies group. Interestingly, the decline in Arab GDP growth during this period solely came from the non-GCC economies. The GCC as a region sustained its growth in the previous period. It may be noted that some of the geopolitical situations and domestic instability in the non-GCC economies contributed to the significant volatility in the region's growth. Five of the six countries in this group witnessed significant political turmoil in recent years.

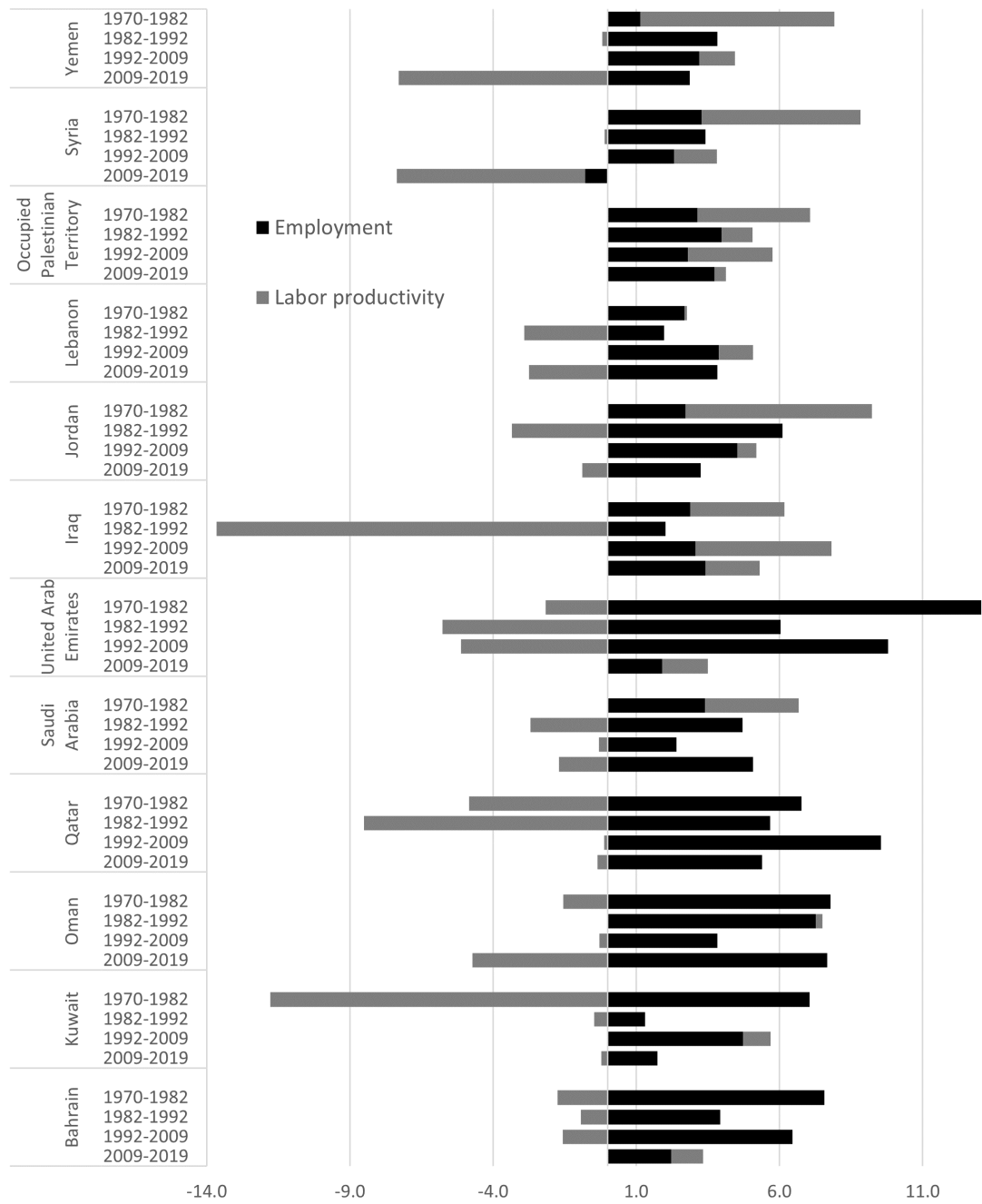
Finally, productivity did not contribute positively to growth in the West Asian Arab economies for nearly four decades except for some beneficial effects from globalization and catch-up growth in the non-GCC group in the 1990s. Comparing growth rates of labour productivity and employment – two components that add up to the GDP growth – there is a significant difference between the rest of the world and the West Asian Arab economies. GDP growth has been largely driven by improving productivity in both emerging and advanced economies in the last seven decades. The Arab economies do not follow that model. Almost all of the GDP growth in these economies since the 1970s, on average, was driven by adding more workers to the labour force, with no improvement in productivity in any of the three time periods we consider since 1980s. This was primarily driven by the poor performance of the GCC, where labour productivity growth was positive only during the 1950s

and 1960s. In the non-GCC economies, productivity growth contributed positively except during 1982-1992, and during the most recent period, 2009-2019.

Thus, the weakening productivity elasticity of GDP (the share of GDP growth accounted for by labour productivity) further endorses the disconnect between productivity and GDP growth in the West Asian Arab region in general, particularly in the GCC. While one-half to two-thirds of GDP growth in advanced economies and emerging Asia came from labour productivity, the productivity elasticity fell to less than 20 per cent in the GCC in the 1970s before it further fell to negative terrain in the subsequent periods.

We learn from these trends the weakness of the Arab economies, particularly the oil-rich GCC economies, in translating their fortunes into productive jobs, ensuring the sustainability of their growth path. The productivity weakness of the GCC is a phenomenon across the board (Chart 1). A few exceptions are the UAE and Bahrain in the most recent period, Saudi Arabia in the 1970s, Kuwait during 1992-2009, which included its post-war reconstruction period, and Oman during the 1980s. In the non-GCC economies group, the crisis in Yemen and Syria has caused erosion in productivity growth in recent periods. Also, the crisis in Syria seems to have impacted the economic dynamics in Lebanon and Jordan, where productivity growth has decelerated lately. Historically, most non-GCC Arab economies have shown positive productivity growth in the other periods, although at varying rates, except for major declines in the 1983-1992 period in Iraq, Jordan, and Lebanon. This period included the years of

Chart 1: Contribution of Employment Growth and Labor Productivity Growth to GDP Growth, 1970-2019



Note: The sum of employment and labour productivity adds to GDP growth. For other notes and sources: see Table 1.

Table 2: Real Per Capita GDP Growth Rates in GCC Countries using GDP and Consumer Price Deflators, 1982-2009 and 2009-2019

	GDP deflator		CPI deflator	
	1982-2009	2009-2019	1982-2009	2009-2019
Bahrain	0.1	0.8	1.4	0.7
Kuwait	2.0	-0.2	1.0	-1.6
Oman	1.0	0.9	3.4	1.0
Qatar	-1.9	0.8	-1.9	1.4
Saudi Arabia	-1.1	0.9	0.1	1.4
United Arab Emirates	-1.2	1.6	-3.0	1.7

Notes: For Oman, the growth rates for the first period are only for 1991-2009, and for the UAE, it is for 1995-2009

Sources: Author's calculation using data from TED, WDI, and United Nations.

the Iraq war, resulting in severe economic destruction in that country and substantial instability in the region.

Sensitivity of Real Income Trend to Choice of Deflator

Indeed, since our per capita income and labour productivity comparisons are based on GDP deflators, it undermines the potential terms of trade gains on real incomes in the GCC economies from the rises in oil prices. Since much of the revenue generated in the oil-exporting GCC economies relies on their export of oil, the price rises in oil are likely to benefit the consumers, enhancing welfare gains. Kohli (2022) shows that one can obtain trading gains by using the ratio of GDP and gross domestic expenditure prices. This article does not examine in detail the measurement of trading gains. However, following Kohli (2005, 2022)'s arguments, we made a rough comparison of growth rates of per capita GDP deflated by GDP deflators with per capita GDP deflated by consumer price deflators.

The results do not suggest a uniform pattern in terms of the welfare impact of terms of trade across countries in the GCC (Table 2). Three of the six GCC economies show a higher real per capita GDP growth

during the 1982-2007 period when CPI deflators were used instead of GDP deflators, albeit by differing magnitudes. While the difference was quite negligible for Qatar, it was in the range of 1 to 2.5 per cent for Oman, Bahrain, and Saudi Arabia. However, while the growth rate turned from -1.1 per cent to only a tiny positive growth of 0.1 per cent for Saudi Arabia when CPI is used, it worsened the growth contraction in the UAE. The CPI-based real per capita GDP growth was lower by more than 1.5 percentage points for the UAE and by one full percentage point in Kuwait.

For the post-2009 period, Saudi Arabia and Qatar had CPI-based growth rates higher by more than half a percentage point, whereas in other countries, it was either lower (e.g. Kuwait) or similar (Bahrain, Oman, and UAE). Clearly, using CPI improves income growth in the GCC economies in general. Yet, it did not make any noticeable impact in creating positive and welfare-enhancing expansions in large economies in the region like Saudi Arabia, the UAE, Qatar, and Kuwait. Hence, there is only limited evidence to argue that the gains from the export of oil have substantially compensated for the negative impact

of the productivity slowdown.¹¹

Overall, enhancing productivity growth remained a considerable challenge for the West Asian Arab economies since the 1980s. This was partly because of the limited potential for technological change and productivity in the GCC's highly capital-intensive oil sector, which creates only a very small portion of the total employment. Moreover, these nations have not been able to tap the potential in the non-oil sectors to boost productivity growth, and their failure to foster a solid and competitive private sector and an attractive investment climate conducive to private sector investment seem to have adversely affected their productivity performance. Although many economies pursued liberal reforms after the oil crisis in the early 1970s, they were less successful in becoming a competitive, market-oriented economies (see Saleh, 2021).

A segmented labour market with cheap expatriate workers also has facilitated employment-driven growth with less priority for productivity. The native population engaged in highly paid government jobs (Baldwin-Edwards 2011; Al-Mejren and Erumban, 2021), and the private sector economic activity relied primarily on expatriate workers. Therefore, the sluggish

growth in the aggregate per capita income we observed in Table 1 does not necessarily imply a decline in the well-being of the region's native population. Rather it is likely affecting the migrant workers, who are paid relatively lesser wages.¹² In the next section, we econometrically examine whether this extreme focus on employment, often exploiting the availability of cheap foreign workers, has made these countries compromise productivity.

The Trade-off Between Jobs and Labour Productivity

The relationship between GDP and per capita GDP with labour productivity depends upon how the changes in employment, labour force participation, and total population interact with each other (see Marattin and Salotti, 2011). Given that per capita GDP is the ratio of total GDP to the total population, growth in per capita GDP is the sum of the changes in the proportion of working population (or the changes in employment rate) and changes in output per worker (or labour productivity). According to the TED, the employment rate, measured as employment to population ratio, has increased in most West Asian Arab economies over the last

11 It may, however, be noted that the GCC's macro productivity growth is reasonably positively correlated with oil price growth. The simple correlation between the growth rates of global oil prices and GCC's labour productivity growth is 0.5 for 1970-2018. Although the correlation is positive for total factor productivity growth also, it is lower at 0.36. A general positive association exists between the physical productivity measures and oil price growth in the GCC, although the intensity of the association differs across years.

12 Historically, the wage gap between native and foreign workers is vast in the GCC economies, with a more equitable wage distribution among natives and larger wage inequality among foreign workers (Al-Quadsi, 1985), and it remains so even today. For instance, as of 2019, the average wage of the natives is nearly two times higher than the average wage of the migrant workers across all sectors of the Saudi Arabia economy (General Organization for Social Insurance, 2019). Typically, migrant workers from poorer Asian countries, who constitute a major portion of the expatriate workers in the GCC, gain much lower wages than their richer Western counterparts.

seven decades, with faster increases in the last 25 years.

A number of factors, including the rising female participation, increases in the youth population, and the inflow of migrant workers, contributed to the surge in participation and employment rates.¹³ In the strict neoclassical sense, rising participation and employment can lower capital intensity and labour productivity due to decreasing returns to labour (Choudhry and van Ark, 2010). Increased labour supply can also discourage firms from adopting new technologies to foster productivity, a likely possibility in the Arab countries, especially in the GCC, given the availability of cheap expatriate workers. However, if the rise in participation is driven by the demand for workers, reflecting rising opportunities in the economy, it is unlikely to harm productivity. Therefore, an important question is whether the rise in participation rates is accompanied by growth in productivity or whether it happens at the cost of productivity. In other words, given that much of the growth in the region is driven by employment creation rather than productivity, whether the region's rising participation further leads to a trade-off between productivity growth and employment growth, and how the region fare compared with other major regions of the world.

We examine the trade-off between labour productivity growth and employment rate, using a modified version of the methodology suggested by Choudhry and van Ark (2010). We estimate the following panel data regression equation using the random effect model:

$$\begin{aligned} \Delta \ln y_{i,t} = & \alpha_0 + \beta \cdot \Delta \ln ep_{i,t} \\ & + \sum_{j=1}^3 \gamma_j \cdot D_j + \sum_{j=1}^3 \theta_j \cdot ep_{i,t} \cdot D_j \\ & + \epsilon_i + e_{i,t} \end{aligned} \tag{1}$$

where y is labour productivity, ep is employment to total population ratio, D is the regional dummies for advanced economies, GCC, and other Arab economies (so that the reference group is all other emerging market economies).¹⁴ ϵ is the random error term for each country, e is the model error term, and the subscripts i and t indicate respectively country and year. The model is estimated for the entire time period 1970-2019, and further for four sub-periods, 1970-1982, 1982-1992, 1992-2009, and 2009-2019. The regression models for all the five time periods are estimated using random effects, as the Hausman test failed to reject the presence of random effects in most models. There were two cases, 1982-1992 and 1992-2009, in which the Hausman

¹³ In general, migrant workers have high participation rates compared to native workers. For instance, Erumban and Al-Mejren (2022) report a nearly 85 per cent participation rate for migrants compared to less than 45 per cent for natives in the GCC. Hence, the inflow of migrant workers to the region greatly increased the aggregate participation rate.

¹⁴ Note that the employment rate we use in this calculation is not the standard measure of the labor force participation rate, which includes both employed and unemployed populations in the numerator and only the working-age population in the denominator. The employment rate consists of only the employed people in the numerator and the total population in the denominator.

test rejected the existence of random effects. In these cases, we also estimated the fixed effect model. Since the results did not differ from the random effect model, we do not report the fixed effects results. The interaction terms in the above equation help us understand the differing impact of employment rates on productivity growth in different regions. The regression results are provided in Table 3.

The results show a negative and significant coefficient for the employment rate, suggesting a trade-off between productivity and employment in the reference group. However, there is substantial heterogeneity across regions, as we discern from the interaction coefficients. For the advanced countries, the interaction term has a positive coefficient which is larger than the coefficient of the employment rate in general, except during the 1970-1982 period and 2009-2019. There is no evidence of a strong negative trade-off between labour productivity growth and employment rate in the advanced economies during the two sub-periods between 1982 and 2009, which also includes the period of advancement in ICT and associated productivity gain in these economies in the 1990s. However, the trade-off has reversed after the global financial crisis.

In the case of the GCC, the coefficient of the interaction term is negative except for 1970-1982, during which it was positive but substantially smaller than the absolute value of the negative coef-

ficient of the employment rate.¹⁵ Thus, taking the main effect of employment rate and the interaction effects together, the productivity-employment trade-off was negative throughout the entire period. What is even more important to note is that it has worsened in the most recent period, even worse than the rest of the emerging markets group. The trade-off remains negative in the non-GCC economies group but is less pronounced than the GCC and worse than the advanced economies. It is also relatively lower than the reference group except for the 1970-1982 period.

It appears that the Arab economies' excessive reliance on job-led growth results in significantly lower productivity growth in the region. This has been particularly more pronounced in the oil-rich GCC economies, while the non-GCC group also tend to trade jobs with productivity at a lesser pace. A better understanding of this trade-off might be obtained if the quality aspects of labour, for instance, the differences in the skill levels of workers, are taken into account. Such an attempt requires data on the skill distribution of workers and is not considered in the present analysis. In section 4, where we examine the growth accounting contributions, we consider labour quality and its contribution to labour productivity growth.

¹⁵ Note that the statistical insignificance of some interaction effects does not mean these regions have the same effect as the benchmark region. Since the main effects of both the employment rate and region dummy variables are significant, the sign and magnitude of the interaction are critical in determining the extent of the main effect. We also estimated clustered OLS regressions with region dummies and separate region-specific fixed and random effects regressions. The results convey the same conclusion.

Table 3: Panel Data Regression Results Explaining Labour Productivity Growth

	1970-2019	1970-1982	1982-1992	1992-2009	2009-2019
$\Delta \ln ep$	-0.549*** (0.03)	-0.692*** (0.10)	-0.493*** (0.05)	-0.519*** (0.03)	-0.824*** (0.10)
Regional dummies (D)					
Advanced	0.497* (0.276)	1.48*** (0.470)	1.777*** (0.505)	-0.154 (0.379)	-0.824* (0.480)
GCC	-2.462*** (0.612)	-3.346*** (1.033)	-2.14* (1.124)	-2.522*** (0.844)	-1.584 (1.07)
non-GCC	-0.584 (0.607)	2.397** (1.08)	-3.043** (1.183)	0.116 (0.836)	-4.509*** (1.035)
Interaction terms ($D * \Delta \ln ep$)					
Advanced	0.561*** (0.073)	0.549*** (0.209)	0.669*** (0.144)	0.564*** (0.099)	0.594*** (0.207)
GCC	-0.075 (0.074)	0.086 (0.159)	-0.13 (0.164)	-0.032 (0.104)	-0.073 (0.218)
non-GCC	-0.088 (0.132)	-1.788** (0.91)	0.696 (0.758)	-0.004 (0.142)	0.235 (0.263)
Constant	1.389*** (0.16)	0.987*** (0.273)	-0.25 (0.294)	2.25*** (0.22)	2.216*** (0.274)
Observations	6517	1596	1330	2261	1330
R²					
Within	0.073	0.049	0.075	0.116	0.061
Between	0.219	0.292	0.208	0.125	0.257
Overall	0.082	0.098	0.10	0.117	0.098
Wald Chi2	536.8***	127.3***	132.3***	297.1***	120.7***

Note: The dependent variable is growth rate of labour productivity (see equation 1). All models are estimated using random effects. Since the models include regional dummies for advanced economies, and GCC and non-GCC West Asian Arab economies, the reference group is all other emerging market economies. Therefore, the coefficient of $\Delta \ln \cdot ep$ is the coefficient of changes in employment-population ratio on productivity in emerging markets excluding the Arab states. *Standard errors are in parentheses.* *** p<.01, ** p<.05, * p<.1

Structural Change and Aggregate Labour Productivity in West Asian Arab Economies

Changes in the Structure of West Asian Arab Economies

The productivity trends discussed in the previous sections were at the aggregate

level, which conceals sectoral differences. Structural change, or the relocation of workers from low productivity sectors to high productivity sectors of the economy, is perceived to be an essential feature of the process of economic development (Lewis, 1954; Kuznets, 1966; Chenery Syrquin, 1975; Denison, 1967). The nature and speed of structural transformation are very important in enhancing and sustaining ag-

16 Despite its importance for aggregate productivity growth, our understanding of structural transformation in the Arab economies is limited, largely due to the lack of adequate sectoral data. Even in cross-country studies that consider African and Middle East economies, Arab economies are often excluded due to a lack of data (McMillan and Rodrik, 2014). In their paper on structural change and productivity, McMillan and Rodrik (2014) include a number of African countries, but Turkey is the only Middle Eastern economy in their sample. One recent study that extends the productivity analysis to include a structural change in the Arab economies is van Ark *et al.* (2019), which is confined to the GCC only.

gregate economic growth and productivity (Lin, 2011; McMillan and Rodrik, 2011).¹⁶ We examine the structural change bonus to aggregate productivity growth in the West Asian Arab economies during 1992-2019 period by combining industry-level GDP data from the UNNAS with ILOSTAT's modeled employment estimates for seven broad sectors of the Arab economies.

Table 4 and Table 5 respectively show the distribution of value-added and employment across broad sectors of the economy in the 12 West Asian Arab economies, averaged over two periods, 1992-2007 and 2009-2019. We document three important trends across countries. The first is a falling share of agriculture in terms of output and employment, consistent with the traditional structural transformation hypothesis. However, the sector remains an important job provider in the non-GCC group, especially Iraq, Yemen, Lebanon, and Syria, and has seen an uptick in its output share in Jordan and Yemen.

Second, the manufacturing output share has increased in most economies except for two GCC economies, Kuwait and the UAE, and two other Arab economies, Palestine and Syria. However, it remains relatively low compared to emerging economies like China, Indonesia, Malaysia, Myanmar, Philippines, and Vietnam.¹⁷ On the contrary, manufacturing share in total employ-

ment declined or stagnated in all countries except Yemen, where it slightly improved (Table 5). Whereas four of the six countries in the non-GCC economies group had 10 per cent or more of their jobs in manufacturing, only two countries, Bahrain and the UAE, could achieve such a mark among the GCC economies. In general, the manufacturing job shares in the West Asian Arab economies are relatively low compared to emerging economies like China or advanced economies like the United States in their fast-growing phases.¹⁸

Finally, there has been a general increase in the output share of the services sector in the non-GCC economies, albeit to varying degrees, except for Jordan. In contrast, the output share of the services sector declined in three GCC economies, Bahrain, Kuwait, and Oman, while the remaining three had improved service presence.

The divide between GCC and non-GCC West Asian Arab economies becomes more apparent when comparing employment shares in the services. The services share fell across the GCC economies, with the fall being most intense in Oman and Qatar. In contrast, the service jobs increased considerably in the non-GCC group, except for Jordan.

Thus, the pattern we observe here is similar to the premature de-industrialization phase observed in the literature in the con-

¹⁷ According to the Economic Transformation Database, manufacturing constituted about one third of Chinese output in the 1990s and 2000s, and is still about 30 per cent, whereas in other emerging Asian economies, it is about one fifth (see de Vries *et al.* 2021).

¹⁸ In the 1950s, nearly one quarter of total employment in the United States was in the manufacturing sector (see Rodrik, 2016). Similarly, according to the Economic Transformation Database, in the 1990s and 2000s, about one fifth of total employment in China came from the manufacturing sector. The manufacturing job share increased from less than 10 per cent to close to 20 per cent in Vietnam and 11 to 14 per cent in Indonesia from 1992 to 2018 (see de Vries *et al.* 2021).

Table 4: Average Industry Share in Nominal Value Added and Employment, West Asian Arab Economies, 1992-2009 and 2009-2019

	Agriculture		Manufacturing		Other industries*		Services	
	1992-2009	2009-2019	1992-2009	2009-2019	1992-2009	2009-2019	1992-2009	2009-2019
Arab Economies*	5.3	3.1	8.9	9.4	40.9	40.6	44.9	46.9
GCC**	3.3	1.6	9.5	10.2	43.4	43.4	43.8	44.8
Bahrain	0.6	0.3	12.8	16.3	26.1	28.1	60.5	55.2
Kuwait	0.3	0.4	8.2	5.6	45.8	50.9	45.7	43.1
Oman	2.2	1.6	7.0	9.8	47.8	47.1	42.9	41.5
Qatar	0.5	0.1	8.8	9.1	53.6	53.3	37.1	37.5
Saudi Arabia	4.6	2.4	9.8	11.5	43.8	42.0	41.7	44.2
UAE	1.5	0.7	9.6	8.3	40.2	41.4	48.7	49.6
Other Arab Economies**	12.6	7.9	6.9	6.9	32.0	31.5	48.6	53.7
Iraq	8.3	4.1	1.3	2.3	66.4	51.3	24.0	42.3
Jordan	4.3	4.5	18.8	20.8	8.3	7.7	68.6	67.0
Lebanon	4.7	4.0	8.2	8.4	17.3	8.0	69.9	79.6
Palestine	11.7	9.2	13.5	13.0	11.9	8.3	62.9	69.4
Syria	24.9	20.7	5.1	4.7	22.3	25.3	47.6	49.3
Yemen	13.6	16.1	7.2	9.5	27.6	19.9	51.5	54.4

Note: * Other industries consist of mining and utilities and construction. The mining sector in the GCC consists of a large oil sector. ** Aggregates are based on the PPP converted nominal value added in each region.

Source: UNNAS.

Table 5: Average Industry Share in Employment, West Asian Arab Economies, 1992-2009 and 2009-2019

	Agriculture		Manufacturing		Other industries*		Services	
	1992-2009	2009-2019	1992-2009	2009-2019	1992-2009	2009-2019	1992-2009	2009-2019
Arab Economies*	18.6	10.5	9.6	9.1	13.4	17.0	58.4	63.3
GCC**	5.5	3.3	8.1	8.1	16.7	21.8	69.8	66.8
Bahrain	1.7	1.1	15.0	12.1	14.8	23.1	68.5	63.7
Kuwait	2.4	2.1	4.9	4.3	17.2	18.8	75.4	74.8
Oman	7.7	4.8	5.1	4.9	9.1	28.8	78.1	61.5
Qatar	3.0	1.3	9.6	7.5	29.7	46.7	57.7	44.4
Saudi Arabia	5.7	4.2	7.5	7.5	14.3	15.8	72.5	72.6
UAE	6.7	2.4	11.0	10.9	23.1	24.0	59.2	62.7
Other Arab Economies**	27.5	17.9	10.6	10.0	11.2	12.2	50.8	59.9
Iraq	28.2	20.9	9.9	9.3	9.7	13.4	52.2	56.4
Jordan	4.2	3.0	13.5	12.2	9.5	13.0	72.8	71.8
Lebanon	18.3	13.1	13.7	12.1	11.2	13.3	56.8	61.5
Palestine	14.7	9.4	13.4	11.8	16.8	16.2	55.2	62.5
Syria	26.3	12.6	13.9	13.8	14.0	12.0	45.8	61.6
Yemen	40.1	27.5	5.1	5.6	9.4	8.4	45.4	58.5

Note: Please see Table 4 for notes and source.

text of emerging markets (Rodrik, 2016). Although the improvement in manufacturing productivity in some countries seems to have helped expand the sector's output share, this has been accompanied by a lack of job creation in the sector. As predicted by the traditional structural transformation theories (Lewis, 1954), the reliance on primary sector jobs has been falling everywhere. But that has not

been shifting towards the manufacturing sector. Like many emerging market economies, which witness premature deindustrialization, jobs in countries in the non-GCC Arab group are directly moving towards services during the missing manufacturing phase. In the GCC countries, however, that does not seem to be true, where other industries, including the mining sector, capture jobs.

Impact of Structural Change on Productivity Growth

What do these changes in the employment and production structure mean for aggregate productivity? If resources are moved to sectors where productivity levels are relatively high or to sectors where productivity is growing faster, it will increase aggregate economy productivity growth. This gain in aggregate productivity is often considered a structural change bonus. In this section, we examine the impact of changing employment structure in the West Asian Arab economies on aggregate productivity, considering seven broad sectors of the economy. These are agriculture; manufacturing; other industries (including mining); trade, hotels and restaurants; transport, storage and communication; and other activities.

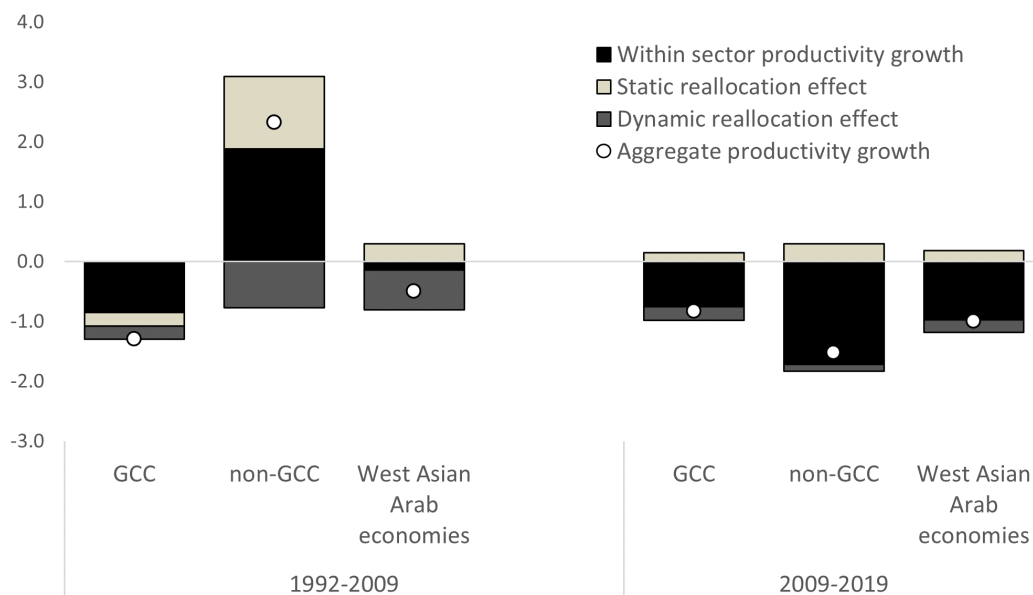
We use the standard shift-share decomposition method based on Fabricant (1942) to distinguish the contributions of sectoral productivity growth from the contribution of employment shifts across sectors to aggregate labour productivity growth. Assuming additivity in real output across sectors, we obtain aggregate labour productivity (y) as the ratio of the sum of sectoral value added and the sum of sectoral employment (see Erumban and Das, 2019). Then, following de Vries *et al.* (2015), we decompose the change in aggregate labour productivity levels (Δy) into within-sector productivity change and a between-sector worker reallocation effect using the follow-

ing decomposition:

$$\Delta y_t = \sum_j \Delta y_{j,t} \cdot s_{j,t-1} + \sum_j \Delta s_{j,t} \cdot y_{j,t-1} + \sum_j \Delta s_{j,t} \cdot \Delta y_{j,t} \quad (2)$$

where s_j is the share of sector j in total economy employment. The symbol Δ indicates a change over the previous year. The first term on the right-hand side of equation (2) called the *within sector productivity effect*, is the product of the relative employment size of a sector and the change in its productivity. It reflects the productivity contribution of that sector to the aggregate economy. The second term, which is the product of the change in sectoral employment share over the two-time points and the level of labour productivity in the sector in the previous year, captures the expansion of employment in sectors with various productivity levels. When positive, it indicates an expansion of employment in sectors with relatively high productivity levels. This term is a measure of static worker reallocation or structural change effect. The third term is the product of the change in employment share and change in productivity, thus capturing the expansion of jobs in sectors with different rates of productivity change. If positive, it implies an expansion of employment in sectors with faster productivity growth, thus a dynamic worker reallocation. The final results discussed in the subsequent parts of this section are presented in growth rate forms, which are obtained by dividing both sides of the equation by aggregate productivity

Chart 2: Within Sector and Structural Change Contributions to Aggregate Labour Productivity Growth in West Asia Arab Economies, 1992-2009 and 2009-2019



Notes: The GCC is a weighted average for Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates, and the non-GCC for Iraq, Jordan, Lebanon, Syria, Yemen, and the Occupied Palestinian Territory. The West Asian Arab economies are a weighted average of the GCC and non-GCC countries. The weights used are the nominal value-added shares of each country in the respective aggregate. The aggregate labour productivity growth rates presented in this chart may differ slightly from the log changes in Table 1 and Chart 1 because the results presented here are based on first differences in productivity and not log changes (see equation 2).

Source: Author calculation using data from UNNAS and ILOSTAT

levels in the previous period.

We calculate the structural change effect for the period 1992-2019 divided into two sub-periods – 1992-2009 and 2009-2019 – for all the 12 Arab economies, aggregated into GCC and other Arab economies.

The results are quite interesting and suggestive of the weakness of the region in thriving a growth-enhancing economic diversification (Chart 2). During the 1992-2009 period, when the aggregate productivity growth in the Arab economies was just below zero, the average static gains (the shift of jobs from low productivity to high productivity sectors) were positive. However, the absence of any within-industry productivity growth and dynamic (the shift of jobs from low growing to fast-

growing sectors) productivity losses in the region contributed to an overall labour productivity contraction. Moreover, the positive static gains observed for the region as a whole were solely due to the non-GCC countries. In contrast, productivity growth has eroded within industries in the GCC, where the static and dynamic effects were also negative. This suggests that the GCC’s worker reallocations were not growth-enhancing but rather growth-reducing.

In the non-GCC group, in contrast, there has been much happening during this period. Both within-sector and static reallocations were positive and large in magnitude, indicating the productivity advancement in individual industries and the shift-

ing of jobs to more productive sectors. The dynamic effects, however, were negative.

However, in the post-2009 period, both the GCC and the non-GCC regions suffered from major declines in within-industry productivity growth. The dynamic effect continued to be negative everywhere, whereas the static effect was positive, albeit lower in magnitude in the non-GCC than in earlier periods. Indeed, there has been some positive momentum in the region because more jobs are shifted to sectors with relatively high productivity levels, but the dynamic effects and within-industry productivity were not improved.

Van Ark *et al.* (2019) have shown a similar positive static effect and negative dynamic in the GCC during the 2009-2017 period. However, when they removed the oil sector from the analysis and examined the worker movements across sectors within the non-oil economy, the results suggested productivity advances in some non-oil sectors. That, however, seems to have been offset by the productivity declines in the oil sector, thus cancelling its impact on aggregate productivity. The results, however, did not suggest any growth-enhancing inter-sectoral worker movements within the non-oil economy. Our results tend to reiterate that the weakness of structural change in delivering growth is present in the GCC and is a feature of the region in general. These results signify the need for continued efforts to diversify the domestic economies of the Arab countries. This requires pro-

moting a competitive labour market rather than a segregated one, stimulating private investments, and initiating reforms that facilitate an investment climate for businesses to move resources to the most productive sectors.

Proximate Sources of Labour Productivity Growth: Total Factor Productivity vs. Capital Accumulation

This section examines the role of capital accumulation and total factor productivity in driving aggregate labour productivity growth in the West Asian Arab economies. In order to understand the relative roles of capital deepening (the growth of capital per unit of labour) and total factor productivity growth in driving labour productivity growth in the West Asian Arab states, we use the standard growth accounting framework, which decomposes labour productivity growth into the contribution of capital per unit of labour, labour quality and total factor productivity, i.e.

$$\begin{aligned} \Delta \ln y_t = & \nu_{K,t} \Delta \ln K_t \\ & + \nu_{L,t} \Delta \ln LQ_t + \Delta \ln TFP_t \end{aligned} \quad (3)$$

where K is capital input, measured as capital services,¹⁹ LQ is a measure of labour quality, approximated by accounting for differences in educational composition of total employment, and TFP is the total

¹⁹ Aggregate capital service growth rates are obtained as user cost weighted sum of individual asset specific capital stock growth rate.

²⁰ See de Vries and Erumban (2020), for more details regarding the measurement of each variable used in the growth accounting.

Table 6: Sources of Labour Productivity Growth, by Region, Average Annual Per cent Change

Region	Period	Capital	Labour Quality	TFP	Labour Productivity Growth
World	1970-1982	1.7	0.3	0.04	2.1
	1982-1992	1.3	0.3	-0.1	1.5
	1992-2009	1.9	0.3	0.1	2.3
	2009-2019	2.0	0.3	-0.1	2.2
Advanced	1970-1982	1.8	0.2	0.6	2.6
	1982-1992	1.6	0.2	0.5	2.2
	1992-2009	1.5	0.3	-0.01	1.8
	2009-2019	0.7	0.3	0.1	1.1
Emerging & Developing	1970-1982	1.6	0.5	-0.8	1.3
	1982-1992	0.9	0.4	-1.0	0.4
	1992-2009	2.3	0.4	0.1	2.8
	2009-2019	3.1	0.4	-0.3	3.2
Emerging Asia	1970-1982	2.2	0.5	-1.0	1.7
	1982-1992	2.6	0.4	0.1	3.1
	1992-2009	4.4	0.4	0.2	5.0
	2009-2019	4.6	0.4	-0.2	4.8
West Asian Arab Economies	1970-1982	1.8	0.4	-0.8	1.4
	1982-1992	-1.1	0.4	-3.1	-3.8
	1992-2007	0.02	0.3	-0.8	-0.5
	2009-2019	1.8	0.2	-2.5	-0.5
GCC	1970-1982	1.3	0.4	-1.3	0.4
	1982-1992	-1.2	0.5	-2.4	-3.2
	1992-2007	-0.03	0.3	-1.6	-1.3
	2009-2019	2.0	0.2	-2.5	-0.2
Non-GCC	1970-1982	3.2	0.3	0.2	3.7
	1982-1992	-1.1	0.3	-5.5	-6.3
	1992-2007	0.1	0.3	1.9	2.3
	2009-2019	0.9	0.3	-2.7	-1.5

Note: Capital is the growth rate of capital services per unit of labour, and labour quality is a measure of skill compositional differences between workers. Labour productivity growth in this table may differ from Table 1 due to differences in labour input measures. In Table 1, labour productivity is measured as output per worker. In the TED growth accounting, it is defined as output per hour whenever the data is available.

Source: The Conference Board Total Economy Database, April 2021.

factor productivity.²⁰ In Table 6, we compare the contribution of capital deepening, labour quality (or the changes in the educational composition of work force) and total factor productivity growth to labour productivity growth in West Asian Arab economies with averages for the global economy, advanced economies, and emerging markets. A few interesting patterns emerge.

First, although capital deepening – capital services per labour input – is a consistently dominant source of labour produc-

tivity growth in the global economy, advanced economies, emerging markets, and emerging Asia, it is not always the case in the West Asian Arab economies. Often in the Arab countries, investment in physical capital has been falling short of the rise in employment, lowering productivity growth in the 1980s and 1990s.

Second, taken together, the West Asian Arab economies group never had positive TFP growth in any of the four periods presented in the Table. Moreover, the fall in TFP has been quite substantial over the

years, particularly in the GCC. In general, TFP growth has been modest in the global economy, yet it has been positive and important in the 1970s and 1980s in the advanced economies, and in the 1990s in the emerging markets. Globally, during 1992-2009 it was positive at 0.1 per cent, but it turned negative during the post-global financial crisis decade. In the advanced economies, TFP growth has been generally positive, suggesting relative improvement in overall production efficiency in these economies. However, there is a general declining trend in advanced economies' rate of productivity growth. TFP growth was positive in emerging Asia during the 1980s and 1992-2009, and negative during the 1970s and the post-2009 period.

Moreover, the TFP decline in the global and emerging Asia aggregates, whenever it happened, were relatively moderate. This was not so in the West Asian Arab economies, where the decline was quite steep in general, particularly during 1982-1992 and 2009-2019. While the TFP trend in the GCC is quite similar to the aggregate Arab economies, the non-GCC economies group showed productivity gains during the 1992-2007 period. As obvious from Table 7, this was primarily driven by Iraq. The TFP growth in Iraq was quite high during this period, even when the capital contribution was nearly zero. This period included Iraq's post-war reconstruction phases after the Gulf War in 1991 and the post-invasion period after 2003. The other Arab economies group also had positive TFP growth in the 1970s.

Third, over the last half a century, the quality of workers has improved across the board, including in the Arab states, al-

though at varying rates, contributing positively to labour productivity growth.

Finally, the negative TFP growth is a wide-spread phenomenon in the West Asian Arab states (Table 7). Of the six GCC economies in four different periods, TFP was positive only in Saudi Arabia and Oman in the 1970s, Oman during the 1980s, Qatar and Kuwait during 1990s, and the UAE during the post-crisis period. More importantly, in the most recent period, 2009-2019, the TFP has eroded drastically in the range of 2-4 percentage points across countries, except for a moderate improvement in the UAE. All countries in the non-GCC economies group, except Yemen, had positive TFP growth in 1992-2009. However, they all had negative TFP growth in the most recent decade, and the severe slump in TFP growth in the region's two troubled economies, Syria and Yemen, has played an important role in the overall decline in the region's TFP.

The Arab economies evidently have a productivity challenge. But it is not merely a productivity challenge. It is their inability to translate investment in physical capital into productivity growth, as the heavy reliance on less productive jobs to sustain output growth seems to be an important factor (Al-Mejren and Erumban, 2021). They seem to be failing to translate the massive investment and oil resources into productivity advantage, especially in the GCC countries.

The long-term weakness of the Middle East economies in relying on capital and technology to drive economic growth is

Table 7: Sources of Labour Productivity Growth, by Region, Average Annual Percent Change

	Capital	Labour Quality	TFP	Capital	Labour Quality	TFP
	Bahrain			Iraq		
1970-1982	-1.5	0.2	-0.5	3.4	0.3	-0.4
1982-1992	1.2	0.3	-2.4	-2.4	0.2	-11.5
1992-2009	-0.9	0.3	-1.0	-2.6	0.03	7.3
2009-2019	2.7	0.2	-1.7	1.7	0.2	-0.02
	Kuwait			Jordan		
1970-1982	-3.4	0.7	-9.0	5.6	0.9	0.1
1982-1992	-0.8	0.4	-0.2	-0.1	0.7	-3.9
1992-2009	-1.6	0.2	2.4	0.4	0.1	0.1
2009-2019	3.3	0.03	-3.3	0.6	0.1	-1.7
	Oman			Lebanon		
1970-1982	-1.7	0.05	0.1	0.5	0.4	-0.8
1982-1992	-4.1	0.2	4.2	0.4	0.5	-3.7
1992-2009	0.8	0.3	-1.3	0.0	0.5	0.7
2009-2019	-1.0	0.2	-3.7	-0.2	0.5	-2.9
	Qatar			Syria		
1970-1982	-2.8	0.5	-2.5	3.2	0.3	2.1
1982-1992	-5.0	0.3	-3.8	0.4	0.4	-0.9
1992-2009	-1.5	0.1	1.3	0.8	0.3	0.4
2009-2019	3.4	0.03	-3.6	0.6	0.5	-7.4
	Saudi Arabia			Yemen		
1970-1982	2.7	0.3	0.2	4.4	0	2.4
1982-1992	-1.0	0.6	-2.3	-0.9	0.03	0.7
1992-2009	2.1	0.5	-2.9	1.6	0.5	-0.9
2009-2019	2.3	0.3	-3.2	-0.4	0.5	-7.0
	United Arab Emirates			West Asian Arab Economies		
1970-1982	-1.5	0.7	-1.4	1.8	0.4	-0.8
1982-1992	-1.4	0.2	-4.5	-1.1	0.4	-3.1
1992-2009	-4.9	-0.02	-0.1	0.02	0.3	-0.8
2009-2019	1.1	0.2	0.3	1.8	0.2	-2.5

Note: Please see Table 6 for notes and source.

documented by previous studies.²¹ Although such studies have not paid specific attention to West Asian Arab states, and the structural dynamics, as we do here, the results we obtain for the two groups of countries – the GCC and the non-GCC – are in accordance with previous findings regarding the region. The dependency on the oil sector in most GCC economies has an additional worsening impact on overall productivity. However, as noted earlier, it is not the sole factor for the region’s productivity disaster. Past studies that tried dis-

tinguishing between oil and non-oil economy also noted a weak TFP performance, even if the oil sector is removed from the analysis (IMF, 2015; Espinoza, 2012).

Challenges and Opportunities

Our aggregate productivity measure conceals the industry compositional effects, technological differences across sectors, and productivity differences between different types of workers, including the differences between natives and emigrants. Barring

21 See Abu-Qarn and Abu-Bader (2007); Van Ark *et al.* (2008); Espinoza, (2012); Andreano *et al.* (2013); Behar, (2013); Ackgoz and Ben Ali, (2019); van Ark *et al.* (2019); Al-Mejren and Erumban, (2021); and Saleh, (2021)

this caveat, the overall decline in aggregate labor productivity reported in Table 1 suggests an average worker in the region produces only about 60 percent of the output in 2019 that an average worker generated in 1982. This is a major erosion, especially when compared with nearly two times higher output per worker that the global economy has attained during this period and a more than 5-fold increase in the emerging market economies. This section documents some critical challenges and opportunities for the region to tackle this productivity weakness.

- The segmented labour market that features a continued supply of low-paid foreign workers and relatively more expensive but less productive native workers is still a challenge for the GCC, especially for the private sector.
- The lack of a solid manufacturing sector that can absorb semi-skilled and low-skilled workers in both GCC and non-GCC Arab economies limits productivity and growth potential.
- The challenges to private sector development persist in both groups of countries, and the prospect of improving policies to incentivize the private sector is substantial.
- The weak infrastructure and high and rising informal sector are major challenges, especially for the non-GCC countries.
- The fragmented regional markets offer potential for regional integration and cooperation, which can help productivity growth.
- Both groups of countries feature institutional weaknesses and poor adop-

tion of technologies and require more attention to technology, innovation, skill development and diversification.

- The potential for increased interaction between government and business in creating a business-friendly ecosystem and improving the human capital conducive to business needs is immense

Contrasting between the GCC and the non-GCC economies in the region, the former group of economies seldom have the common problems that developing countries face, like poverty, scarcity of capital, and lack of physical infrastructure. Still, they share features such as high population growth, lack of female empowerment, weak institutions, and inadequate human capital. They also have rising challenges from a lack of economic opportunity for youth and rising unemployment in their highly segmented labour market, which features the co-existence of cheap expatriate workers and expensive local workers.

A commonly adopted policy to address these challenges is job nationalization policies aiming to replace migrant workers with the natives (Hertog, 2012), which have clear productivity implications. Unless the cost differences between migrants and natives are compensated by productivity, the competitiveness of the private sector and the region's productivity will suffer further. Moreover, if the substitution of cheap expatriate workers with natives leads to wage escalation, it can lead to inflationary pressure. This has become more apparent in the region, as the region's native workforce is increasingly entering the labour market, adding pressure to raise the overall wages. Focusing on technology and innova-

tion and continuing the efforts to diversify away from oil is essential to create more productive jobs for the native population. That, however, does not imply that closing borders to foreign workers is the way forward. Rather, making the labour market more efficient and opening competitive opportunities for all workers according to the needs of the private sector should be the priority. The GCC economies also face external stress from volatility in oil prices, slow global growth, and the increasing shift of global energy demand towards renewable/green sources, which weakens the sustainability of the oil-based distributive system that these economies have been following. Despite boasting political stability, the GCC's reliance on oil prices makes their growth trajectory less stable, making continued efforts to diversification an inevitable strategy for future growth.

The second set of countries, the non-GCC economies, on the other hand, has limited oil reserves and features the characteristics of other developing economies. Although their low reliance on oil prices offers them the opportunity for a more steady growth trajectory than the GCC, these economies are largely political unstable making their growth less certain (Saleh, 2021). For these economies, the challenge is to catch up with the global frontiers of productivity, but the hurdles are plenty, as, unlike the GCC countries, these countries have not developed their infrastructure or financial resources.

These countries have relied on exporting workers to the GCC oil affluent economies to support their domestic markets in the early phases. However, the gradual shift in preference of the GCC for Asian workers

eroded their potential in exporting workers to the oil-rich nations. In addition to the lack of a solid manufacturing sector in both the GCC and the non-GCC economies, the latter group also suffers from the presence of the informal sector, challenging their productivity-driven growth. Available estimates suggest that one fifth to one third of GDP in the Arab economies, including the GCC, is generated in the informal sector (Schneider and Abuehn, 2007), and one third to half of the non-GCC economies' total non-farm employment is informal (Charmes, 2012).

The onset of the Arab spring in 2010 and the ongoing conflicts in some countries in the region might have further fueled youth unemployment and informal jobs. Since informality can create distortions that can weaken productivity, it will have an indispensable impact on the productivity and structural change. Studies that compare productivity differences between formal and informal sectors in emerging economies suggest substantially lower productivity in the informal sector (e.g. Krishna *et al.* 2018 in the case of Indian manufacturing). Therefore, informal employment can suppress the gains from structural change if workers move to low-productive informal segments of the economy. Previous evidence suggests that while the falling informality in Brazil had a growth-enhancing structural change effect, the rising informality in India had a growth-reducing effect (de Vries *et al.* 2012). Similarly, a recent study by Voskoboynikov (2019) reports the growth-reducing effect of the reallocation of workers to informal segments in Russia. The presence of informality in the Arab

economies indeed will have implications for the productivity and structural change narrative presented in this article, and future research may want to consider this aspect. A major challenge, however, would be the insufficient data on the informal sector in these economies.

Developing a vibrant private sector that can foster productivity growth is a common challenge for both groups of countries. The private sector in the region is either small or less developed than the public sector, partly due to the constraints businesses face and partly due to the fragmented market in the region.²² Businesses are unable to enjoy scale economies and are bound to cater to small markets. As Malik and Awadallah (2013) argued, boosting private sector investment, which is key to developing a productivity-oriented growth path for the region, is both a regional and political challenge for the Arab economies.

The development of the private sector has been hindered drastically by the dominance of the public sector driven by the rent distribution model, forcing the private sector to operate under more stringent investment conditions, relying heavily on imported labour. Addressing this challenge will require an economic initiative that incentivizes private sector participation in economic activity and a change in the attitude of native workers to shift their preference from public sector jobs to private-sector jobs (Al-Mejren and Erumban, 2021).

Regionally, the fragmented markets limit

the potential to achieve economies of scale and relocate activities to regions with the most appropriate resources to improve efficiency and productivity (Malik and Awadallah, 2013). Moreover, market fragmentation also raises the cost of capital and lowers the productivity of investment. The economic potential for integration is vast in the region, which shares a common language, unlike, for instance, the ASEAN or Europe, and culture. In the absence of economic integration, private sector firms' incentive to operate on a large scale is likely limited, as the size of these individual markets is small, especially when weighed against the challenges they offer. While the challenges are plenty for the region, attempts to integrate the region's economies to act as a single market (e.g. ASEAN) might help productivity growth, as it will help reduce labour market constraints, ease distortions and create scale economies.

For businesses, the weak aggregate productivity indicates the institutional weakness under which they operate. However, businesses must realize that the continued failure to recognize the importance of productivity is not sustainable, and the need for improved automation and adopting technologies to improve competitiveness should be given priority. Increased engagement with the governments, policymakers and educational institutions in stimulating a better-coordinated investment atmosphere is important for the private sector to foster productivity-oriented

²² Recent evidence suggests that private sector businesses in Arab economies such as Jordan and Lebanon are extremely skewed towards small firms employing less than 20 employees (Badael *et al.* 2019).

business strategies. As the labour market in the GCC economies is increasingly targeting localization of the workforce, businesses are likely to face escalation in wages and loss in productivity as the expatriate workers are cheaper and more productive (Al-Mejren and Erumban, 2021).

Previous studies have observed that not many natives are equipped to work in a private sector environment, especially in professional and management fields, even in large countries like Saudi Arabia (Hertog, 2012). Therefore, the region will need to focus more on upskilling its population. The private sector businesses might resort to moving ahead, tapping the potential for automation, knowledge-based technologies, and capital intensity and improving overall production efficiency. However, it is important to realize that given the region's cultural history and political milieu, this process is more likely to happen at a modest pace rather than a radical one. As the localization process continues, businesses will have to adopt strategies to improve their technologies and train their workers to upskill the local workforce - a key aspect identified by the micro-level strategies in the International Labour Organisation productivity ecosystem (International Labour Organization, 2020a) - to enhance productivity and save on costs.²³

Discussion and Conclusions

This article analyzed the macro trends in per capita GDP and labour productivity in 12 West Asian Arab countries. The re-

sults suggest the importance of harnessing productivity to sustain long-term growth and well-being and to foster sustainable business in the West Asian Arab region. This section summarizes the main findings of the article and highlights the major challenges and strategies that governments and businesses may consider in addressing them.

Main Findings

- The region failed to sustain the growth momentum it accomplished in the early phases of oil development in the subsequent periods.
- The region has a complex and unique productivity problem, which is distinct between the GCC and non-GCC groups and even among countries within both groups.
- The continued focus on employment-driven growth has led to a weak productivity elasticity of output and resulted in a trade-off between labour productivity and employment growth. This also resulted in a disconnect between labour productivity and per capita GDP growth.
- The region, in general, failed to create growth-enhancing structural change primarily due to a failure to diversify jobs and production to more productive sectors effectively.
- Sustained inefficiency in translating inputs into output, and in particular efficiently using investment in produc-

²³ The ILO has pursued a productivity ecosystem that underscores the need for sustainable productivity gain for and through decent jobs (see International Labour Organization, 2020a).

tive ways, has resulted in weak productivity performance.

Our analysis of the region's long-run economic growth indicates that the region had its best growth performance – in terms of GDP, per capita GDP, and labour productivity – during the 1960-1970 period. While the oil-rich economies benefitted directly from the export of oil and the resulting oil revenues, other Arab nations exported workers to support various new projects financed by the oil revenues in the GCC economies.²⁴ However, the oil-supported economic boom was not sustained, as the GCC economies seemed to have suffered from resource dependency, with nearly no economic diversification and productivity growth. Indeed, the oil revenues helped the economies develop their infrastructure, but the lack of focus on non-oil sectors did not sustain long-term growth.

Overall, the region does have a significant productivity problem, and the problem is a complex one. The nature of the problem is different between the affluent GCC economies and non-GCC economies – even quite different across countries, especially among the non-GCC Arab countries.

Addressing these problems is challenging for the region as a group as well as within

individual countries. The article discussed three different aspects of the region's productivity problem.

First, the fall in the region's per capita GDP and labour productivity growth is partly fueled by an excessive focus on employment-driven growth, tapping the cheap foreign workers.²⁵ The trade-off between productivity and employment is negative and more pronounced in the West Asian Arab world compared to other parts of the world. The low and weakening share of productivity in generating growth (or the weakening productivity elasticity) has deepened a disconnect between productivity growth and per capita GDP growth in the region.

Second, the region did not experience growth-enhancing structural change. Economic diversification in the GCC economies was not sufficient to facilitate the movement of workers and resources to more productive sectors of the economy. Lately, many countries in the region are increasingly trying to diversify their economies away from oil. But so far, such attempts and the resultant shift in economic activity across sectors have not turned growth-enhancing. Productivity growth within individual industries has

24 Note that although most migrant workers to the GCC came from the other Arab nations in the early phases of oil development, there has been a rapid rise in the Asian migrant inflow after the oil price rise in the mid-1970s. These migrants have contributed substantially to improving the income, production, and consumption growth in their home countries (Kapiszewski, 2015, 2017).

25 The productivity impact of migrant workers gained attention in the past literature, both from the perspective of the productivity-enhancing effect emanating from better allocation of workers to most productive locations (Borjas, 2015; Clemens and Pritchett, 2019) and the adverse effects (Algan and Cahuc, 2010). The empirical evidence for the negative impact, however, is weak, while most support a positive impact of migrants on productivity. The case of GCC is, however, unique as their labour markets are not functioning competitively. The natives are endowed with the right to work in the public sector, which is perceived as their citizenship entitlement, whereas the expatriates dominate in the private sector (Erumban and Al-Mejren, 2022). In an analysis of productivity differences between migrants and natives in non-mining, non-government sectors of Saudi Arabia and Kuwait, Erumban and Al-Mejren (2022) suggest a substantial productivity differences between migrant workers and native workers.

been negative or minimal, and workers' movement across sectors has been mostly growth-reducing.

Third, the slowdown in labour productivity is also a function of poor overall efficiency and the region's inability to translate its capital investment into productivity growth. The continued supplies of low-wage labour seemed to have lowered the amount of capital per unit of labour in the region, reducing the productivity effect of capital investment. The historical availability of cheap expatriate workers in the GCC seems to have halted the private sector incentive to invest in technologies and management capabilities that help enhance productivity.

References

- Abu-Qarn, A.S. and S. Abu-Bader (2007) "Sources of Growth Revisited: Evidence From Selected MENA Countries," *World Development*, Vol. 35, No. 5, pp. 752-771.
- Abu-Shokor, A. (1995) "Review of Labor and Employment Trends in the West Bank and Gaza Strip," United Nations Conference on Trade and Development. <https://unctad.org/system/files/official-document/poecdcsud9.en.pdf>.
- Acikgoz, S. and M. S. B. Ali (2019) "Where Does Economic Growth in the Middle Eastern and North African Countries Come From?" *Quarterly Review of Economics and Finance*, Vol. 73, pp. 172-183.
- Algan, Y. and P. Cahuc (2010) "Inherited Trust and Growth," *American Economic Review*, Vol. 100, No. 5, pp. 2060-2092.
- Al-Mejren, A. and A. A. Erumban (2021) "GCC Job Nationalization Policies: A Trade-Off Between Productivity and Employment," Conference Board Gulf Center. <https://conference-board.org/publications/TCB-GCC-Job-Nationalization-Policies>.
- Al-Qudsi, S. S., (1985) "Earnings Differences in the Labor Market of the Arab Gulf States: The Case of Kuwait," *Journal of Development Economics*, Vol. 18, No. 1, pp. 119-132.
- Andreano, M. S., L. Laureti and P. Postiglione (2013) "Economic Growth in MENA Countries: Is There Convergence of Per-Capita GDPs?" *Journal of Policy Modeling*, Vol. 35, No. 4, pp. 669-683.
- Baduel, B., C. Geginat and G. Pierre (2019) "Private Sector Job Creation in MENA: Prioritizing the Reform Agenda," IMF Working Paper No. 206.
- Bai, J. and P. Perron (1998) "Estimating and Testing Linear Models with Multiple Structural Changes," *Econometrica*, Vol. 66, No. 1, pp. 47-78.
- Bai, J. and P. Perron (2003) "Computation and Analysis of Multiple Structural Change Models," *Journal of Applied Econometrics*, Vol. 18, No. 1, pp. 1-22.
- Baldwin-Edwards, M. (2011) "Labor Immigration and Labor Markets in the GCC Countries: National Patterns and Trends," London School of Economics, Kuwait Program on Development, Governance and Globalization in the Gulf States.
- Barsky, R. B. and L. Kilian (2004) "Oil and the Macro-Economy Since the 1970s," *Journal of Economic Perspectives*, Vol. 18, No. 4, pp. 115-134.
- Basu, S., L. Pascali, F. Schiantarelli., and L. Serven (2022) "Productivity and the Welfare of Nations," *Journal of the European Economic Association*, Vol. 20, No. 4, pp. 1647-1682.
- Behar, A. (2013) "Labor Market Reforms to Boost Employment and Productivity in the GCC," in *Annual Meeting of Ministers of Finance and Central Bank Governors*, October, International Monetary Fund. <https://www.imf.org/external/np/pp/eng/2013/100513.pdf>.
- Blanchard, O. J. and M. Riggi (2013) "Why Are the 2000s so Different From the 1970s? A Structural Interpretation of Changes in the Macroeconomic Effects of Oil Prices," *Journal of the European Economic Association*, Vol. 11, No. 5, pp. 1032-1052.
- Borjas, G. J. (2015) "Immigration and Globalization: A Review Essay," *Journal of Economic Literature*, Vol. 53, No. 4, pp. 961-974.
- Charmes, J. (2012) "The Informal Economy Worldwide: Trends and Characteristics," *Journal of Applied Economic Research*, Vol. 6, No. 2, pp. 102-132.
- Chenery, H. B. and M. Syrquin (1975) *Patterns of Development, 1950-1970* (Oxford: Oxford University Press).
- Choudhry, M. T. and B. van Ark (2010) "Trade-off Between Productivity and Employment in Transition Countries: An International Comparison," in E. Marelli and M. Signorelli (eds.) *Economic Growth and Structural Features of Transition* (London: Palgrave Macmillan), pp. 104-127.
- Clemens, M. A. and L. Pritchett (2019) "The New Economic Case for Migration Restrictions: An Assessment," *Journal of Development Economics*, Vol. 138, pp. 153-164.
- Denison, E. F. (1967) "Sources of Postwar Growth in Nine Western Countries," *American Economic Review*, Vol. 57, No. 2, pp. 325-223.

- de Vries, G., L. Arfelt, D. Drees, M. Godemann, C. Hamilton, B. Jessen-Thiesen, A. I. Kaya, H. Kruse, E. Mensah and P. Woltjer (2021) "The Economic Transformation Database (ETD): Content, Sources, and Methods," United Nations World Institute for Development Economics Research, WIDER Technical Note No. 2.
- de Vries, G. J., A. A. Erumban, M. P. Timmer, I. Voskoboinikov and H. X. Wu (2012) "Deconstructing the BRICs: Structural Transformation and Aggregate Productivity Growth," *Journal of Comparative Economics*, Vol. 40, No. 2, pp. 211-227.
- de Vries, G.J. and A. A. Erumban (2020) "Total Economy Database: Sources and Methods," The Conference Board. <https://conference-board.org/data/economydatabase/total-economy-database-methodology>.
- Erumban, A. A. and A. Al-Mejren (2022) "Expatriate Jobs and Productivity: Evidence from GCC Economies." <https://dx.doi.org/10.2139/ssrn.4243381>.
- Erumban, A. A., D. K. Das, R. S. Aggarwal and P. C. Das (2019) "Structural Change and Economic Growth in India," *Structural Change and Economic Dynamics*, Vol. 51, pp. 186-202.
- Erumban, A. A. and B. van Ark (2018) "Productivity in the Global Economy," in D.K. Das, (ed.) *Productivity Dynamics in Emerging and Industrialized Countries* (London: Routledge India), pp. 58-80 .
- Espinoza, R. (2012) "Factor Accumulation and the Determinants of TFP in the GCC," OxCarre Working Paper No. 94, University of Oxford.
- Fabricant, S. (1942) *Employment in Manufacturing, 1899-1939: An Analysis of Its Relation to the Volume of Production* (New York: National Bureau of Economic Research).
- General Organization for Social Insurance (2019) "Chapter 11: Labor Market and Social Security," Data available through General Authority for Statistics website. <https://www.stats.gov.sa/en/1017>.
- Girgis, M. (1973) "Development and Trade Patterns in the Arab World," *Review of World Economics*, Vol. 109, No. 1, pp. 121-160.
- Hertog, S. (2012) "A Comparative Assessment of Labor Market Nationalization Policies in the GCC" in S. Hertog (ed.) *National Employment, Migration and Education in the GCC* (Berlin: Gerlach Press).
- Hertog, S. (2019) "The Future of Migrant Work in the GCC: Literature Review and a Research and Policy Agenda," London School of Economics. http://eprints.lse.ac.uk/102382/1/Hertog_future_of_migrant_work_in_GCC_published.pdf.
- IMF (2015) "Saudi Arabia, Key Issues," *2015 Article IV Consultation—Press Release; Staff Report; and Informational Annex*, July 13, 2015. <https://www.imf.org/external/pubs/ft/scr/2015/cr15251.pdf>.
- International Labour Organization (2020a) "Decent Work and Productivity." https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_757884.pdf.
- International Labour Organization (2020b) "Impact of the COVID-19 Pandemic on the Labor Market in the Occupied Palestinian Territory." https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_774731.pdf.
- Kaldor, N. (1966) *Causes of the Slow Growth in the United Kingdom* (Cambridge: Cambridge University Press).
- Kapiszewski, A. (2017) "Arab Versus Asian Migrant Workers in the GCC Countries," in P. C. Jain and G. Z. Oommen (eds.) *South Asian Migration to Gulf Countries: History, Policies, Development* (London: Routledge India), pp. 66-90.
- Kohli, U. (2005) "Switzerland's Growth Deficit: A Real Problem-But Only Half as Bad as It Looks." <https://snbchf.com/wp-content/uploads/2012/11/Weak-Swiss-Growth-Reasons.pdf>.
- Kohli, U. (2022) "Trading Gains and Productivity: A Törnqvist Approach," *International Productivity Monitor*, Vol. 42, pp. 63-86. http://www.csls.ca/ipm/42/IPM_42_Kohli.pdf.
- Krishna, K. L., B. Goldar, S. C. Aggarwal, D. K. Das, A. A. Erumban and P. C. Das (2018) "Productivity Growth and Levels: A Comparison of Formal and Informal Manufacturing in India," Working Paper No. 291, Centre for Development Economics, Delhi School of Economics.
- Kuznets, S. and J. T. Murphy (1966) *Modern Economic Growth: Rate, Structure, and Spread*, Vol. 2 (New Haven: Yale University Press).
- Lewis, W.A. (1954) "Economic Development with Unlimited Supplies of Labour," *Manchester School*, Vol. 22, No. 2, pp. 139-181.
- Lin, J. Y. and C. Monga (2011) "Growth Identification and Facilitation: The Role of the State in the Dynamics of Structural Change," Policy Research Working Paper No. 5313, World Bank.
- Malik, A. and B. Awadallah (2013) "The Economics of the Arab Spring," *World Development*, Vol. 45, pp. 296-313.
- Marattin, L. and S. Salotti (2011) "Productivity and Per Capita GDP Growth: The Role of the Forgotten Factors," *Economic Modelling*, Vol. 28, No. 3, pp. 1219-1225.
- McMillan, M., D. Rodrik, and Í. I. Verduzco-Gallo (2014) "Globalization, Structural Change, and Productivity Growth, with an Update on Africa," *World Development*, Vol. 63, pp. 11-23.

- McMillan, M. S. and D. Rodrik (2011) "Globalization, Structural Change and Productivity Growth," NBER Working Paper No. 17143, National Bureau of Economic Research.
- Oulton, N. (2022) "The Link Between the Standard of Living and Labour Productivity in the UK: A Decomposition," *International Productivity Monitor*, Vol. 42, pp. 187-211. http://www.csls.ca/ipm/42/IPM_42_Oulton.pdf.
- Rauch, J. E. and S. Kostyshak (2009) "The Three Arab Worlds," *Journal of Economic Perspectives*, Vol. 23, No. 3, pp. 165-188.
- Rodrik, D. (2016) "Premature Deindustrialization," *Journal of Economic Growth*, Vol. 21, No. 1, pp. 1-33.
- Saleh, M (2021) "The Middle East: Decline and Resurgence in West Asia," in Broadberry, S. and K. Fukao (eds.), *The Cambridge Economic History of the Modern World: Volume II: 1870 to the Present* (Cambridge: Cambridge University Press).
- Schneider, F. and A. Buehn (2007) "Shadow Economies and Corruption All Over the World: Revised Estimates for 120 Countries," *Economics*, Vol. 1, No. 1. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1726802.
- Sharpe, A. and S. M. Fard (2022) "The Current State of Research on the Two-Way Linkages Between Productivity and Well-Being," ILO Working Paper No. 56. <http://www.csls.ca/reports/csls2022-03.pdf>.
- Solow, R.M. (1957) "Technical Change and the Aggregate Production Function," *Review of Economics and Statistics*, Vol. 39, No. 3, pp. 312-320.
- van Ark, B., A. A. Erumban and K. de Vries (2019) "Prioritizing Productivity in the Gulf Region: A Path Toward Sustained Growth through Smart Diversification," Conference Board. <https://www.conference-board.org/publications/Prioritizing-Productivity-Gulf-Region/>.
- van Ark, B., E. Frankema., V. Manole and A. Tank (2008) "Growing Beyond Oil: Productivity, Performance and Progress in the Countries of the Gulf Cooperation," Conference Board." <https://www.conferenceboard.ca/product/growing-beyond-oil-productivity-performance-and-progress-in-the-countries-of-the-gulf-cooperation-council>.
- Verdoorn, P. J. (1949) "On the Factors Determining the Growth of Labor Productivity," *Italian Economic Papers*, Vol. 2, pp. 59-68.
- Verdoorn, P. J. (2002) "Factors that Determine the Growth of Labour Productivity," in McCombie, J., M. Pigno and B. Soro (eds.), *Productivity Growth and Economic Performance* (London: Palgrave Macmillan), pp. 28-36.
- Voskoboynikov, I.B. (2020) "Structural Change, Expanding Informality and Labor Productivity Growth in Russia," *Review of Income and Wealth*, Vol. 66, No. 2, pp. 394-417.
- Wu, Harry (2014) "China's Growth and Productivity Performance Debate Revisited - Accounting for China's Sources of Growth With a New Data Set," Economic Program Working Paper No. 14-01, Conference Board. https://www.conference-board.org/pdf_free/workingpapers/EPWP1401.pdf.
- Yousef, T. M. (2004) "Development, Growth and Policy Reform in the Middle East and North Africa since 1950," *Journal of Economic Perspectives*, Vol. 18, No. 3, pp. 91-115.

Data Appendix

Palestine Data

GDP for Palestine in national currency current and constant price series are obtained from the World Bank World Development Indicators (WDI) for the period 1994-2020.²⁶ These are converted to PPP \$ using the ICP 2011 PPPs, and converted to The Conference Board Total Economy Database (TED) base year using the relative price changes between West Bank and Gaza and the United States. For the period 1970-1994, the real GDP in PPP terms is estimated using the growth rates from the Penn World Tables (PWT). The nominal GDP series in PPP terms is then calculated using the US GDP deflators for the entire period 1970-2020.

The population is also obtained from the WDI for the period 1990-2020 and extrapolated backward to 1970 using trends from the PWT data. Employment is calculated using the employment to population (15+ ages) data multiplied by the sum of the population aged 15-64 and population aged 65+. The latter two indicators are also collected from the WDI for 1991-2020. For 1990, the trend in PWT was applied. Since

there was no data in the PWT prior to 1990, we use a previous estimate of UNCTAD (Abu-Shokor, 1995) to impute employment series back to 1970. We use their estimates of employment to population ratio for the years 1970, 1975, 1980, 1985, 1988, and 1989 together with the estimates of the population from the WDI to derive employment data for these years.²⁷ For the years in between, we linearly interpolate the employment/population ratio. This way, we have a complete series on nominal GDP, real GDP (both in PPP terms), population, and employment for 1970-2020.

Sectoral data on employment and value added

Few databases provide consistent sectoral data on value added and employment across countries. Exceptions are the UNU-WIDER Economic Transformation Database and GGDC 10-sector database.²⁸ However, both these databases contain no data for the countries we consider in this study. To build the sectoral estimates of employment and GDP, we combine the United Nations National Accounts (for GDP) and ILO data on employment (International Labour Organization, 2020b).

²⁶ Palestine is defined to include the West Bank and Gaza.

²⁷ The WDI provides data on employment and population (both population 14+ and total population), using which we compute the employment to total population rates, which are then multiplied with the total population data from WDI for the period 1970-1989

²⁸ Available in the following links <https://www.wider.unu.edu/database/etd-%E2%80%93-economic-transformation-database> and <https://www.rug.nl/ggdc/structuralchange/previous-sector-database/10-sector-2014>.

Appendix Table 1: Countries and Regions

Advanced economies	Emerging & developing economies	
	Emerging Asia	West Asian Arab Economies
Australia	Bangladesh	<i>GCC</i>
Austria	Cambodia	Bahrain
Belgium	China (Alternative)	Kuwait
Bulgaria	India	Oman
Canada	Indonesia	Qatar
Croatia	Malaysia	Saudi Arabia
Cyprus	Myanmar	United Arab Emirates
Czech Republic	Pakistan	<i>Non-GCC</i>
Denmark	Philippines	Iraq
Estonia	Sri Lanka	Jordan
Finland	Thailand	Lebanon
France	Vietnam	Occupied Palestinian Territory
Germany		Syria
Greece		Yemen
Hong Kong	Other merging & developing economies	
Hungary	Albania	Jamaica
Iceland	Algeria	Kazakhstan
Ireland	Angola	Kyrgyz Republic
Israel	Argentina	Libya
Italy	Armenia	Macedonia
Japan	Azerbaijan	Mexico
Latvia	Belarus	Moldova
Lithuania	Bolivia	Morocco
Luxembourg	Bosnia & Herzegovina	Paraguay
Malta	Botswana	Peru
Netherlands	Brazil	Russian Federation
New Zealand	Burkina Faso	Serbia
Norway	Cameroon	Sudan
Poland	Chad	Tajikistan
Portugal	Chile	Trinidad & Tobago
Romania	Colombia	Tunisia
Singapore	Congo, Republic	Turkey
Slovak Republic	Costa Rica	Turkmenistan
Slovenia	Côte d'Ivoire	Ukraine
South Korea	Dominican Republic	Uruguay
Spain	DR Congo	Uzbekistan
Sweden	Ecuador	Venezuela
Switzerland	Egypt	
Taiwan	Georgia	
United Kingdom	Guatemala	
United States	Iran	

Source: The Conference Board Total Economy Database, April 2021.