The Middle East Competitiveness Report:
Regional and Territorial Analysis

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Introduction

Executive Summary

Executive Summary

1. This report examines the economic competitiveness of a cohort of regions in the Middle East. It explores the fact that whilst many Middle Eastern regions may owe some of their competitiveness to the natural advantages of oil reserves, for others their competitiveness has been achieved through other means.

2. Recent issues relating to volatility in the global price of oil once again draw attention to the potential issue of resource-dependence negatively impacting on effort to improve regional competitiveness, i.e. the so-called resource curse hypothesis.

3. The competitiveness of regions generally refers to the presence of conditions that both enable firms to compete in their chosen markets and for the value these firms generate to be captured within a particular region.

4. In the context of this report, therefore, regional competitiveness is defined as the difference in the rate of economic development across regions and the capacity and capability of regions to achieve future economic growth relative to other regions at a similar stage of economic development.

5. In order to gain insights into the specifics of regional competitiveness and growth trajectories within these continental blocs and nations, it is necessary to unpack the resources underpinning global rates of regional economic development. The tool used here to achieve this is the World Competitiveness Index of Regions (WCIR).

6. Overall, it is found that the average level of regional competitiveness in the Middle East is relatively low, with a WCIR score of 39.1 (global mean average = 100).

7. The most competitive 'region' included in the Middle Eastern analysis is Israel, followed by the oil-rich small states of Qatar and Kuwait. These regions are the only ones to achieve a level of competitiveness above the WCIR sample average of 100. Many of the other relatively competitive regions are those found in central and eastern Saudi Arabia and the United Arab Emirates, each of which has high levels of oil reserves.

8. Abu Dhabi in the United Arab Emirates, the fourth most competitive Middle Eastern region, is one of the regions that has most strongly embraced the sovereign wealth fund approach to economic development. The Emirate of Dubai also appears in the top 10 Middle Eastern regions, and is fast positioning itself as a significant financial centre.

9. The majority of the least competitive regions are located in the two largest Middle Eastern nations included in the sample: Saudi Arabia (five regions) and Turkey (three regions). The least competitive Saudi Arabian regions are located in the north (Northern Borders, Al-Jouf, Tabouk) or south (Jazan and Najran) away from the main oil producing areas of the nation.

10. In general, the most competitive regions in the Middle East are those that have developed beyond their traditional reliance on natural resource exploitation, and diversified their economies toward high-technology manufacturing or advanced service-based sectors.

11. Those regions within the Middle East that are the least competitive tend to be the more peripheral regions, which lack natural resource wealth and do not possess a large urban agglomeration. In some cases these regions are reliant on the better resourced regions for their level of welfare, particularly through the subsidized supply of goods.

12. In general, the policies pursued by Middle Eastern regions to encourage economic development have not necessarily followed the approaches utilized by other regions at the same stage of development.

13. Some oil-rich Middle Eastern regions are attempting to leap-frog industrialization in order to develop knowledge-based economies that could be described in Western terms as post-industrial. Attempts to foster more diversified knowledge-based economies have been the focus of these policies.

14. It is recommended that the focus of future competitiveness policies and strategies in the Middle East should encompass: making finance available to firms to expand R&D and other knowledge-based activities; improving the physical infrastructure allowing companies to locate in better equipped premises; and creating better networks between businesses, universities and other innovation-performing organisations.

1: Introduction

This report explores the extent to which Middle Eastern regions have generated relatively high or low levels of competitiveness. Whilst many Middle Eastern regions may owe some of their competitiveness to the natural advantages of oil reserves, for others their competitiveness has been achieved through other means. Their small size and high degree of autonomy means that many of the regions are effectively independent states. Middle Eastern nations and their regions have been characterized by some as 'rentier states' (Brach, 2009), whereby a rent-seeking culture characterized by traits such as a large welfare deadweight loss, a perception of the market as rewarding the rich and well-connected, and a focus on rent capture rather than innovation (Krueger, 1974), is likely to hold back regional competitiveness. As Rodrik et al. (2004) find, institutions are often more important than geography and trade integration for economic development, and it is quite conceivable that the unique political economy of Middle Eastern regions will have profound effects on both their overall competitiveness and also the sources of this competitiveness.

Many Middle Eastern regions have advantages associated with natural resources. However, whilst this can boost the output and outcome competitiveness, through artificially high labour productivity and employment, these same resources may hold back the development of other components of competitiveness (Leamer, 1999; Auty, 2007). Indeed, recent issues relating to volatility in the global price of oil once again draw attention to the potential issue of resource-dependence negatively impacting on effort to improve regional competitiveness, i.e. the so-called resource curse hypothesis (Stevens, 2003). A number of Middle Eastern regions are within nations that fit with Beblawi and Luciani's (1987) definition of the rentier state, whereby a considerable proportion of government income is linked to the exploitation of natural resource wealth rather than tax receipts. This reduces obligations to tax payers and the constraints they face when determining where to spend income (Anderson, 1987). Furthermore, Middle Eastern regions have traditionally been constrained by their climate (Brach, 2009) and human capital resources (Ewers, 2013).

Historically, Middle Eastern regions have formed parts of larger empires, as well as being treated as colonies by Western powers in the early- and mid-twentieth century, with independence only being acquired relatively recently (Owen, 2004). This may have directly limited their economic development and opportunities to increase their level of competitiveness. Indirectly, the governance structures developed after independence are to a large degree also influenced by the previous Western powers (Louis, 1984; Owen, 2004), which again may have limited development. Although neo-classical growth theories such as the Solow (1957) model assume that output is a function of capital and labour, studies have found that only a small proportion (roughly one third) of the difference in growth rates between East Asian nations and those in other regions, such as Latin America, can be explained by differences in labour and capital accumulation (World Bank, 1993). The implication is that it is not just the extent to which investments are made, but also the means by which they are made (Auty, 2007). Linked to this, studies such as Bisat et al. (1997) and Nabli and Véganzonès-Varoundakis (2007) have found that investments in physical and human capital have not been matched by improvements in total factor productivity within the Middle East. This has often seen such resource-rich economies fall behind their counterparts (Auty, 2001).

The remainder of the report is structured as follows: section 2 briefly introduces the notion of regional competitiveness and its measurement. Sections 3 and 4 focus on examining competitiveness across a cohort of Middle Eastern regions; whilst section 5 reviews the formulation and design of policies to address competitiveness challenges. Section 6 concludes the report and reflects on the priorities as Middle Eastern economies continue to move forward.

2: Regional Competitiveness

2: Regional Competitiveness

The competitiveness of regions generally refers to the presence of conditions that both enable firms to compete in their chosen markets and for the value these firms generate to be captured within a particular region (Begg, 1999; Huggins, 2003). Regional competitiveness, therefore, is considered to consist of the capability of a particular region to attract and maintain firms with stable or rising market shares in an activity, while maintaining stable or increasing standards of living for those who participate in it (Storper, 1997). Given this, competitiveness may vary across geographic space, as regions develop at different rates depending on the drivers of growth (Audretsch and Keilbach, 2004).

While the competitiveness of regions is intrinsically bound to their economic performance, there exists a growing consensus that competitiveness is best measured in terms of the assets of the regional business environment (Malecki, 2004, 2007). These include the level of human capital, the degree of innovative capacity, and the quality of the local infrastructure – all of which affect the propensity to achieve competitive advantage in leading-edge and growing sectors of activity. The influence these assets and other externalities can have on firm competitiveness, such as the ability of regions to attract creative and innovative people or provide high-quality cultural facilities, are all important features of regional competitive advantage (Kitson et al., 2004). In other words, competitiveness is increasingly concerned with creativity, knowledge, and environmental conditions, rather than being purely based on accumulated wealth (Huggins, 2003). Mahroum and Al-Saleh (2013) introduce the notion of 'demand-led related diversification' (DLRD), which stipulates that successful economic diversification and industrial renewal strategies have higher chances of success if (i) they are based on existing or anticipated market demand, either domestically or globally, (ii) that they can be - at least partially - supplied by existing domestic capabilities; and that (iii) they aim to develop complementary capabilities that are - at least partially - compatible with an existing domestic ones.

Regional competitiveness models are usually implicitly constructed in the lineage of endogenous growth frameworks, whereby deliberate investments in factors such as human capital and knowledge are considered to be key drivers of growth differentials. In the context of this report, therefore, regional competitiveness is defined as the difference in the rate of economic development across regions and the capacity and capability of regions to achieve future economic growth relative to other regions at a similar stage of economic development.

In order to gain insights into the specifics of regional competitiveness and growth trajectories within these continental blocs and nations, it is necessary to unpack the distribution of endogenous and knowledge-based resources underpinning global rates of regional economic development. The tool used here to achieve this is the World Competitiveness Index of Regions (WCIR). The concept of regional competitiveness has evolved beyond those studies and measures that previously regarded it as simply consisting of the ability to compete with other regions for export markets, often relying on labour productivity alone as a measure of competitiveness differentials. It is now recognized that whilst regions compete, the main competition between regions is not only in terms of attracting and nurturing highly productive firms (Tewdwr-Jones and Phelps, 2000), but also the productive knowledge stemming from the attraction and nurturing of the creative knowledge-based workers and entrepreneurs who underpin the innovative capacity of regional firms (Rohr-Zänker, 2001; Florida, 2002a; Mellander et al., 2011). This competition occurs through the provision of sufficiently high returns on capital, attractive wages and employment prospects (Krugman, 2003).
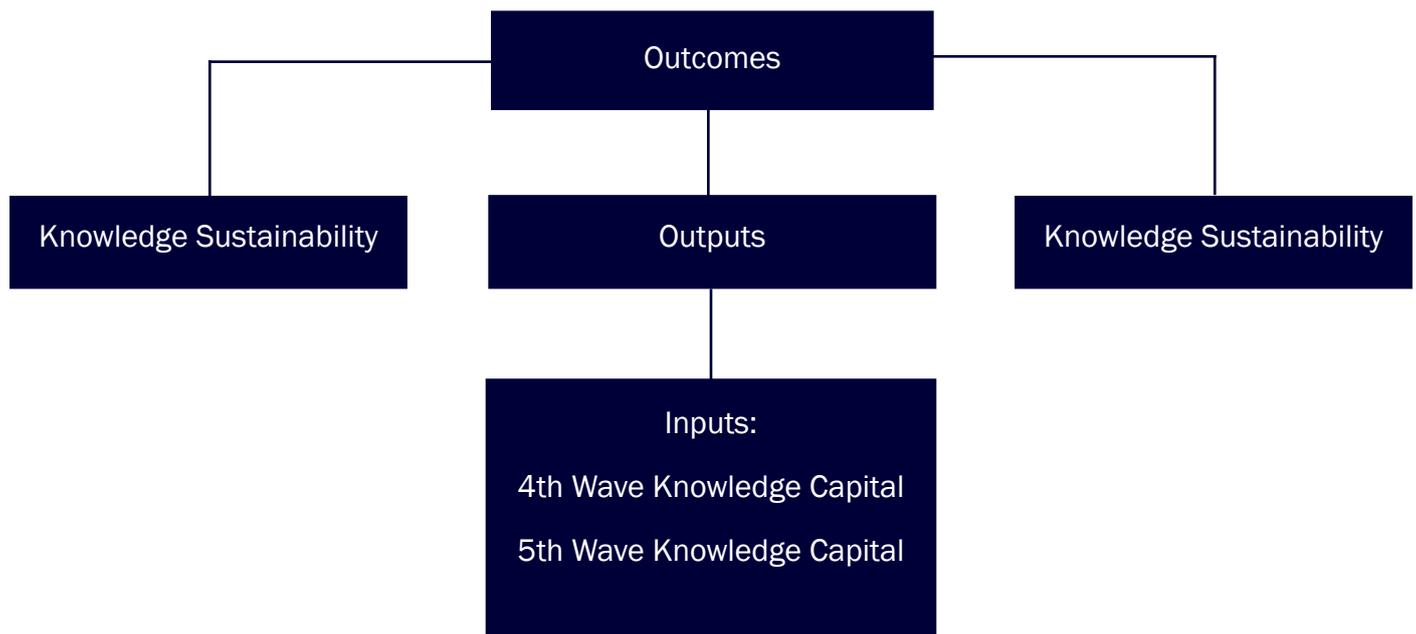
The WCIR provides a tool for analysing the development of a range of regional economies across the globe. It enables an illustration of the changing patterns of regional competitiveness on the international stage to be generated. The methodology employed by the WCIR attempts to integrate the key influences on changes in contemporary rates of economic development identified by the relevant literature. In fundamental terms, the WCIR aims to produce an integrated and overall benchmark of the knowledge capacity, capability, and sustainability of each region, and the extent to which this knowledge is translated into economic value and transferred into the wealth of the citizens of each region. In other words, the WCIR is explicitly tied to the theoretical discourse stemming from endogenous growth theory, with knowledge and human capital at the centre of its analysis. The WCIR analysis covers 546 regions. In the Middle East, 35 regions covering Israel, Qatar, and Kuwait (each as region-states), as well as 13 Saudi Arabian, 7 United Arab Emirates, and 12 Turkish regions are benchmarked.

The WCIR represents an integrated and overall benchmark of the knowledge capacity, capability, and sustainability of each region, and the extent to which this knowledge is translated into economic value and transferred into the wealth of the citizens of each region. Therefore, the WCIR is explicitly tied to the theoretical discourse stemming from endogenous growth theory, with knowledge and human capital at the centre of its analysis. In order to empirically analyse competitiveness at a regional level, the framework presented by Figure 1 is adopted, introducing a means for measuring feedbacks via the long-term sustainability of knowledge, and thus competitiveness. Within this model, regional competitiveness inputs are distinguished according to whether or not they can be best considered as 5th-wave or 4th-wave knowledge capital. Fifth wave knowledge capital inputs concern the acknowledged role played by the digital revolution and the Internet as the enabling innovation underpinning twenty-first century economic growth (Hall and Preston, 1988; Wymbs, 2004; Devezas et al., 2005; Linstone and Devezas, 2012). Fourth-wave knowledge capital is related to the prior dominance played by innovation and technological developments stemming from investment in R&D, principally in manufacturing activities (Hall and Preston, 1988). Full methodological details can be found in the appendix.

2: Regional Competitiveness

Figure 1: Framework Underpinning the World Competitiveness Index of Regions (WCIR)

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3: Regional Competitiveness in the Middle East

Globally, the leading region on the WCIR holds no great surprise, consisting of San Jose-Sunnyvale-Santa Clara region of the United States, which is commonly referred to as Silicon Valley. As has been very well documented, this region has a long history of innovation and engagement in the knowledge economy. Its origins stem from the 1940s with Stanford University's world leading research and government investment in defence research playing a key role (Sölvell, 2008). In comparison, the average level of regional competitiveness in the Middle East is relatively low, with a WCIR score of 39.1 and a median ranking of 411th (Table 1). In terms of those Middle Eastern regions that are the most competitive, they clearly possess a range of differing economic characteristics (Table 2).

Table 1: Summary statistics of Middle Eastern regions' competitiveness

	WCIR score	WCIR rank
Average	39.1	388
Median	31.7	411
Maximum	168.8	111
Minimum	-21.8	523
Range	190.6	412
Skewness	1.8	-1.2
Kurtosis	4.1	1.5

A number are small oil-rich states such as Kuwait and Qatar, while others are regions of larger countries that include the capital city or other large agglomerations, such as Al-Riyadh and Istanbul. The most competitive region included in the Middle Eastern analysis is Israel (WCIR score 168.8, ranked 111th). This is, perhaps, of little surprise as Israel has long had trade ties to Europe and North America (Baier and Bergstrand, 2007; Munin, 2010). An absence of natural resources has ensured that Israel has achieved competitiveness through different routes to many of the Middle Eastern regions. In particular, it has established a considerable presence in high-technology-based sectors (Rosenberg, 2010), and Almor (2011) provides examples of how small high-technology firms within Israel have continued to prosper following the economic downturn of 2008, largely due to their flexibility, innovative nature and export orientation. Breznitz (2013) also notes the success of small innovative firms within Israel, although doubt is cast on the sustainability of clusters based purely on the innovation phase of the production cycle. It is suggested that for continued regional growth access to firms across the different stages of production will be required (Breznitz, 2013).

3: Regional Competitiveness in the Middle East

Table 2: Ten most competitive Middle Eastern regions

Middle East Rank	Region	Nation	WCIR score	WCIR rank
1	Israel	Israel	168.75	111
2	Qatar	Qatar	142.33	181
3	Kuwait	Kuwait	114.95	244
4	Abu Dhabi	UAE	66.44	320
5	Al-Riyadh	Saudi Arabia	65.43	327
6	Eastern Region	Saudi Arabia	58.95	335
7	Istanbul	Turkey	55.48	347
8	Al-Qaseem	Saudi Arabia	55.40	349
9	East Marmara	Turkey	52.22	358
10	Dubai	UAE	50.40	363

Alongside Israel are the oil-rich small states of Qatar (WCIR score 142.3, ranked 181st) and Kuwait (WCIR score 115.0, ranked 244th). These regions are the only ones to achieve a level of competitiveness above the WCIR sample average of 100. Many of the other 5 relatively competitive regions are those found in central and eastern Saudi Arabia and the United Arab Emirates, each of which has high levels of oil reserves. The difficulty faced by these regions is the extent to which they can maintain or further develop their competitiveness in a manner that is not so fully reliant on these reserves (Kingdom of Saudi Arabia Ministry of Economy and Planning, 2004; Simmons, 2005; Brach, 2009; Alshumaimri et al., 2010).

Auty (2007) outlines three key factors that may help ensure that natural resource wealth is used in a manner that is sustainable and will ultimately increase competitiveness. First, the establishment of an offshore capital fund set up to capture the rent associated with natural resources and reduce the potential for rent seeking behaviour. Second, the use of rents from natural resource wealth to be made in an open and transparent manner, as a means of limiting rent seeking; and third, the establishment of an organization with responsibility for assessing the most effective alternative uses of capital funds. Abu Dhabi in the United Arab Emirates, the fourth most competitive Middle Eastern region (WCIR score 66.4, ranked 320th), is one of the regions that has most strongly embraced the sovereign wealth fund approach. Its most important capital fund, the Abu Dhabi Investment Authority, was initiated in 1976 and is estimated to have US$627 billion of assets under management (Sovereign Wealth Fund Institute, 2012). However, as noted above, it is important that these capital funds are not only present, but also well designed and transparent, otherwise there is a danger of a lack of public spending control (Davis et al., 2001), resulting in further rent seeking occurring (Auty, 2007).

The Emirate of Dubai also appears in the top 10 Middle Eastern regions (WCIR score 50.4, ranked 363rd), and although it is below the average for the whole WCIR sample, it is fast positioning itself as a significant financial centre (Cheung, 2010). However, the danger of investment in domestic infrastructure in Dubai is that it is often capital intensive and provides less benefit for the population as a whole. As such, Dubai's overseas investments may be just as important and a more efficient use of resources until the economy has further developed its competitiveness (Auty, 1990).

As is the case for many larger nations, there is variation in the competitiveness across Middle Eastern regions, with there being an identifiable core and periphery (Krugman, 1991, 2011). In the same way that many of the most competitive regions owe their competitiveness to the 'luck' of considerable natural resources or agglomeration, the least competitive regions are those that nature has not favoured in the same manner. In the case of Turkey, Istanbul has a population in excess of 13 million and enjoys considerable agglomeration effects, with the adjacent region of East Marmara further benefiting from spillover effects. In general, studies have found a split between the more successful west and less successful east of Turkey (Ersoy and Taylor, 2012).

3: Regional Competitiveness in the Middle East

Table 3 indicates that the majority of the least competitive regions are located in the two largest Middle Eastern nations included in the sample: Saudi Arabia (five regions) and Turkey (three regions). The least competitive Saudi Arabian regions are located in the north (Northern Borders, Al-Jouf, Tabouk) or south (Jazan and Najran) away from the main oil producing areas of the nation. The lagging regions of Turkey are the less densely populated regions in the east of the country. The differing governance mechanisms and institutions of the Middle Eastern states are visible here. For instance, although the Saudi regions differ greatly in terms of their access to natural resources, there are not the same disparities in competitiveness present as there are between the regions of the US, for example, or some of the European and BRIC nations, particularly Russia and China. In the case of Saudi Arabia, whilst a more centralized managed economy may not allow leading regions to achieve the level of competitiveness that could be reached with freer markets, this approach does potentially provide more freedom to redistribute resources (Collier and Hoeffler, 2009), which may prevent the development of large disparities between regions.

Table 3: Ten least competitive regions

Middle East Rank	Region	Nation	WCIR score	WCIR rank
26	Najran	Saudi Arabia	19.98	457
27	Ras Al - Khaimah	UAE	18.21	463
28	Tabouk	Saudi Arabia	18.16	464
29	Fujairah	UAE	17.60	466
30	Middle East Anatolia	Turkey	10.88	478
31	Southeast Anatolia	Turkey	10.34	480
32	Northeast Anatolia	Turkey	6.39	485
33	Al-Jouf	Saudi Arabia	6.25	486
34	Jazan	Saudi Arabia	-17.86	518
35	Northern Borders	Saudi Arabia	-21.84	523

In terms of achieving the maximum level of national welfare, such an approach may have benefits (Brun et al., 2002). However, it may also have long-term consequences, particularly where a high-rent approach is taken and governments move away from wealth creation to rent redistribution. A further outcome of this approach is that it may not lead to increased industrialization, which would absorb labour and reduce poverty, but an economy within which the civil service becomes over-expanded (Auty, 2007). This leads to a bureaucratic regional economy within which physical (Auty and Kiiski, 2001), human (Birdsall et al., 2001), and social capital (Woolcock et al., 2001) are accumulated more slowly. Unfortunately, such a system is largely self-sustaining (Acemoglu et al., 2011), and there have been calls for greater autonomy to be given to provinces, which reflects growing dissatisfaction with corruption and the mismanagement of regional development projects (Al-Rasheed, 2013). This helps to explain the relatively low average competitiveness of the Middle Eastern regions identified in Table 1, even with the advantages many enjoy. In the case of economies such as Turkey, the weaker regions in the east of the nation have suffered further difficulties in the form of terrorist activities that have hindered investment and limited competitiveness (Öcal and Yildirim, 2010; Derin-Gure, 2011).

Brach (2009) uses the Heritage Foundation's 'Index of Economic Freedom' (Miller et al., 2013) as a proxy for economic institutions in order to link such institutions and economic development. No equivalent measure is available at the regional level, but Table 4 reports the national Index of Economic Freedom measures for the relevant nations in 2013. There seems to be evidence to suggest that a number of the Middle Eastern regions are developing stronger economic institutions, and it might be expected that, along with the other developments discussed above, this will lead to competitiveness improvements in future years. Qatar and the regions of the United Arab Emirates appear to be best positioned to move beyond their dependence on natural resource wealth (Cevik, 2011). In the case of Kuwait, although it is one of the most competitive Middle Eastern regions, it may struggle to utilize its mineral wealth in an efficient manner to maintain or increase its competitiveness. In the case of Turkish regions, they are less likely to be influenced by the resource curse, but weak economic institutions may also hinder their ability to improve their competitiveness in future years.

3: Regional Competitiveness in the Middle East

Table 4: Economic Freedom Index

	World Rank (N=177)	2013 Score
Qatar	27	71.3
United Arab Emirates	28	71.1
Israel	51	66.9
Kuwait	66	63.1
Turkey	69	62.9
Saudi Arabia	82	60.6

Source: Miller et al. (2013)

4: Examining the Components of Competitiveness

In general, the most competitive regions in the Middle East are those that have developed beyond their traditional reliance on natural resource exploitation, and diversified their economies toward high-technology manufacturing or advanced service-based sectors. Those regions within the Middle East that are the least competitive tend to be the more peripheral regions, which lack natural resource wealth and do not possess a large urban agglomeration. In some cases these regions are reliant on the better resourced regions for their level of welfare, particularly through the subsidized supply of goods (Silva et al., 2013).

Table 5 divides regions into those with above or below median Middle Eastern regional competitiveness in order to examine in more detail the nature of competitiveness differences. Overall, it is clear that both the relatively more competitive (WCIR score 64.5) and less competitive (WCIR score 15.1) regions in the Middle East display levels of competitiveness below the average for the WCIR sample and, as the analysis in the preceding section showed, these figures to some extent hide the overall variation in competitiveness levels, with Israel, Qatar and Kuwait displaying much higher levels of competitiveness than the majority of the remaining regions.

Table 5: Absolute contributions to competitiveness by WCIR components in more and less competitive Middle Eastern regions

	5th-wave knowledge capital	4th-wave knowledge capital	Outputs/ Outcomes	Knowledge Sustainability	WCIR
More Competitive	-0.30	-0.32	0.14	-0.49	64.5
Less Competitive	-0.53	-0.68	-0.55	-0.54	15.1

The one component that differs little between the most and least competitive Middle Eastern regions is that of knowledge sustainability. For both sets of regions the mean average of this component is well below the average for the overall sample of regions. In fact, successful Middle Eastern regions, such as Dubai and Abu Dhabi in the United Arab Emirates, are highly reliant on foreign labour for the continued development of their industries (Toledo, 2011). This is consistent with studies that have found much of the growth in the Middle East to be associated with physical capital accumulation, rather than human capital (Abu- Qarn and Abu-Bader, 2007).

As such, knowledge absorption from foreign companies has been relatively low (UNDP, 2003), and there seems to be little evidence that the relevant infrastructure and investment is being made in the knowledge sustainability component of development. In the case of education, however, it should be noted that whilst investment may be significant as a whole, it is not always distributed effectively (World Bank, 2007). Ibourk and Amaghouss (2012) suggest that less affluent nations often display high levels of education inequality, so that benefits from increased investment in education are largely received by a relatively rich minority of the population. There are also suggestions that universities are not providing graduates with the skills required by the private sector (Achoui, 2009).

The most competitive regions clearly have higher levels of 4th- and 5th-wave knowledge capital, although crucially this component remains below the global average. This suggests that whilst attempts have been made by a number of regions to diversify their economies, these efforts have not been wholly successful. For a number of these resource-rich economies, the inability to reduce their dependence on their staple product may again be associated with the potential for rent-seeking activities. Olson (1982) outlines how those associated with mineral extraction will potentially limit the adoption of new innovations and technologies through political pressure to protect their own positions. In contrast to a number of the BRIC regions, which have been able to adopt and adapt foreign technologies to establish considerable stocks of 4th- and 5th-wave knowledge capital, efforts in most Middle Eastern regions have been less apparent.

 One fundamental explanation for this lack of knowledge-upgrading lies with the weak private sector found in these economies. The private sector of many of the Middle Eastern regions is dependent on state patronage rather than entrepreneurship, with it being poorly connected to the global economy, which limits its ability to adopt new technologies and exploit economies of scale (Malik and Awadallah, 2013). Indeed, in some Middle Eastern nations changes in productivity rates are found to be negatively associated with economic growth (Abu-Qarn and Abu-Bader, 2007). The exception to this is Israel, which is found to enjoy increases in total factor productivity (TFP) resulting from investments in new technology. In comparison, much of the economic growth experienced in Turkey is attributable to investments in physical capital, with a negative contribution from productivity growth, and a small contribution from improvements in human capital. This is not to say that economic development in nations such as China is entirely due to increases in productivity, as increases in physical and human capital also dominate for most East Asian nations, but efficiency improvements from technological advancements are also present (Krugman, 1994b), and may play a more important role for nations achieving higher levels of development (Collins and Bosworth, 1996).

Where new industries have been established, evidence of their success is not universal. For instance, Ersoy and Taylor (2012) suggest that there may be a negative relationship between the presence of knowledge workers and growth in Turkey. However, the dependent variable in their analysis is change in the unemployment rate, which means there is a danger of reverse causality. The success and higher remuneration in such industries may attract labour to the region, which the knowledge industries are unable to absorb, at least in the short term. Consistent with this, there has been a marked migration from regions in the east to those in the west of the country in recent years (Kırdar and Saracoğlu, 2008; Yildirim et al., 2009).

Attempts to rectify the deficiencies in both 4th-wave knowledge capital and knowledge sustainability are notable in some economies, such as Saudi Arabia's investment in infrastructure and the development of global knowledge links for its universities; for example, the establishment of the King Abdullah University of Science and Technology in the Saudi Arabian region of Makkah Al- Mokarramah (Fischer, 2008).

5: Regional Competitiveness and Development Policies in the Middle East

5: Regional Competitiveness and Development Policies in the Middle East

Changing patterns of economic activity and their consequential impacts on rates of development have brought competitiveness to the top of many political and policymaking agendas. Ensuring that regional competitiveness is retained and enhanced is a common concern across the globe, although the nature of these concerns may differ according to their past histories and future expectations. With regard to Middle Eastern regions, their economies have long been aware that whilst their reserves of oil and gas have been plentiful, they are also finite. This means that governments and regional policymakers need to ensure that the rents from natural resources are invested in the creation of alternative capital, whether it is produced physical capital and infrastructure or human capital, in order to ensure that the overall assets of a region are not depleted (Auty, 2007). Interestingly, the World Bank (2005) have developed an Adjusted Net Savings indicator, which adjusts national savings for the depletion of mineral resources, with the results suggesting that not all countries have taken a sustainable approach to the use of their wealth (Auty, 2007).

One approach adopted by Middle Eastern national governments has been to invest their oil wealth in businesses and infrastructure within other economies (Winder, 2010). An alternative approach adopted by some regions, particularly those with lower oil and gas reserves, has been to try to diversify their economies and utilize their wealth to fund a rapid increase in knowledge resources (Herb, 2009). However, access to technology must also be accompanied by the capability to effectively adapt and adopt such technology (Basu and Weil, 1998; Acemoglu and Zilibotti, 2001; Los and Timmer, 2005).

In general, the policies pursued by Middle Eastern regions to encourage economic development have not necessarily followed the approaches utilized by other regions at the same stage of development. With the exceptions of regions within Saudi Arabia, Turkey and Israel, it could be argued that Middle Eastern regions are attempting to leap-frog industrialization in order to develop knowledge-based economies that could be described in Western terms as post-industrial (Ewers and Malecki, 2010). Some of the policies being utilized in Middle Eastern regions have taken a 'if you build it, they will come' approach, such as the development from scratch of Jubail in the northeast of Saudi Arabia (Clary and Karlin, 2011). This is a tricky proposition since the competitiveness of a knowledge-based service sector is often built upon the demand for professional services by key parts of the manufacturing sector (Guerrieri and Meliciani, 2005). This becomes self-sustaining once a competitive position is reached, as the service sector itself also becomes one of the main customers for services. Reaching this point, however, without an existing manufacturing sector may be harder. Many of Middle Eastern regions have the rent from oil production to finance investments, but choosing the most effective and appropriate investments to make is the bigger problem (Auty, 2007). In order to address this, policy efforts are being made to enhance lagging knowledge sustainability and 4th- and 5th-wave knowledge capital. However, the traditional approach of paying for the population to study abroad has not been entirely successful, with funding not always linked to studying courses that are appropriate for the type of knowledge-based services economy that Middle Eastern regions are seeking (Looney, 1994).

Acknowledging the unsustainable nature of economies based on the exploitation of natural resources, Al-Riyadh in SaudiArabia is one of a number of regions to invest heavily in educational and research infrastructure, such as the King Saud University (Onsman, 2011). The first Saudi Arabian mixed-gender higher-education institution, the King Abdullah University of Science and Technology (KAUST), was also recently established in Makkah Al-Mokarramah (Clary and Karlin, 2011). Alongside the high investment in domestic educational resources, the Saudi Arabian authorities have also attempted to accelerate the process through policies such as the King Abdullah Foreign Scholarship Program, which funds its population to study in Western universities. The programme's scale is apparent in the fact that Saudi Arabia has the highest proportion of its population across all nations studying internationally (Clary and Karlin, 2011).

Other regions in the Middle East have followed a slightly different path, with one approach being to encourage Western universities to establish campuses and 'knowledge cities' through the use of subsidies, such as the Education City in Qatar or International Academic City in Dubai (Krieger, 2008). However, these investments have little direct input from their parent universities, so that effectively just a brand is being sold (Lewin, 2008). This may explain why attempts to increase the education of the indigenous population of many regions, as a means of improving participation rates in the growing knowledge intensive sectors, have not been entirely successful, with managers in the United Arab Emirates often being reluctant to recruit from the national population due to a distrust of indigenous capabilities and work-readiness (Al-Ali, 2007).

In an attempt to mirror the success of university science park regions, such as Silicon Valley (Saxenian, 1994) and the Research Triangle Park (Link and Scott, 2003; Weddle et al., 2006) in the US region of Durham-Chapel Hill, the Riyadh Techno Valley Park has been developed at King Saud University (Alshumaimri et al., 2010). The science park aims to boost the skills and abilities of university staff and students as knowledge workers, as well as enabling greater knowledge and technology transfer with private sector businesses. The park is intended to focus primarily on those sectors perceived to have the greatest potential for boosting productivity in industries related to chemical technology and materials; biological, agriculture and environmental technologies; and information and communication technologies. In many ways, Saudi Arabia is leading the way with such investments, with the majority of universities in Middle Eastern regions continuing to function primarily as education and training institutions, with little emphasis on research activity (Weir, 2007).

5: Regional Competitiveness and Development Policies in the Middle East

Attempts to foster more diversified knowledge-based economies have been the focus of policies in Abu Dhabi (Mahroum & Saleh, 2013), with the objective being to provide sustainable employment for the region's population (Davidson, 2009). Encouraging young workers to take jobs in the private sector is difficult, with the alternative of highly paid and relatively low-effort public-sector jobs stemming from a culture of entitlement (Leamer, 1999). As noted above, managers of private firms are wary of the engagement of local individuals, and in order to integrate United Arab Emirate nationals into the private-sector workforce policies requiring quotas have been utilized (Al-Ali, 2007). However, the lack of motivation means that even when employed there are still difficulties of fostering the indigenous workforce to achieve higher levels of productive effort (Marcel, 2006). Ewers and Malecki (2010) suggest that there is a need to promote greater interaction between local regional firms and foreign affiliates to boost knowledge transfer. Indeed, even the most competitive Middle Eastern regions, such as Dubai, are failing to provide appropriate mechanisms to boost interactions between universities, foreign firms and domestic firms (Ferretti and Parmentola, 2007).

Ross (2008) suggests that ensuring there is a clear agreement as to how mineral wealth will be utilized and distributed is important and, where possible, should be established before extraction occurs, in order to avoid potential conflict. This provides a difficult conundrum in relation to the design of sovereign wealth funds. Auty (2007) highlights the need for funds to be transparent, with the investment decision-making processes being required to consider all available options, both domestic and international. However, whilst rules on the proportion of rent absorbed by a capital fund, and the categories on which it is spent, reduces the potential for political interference, it can also prevent adjustment when revenues change over time and previous spending plans are no longer appropriate. Davis et al. (2001) question the viability of sovereign wealth funds, given the ability of governments to circumnavigate the fiscal discipline that such funds are intended to impose.

Where funds have a stabilization function they are intended to prevent overspending in periods of high oil revenues and expensive borrowing in periods of falling oil revenues. Stabilization can be undermined where funds are earmarked for certain types of off-budget spending, which may have long term ramifications where recurring expenditure will appear in future budgets. Whilst the saving function of funds is intended to ensure that oil revenues are available for future generations, the problem is that a government can always borrow to finance flows into the fund, resulting in no additional saving actually occurring.

6: Conclusions: Moving Forward

6: Conclusions: Moving Forward

This report has analysed the competitiveness of a range of regions across Middle Eastern economies. It has shown that whilst there are a small number of globally competitive regions, most still have some way to go before they move into the higher competitiveness echelons. Despite much investment in regions in economies such as Saudi Arabia and the United Arab Emirates, these regions still perform below the global average. However, it is still early days in terms of these regions reaping the competitiveness rewards of such investments, and time will tell whether or not these investments achieve their apparent promise. Furthermore, it is clear that the complexities of the political economies of the nations within which these regions are located, especially the role of sovereign wealth funds, adds a significant dimension in terms of the efficiency and effectiveness of the link between investment and competitiveness. It will, therefore, be interesting to monitor changes in Middle Eastern regional competitiveness in comparison with both the more western and eastern politico-economic regimes in coming years.

Within the global economic competitiveness stakes, the future challenge is to sustain its rapid progress. At the global level, success in these stakes equates to a marathon race, requiring consistent and enduring effort. As the recent economic crisis has shown, with often severe clarity, no nation can afford to rest on its laurels. Perhaps the biggest competitiveness challenge, and opportunity, for the UAE is to create further synergies between the revenues created by oil and the emerging innovation-driven sectors of the economy as a means of increasing the size of the domestic private sector market.

At the end of the day, it is individual entrepreneurs, and the business ventures they create, that facilitate the growth of both domestic and international markets, and there is a continuing need for close collaboration between government and educational institutions to design programmes to encourage a growing proportion of students to start business ventures, rather than seeking employment within often highly saturated public sectors. This would help boost competitiveness outcomes across economic activities, encourage the movement away from cheap foreign labour and large-scale enterprise in favour of promoting home-grown business, and provide a means of nurturing entrepreneurs with sound ideas and visions for creating high value-added businesses.

Other key factors requiring on-going attention include the development of the research base and the creation and transfer of this research between universities, local businesses, and other research establishments, as well as the further development of workforce skills, the telecommunications infrastructure, and key business sectors. With regard to improving levels of R&D investment, there may be little option other than government attempting to stimulate private sector investment by either increasing its own R&D expenditure. In order to produce a positive R&D multiplier effect, it is vital that government creates networks with the private sector to enable the effective transfer of knowledge from government-funded R&D projects to firms. Such policies are already in place in many nations, with increased public sector investment most usually being routed through the higher education sector.

In summary, the focus of future competitiveness policies and strategies should encompass: making finance available to firms to expand R&D and other knowledge-based activities; improving the physical infrastructure allowing companies to locate in better equipped premises; and creating better networks between businesses, universities and other innovation-performing organisations. Implementation of these strategies will also need to account for differences in the conditions and context across the Middle East, and may often be best addressed by authorities representing particular emirates. Although the UAE is a relatively small nation in population terms, it is rapidly growing. This growth is rather geographically uneven across the state, indicating the need for competitiveness policies specifically tailored to the needs of particular emirates and the cities and regions within them.

Finally, the role of strong leadership to champion the development of a competitive economy should not be overlooked. Such leadership has clearly been a key source of the improved competitiveness of many Middle Eastern regions in recent years, and will remain of crucial importance in the future. Importantly, strong leadership is required to ensure that the evolution towards a national economic culture that embraces competitiveness is achieved without compromising the wider values and beliefs of the national society.

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Appendix: Design of the World Competitiveness

Appendix: Design of the World Competitiveness Index of Regions (WCIR)

Overall, the WCIR framework employs a set of 19 indicators. In the input domain of new knowledge production, we choose the number of employees in five high-tech sectors as proxies for the human capital devoted to innovation. The five groups are: IT and computer manufacturing; high-tech services; biotechnology and chemicals; instrumentation and electrical machinery; and automotive and mechanical engineering. Other technology-input measures include R&D expenditures performed by the business and government sectors. Compared with corporate R&D, the impact of public sector R&D is less direct in its route in terms of both diffusion and timing. Nonetheless, there is evidence that spillovers from public sector R&D raise an economy's productivity (Jaffe, 1989a; Adams, 1990). Another technology measure used is the number of patents granted. The propensity to patent is known to vary widely across industries, with many patents turning out to be worthless, while a few are extremely valuable (Pavitt, 1982; Griliches, 1990). However, there is some evidence that suggests a close association between patents and other productivity-based measures at the national and regional level (Fagerberg, 1996; Acs et al., 2002).

Private equity investment capital is used as a proxy of the availability of funds for knowledge-based, start-up firms. Private equity funding is often concentrated in small or medium-sized firms, including venture capital and start-up investments, which tend to be in knowledge-based activities. For indicators of the long-term competitiveness sustainability, public expenditures on primary and secondary education and higher education are included. There is a sequential interaction between a region's education and training system and its stock of high-skilled workers. The rate of enrolment in education is influenced by a region's employment and career prospects, as well as the socioeconomic background of pupils and the quality of schooling. Enrolment, in turn, determines the region's workforce skills, productivity and economic performance (Bradley and Taylor, 1996). Public investment in education plays an important role in this sequential cycle, particularly improving the quality of local schooling over time.

In addition, three indicators of internet-based infrastructure are employed: numbers of internet hosts, secure servers, and broadband access – as measures of knowledge competitiveness sustainability. Other measures included are the regional unemployment rate and economic activity rate (defined by the ratio of the labour force to the working-age population). Also included is the proportion of workers employed in a managerial capacity, which is used as a proxy of human capital. Although this is hardly a perfect indicator of human capital, a similar indicator is used in international studies of the labour market (OECD, 1994). The wages of managers are generally higher than those of other occupations, reflecting the greater amount of investment made in education and training. Lastly, we adopt labour productivity and mean gross monthly earnings as indicators of competitiveness outputs and outcomes, respectively.

To remove effects of the size of each region analysed, per capita figures are taken for the following variables: R&D expenditures performed by the business sector and government sector; patents granted; private equity investment capital; internet hosts; secure servers; broadband access; and public expenditures on primary and secondary education, and higher education. Employment in the five high- or medium-high-tech industries and the number of managers are based on a per total regional employment basis. To avoid individual indicators having an excessive influence on the four components of the WCIR or the composite WCIR index, the individual indicators are standardized after appropriate scaling.

Organising the Indicators

Below the rationale underlying the grouping for each of the indicators is presented.

Fifth-wave knowledge capital inputs

As already argued, knowledge economies compete on value and innovation, rather than costs alone. As regions make the transition to knowledge economies, we would expect increases in the number and proportion of knowledge- based businesses and employment. In particular, 5th-wave knowledge-capital-based sectors have a higher potential for innovation and competitive advantage. Due to their intense requirements for innovation, these sectors have a higher propensity for developing a knowledge-driven economy, with the outputs from these sectors being more likely to generate knowledge spillovers for the rest of the regional economy. High venture capital/private equity activity is also essential to the translation of new ideas into innovation, as without the necessary availability of finance, a region's investments in R&D and human capital would yield little return. As such, the 5th-wave knowledge capital indicators are:

- employment in IT and computer manufacturing per 1,000 employees
- employment in biotechnology and chemicals per 1,000 employees
- employment in high-technology services per 1,000 employees
- per capita private equity investment.

Appendix: Design of the World Competitiveness Index of Regions (WCIR)

Fourth-wave knowledge capital inputs

Investment and employment in research and development activities signal the strength of efforts to develop and exploit new technology in order to enlarge the knowledge base. Similarly, the number of patents indicates how successful a region is in converting knowledge into potentially commercially valuable products and processes. Also, more traditional manufacturing knowledge-based sectors are a good measure of knowledge employment concentration. High activity rates and managerial density are also considered to be strong indicators of the potency of the human capital stock in a region. As such, the 4th-wave knowledge capital indicators are:

- employment in automotive and mechanical engineering per 1,000 employees
- employment in instrumentation and electrical machinery per 1,000 employees
- economic activity rate
- number of managers per 1,000 employees
- per capita expenditures on R&D performed by government
- per capita expenditures on R&D performed by business
- number of patents registered per one million inhabitants.

Outputs/outcomes

Economic 'performance' indicators are clearly vital components of competitiveness, and are usually the most established and well-known measures used. Those indicators considered here portray a specific image of a region: how productive its economy is, and the living standards enjoyed by its citizens. To this end, the WCIR analyses the following indicators:

- labour productivity
- mean gross monthly earnings
- unemployment rates.

Knowledge sustainability

Future knowledge capital is embodied within those individuals currently undertaking education. Although strong regions will be able to attract talent from elsewhere, in the long-term, reinvestment of returns into local human capital through education will help ensure that a region's knowledge economy maintains a sufficient flow of human capital. Likewise, local investment in ICT infrastructure is also fast becoming a necessity in order to transfer knowledge effectively and efficiently. Based on these factors, the following indicators of knowledge sustainability are included:

- per capita public expenditures on primary and secondary education
- per capita public expenditures on higher education
- secure servers per one million inhabitants
- internet hosts per 1,000 inhabitants
- broadband access per 1,000 inhabitants.

WCIR composite indicator

In order to establish the composite WCIR measure each of the four components are first calculated as an average of its sub-listed indicators (with the exception of the Knowledge Sustainability, where first an average of the three ICT infrastructure variables is taken, and then with the remaining two indicators another average is calculated). A mean average of the value of the components is taken to give a raw WCIR score. In order to calculate the final index, the raw scores are first transformed so that their average becomes 100. Then a geometric mean of the variances of the converted variables is taken, which is termed (variance)original. Finally, the scores for all regions are standardized, multiplied by the square root of (variance)original.

Middle Eastern Regions Benchmarked

Israel; Kuwait; Qatar; Al-Baha, Saudi Arabia; Al-Jouf, Saudi Arabia; Al-Madinah Al-Monawarah, Saudi; Arabia; Al-Qaseem, Saudi Arabia; Al-Riyadh, Saudi Arabia; Aseer, Saudi Arabia; Eastern Region, Saudi Arabia; Hail, Saudi Arabia; Jazan, Saudi Arabia; Makkah Al-Mokarramah, Saudi; Arabia; Najran, Saudi Arabia; Northern Borders, Saudi Arabia; Tabouk, Saudi Arabia; Aegean, Turkey; Central Anatolia, Turkey; East Black Sea, Turkey; East Marmara, Turkey; Istanbul, Turkey; Meditterranean, Turkey; Middle East Anatolia, Turkey; Northeast Anatolia, Turkey; Southeast Anatolia, Turkey; West Anatolia, Turkey; West Black Sea, Turkey; West Marmara, Turkey; Abu Dhabi, UAE; Ajman, UAE; Dubai, UAE; Fujairah, UAE; Ras Al – Khaimah, UAE; Sharjah, UAE; Umm Al – Quwain, UAE

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