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Long-Term Perspectives on Economic Development in the Islamic World

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Introduction

At the peak of its power,¹ the Islamic empire represented the greatest military strength, reached a higher level of achievement in the arts and sciences than any other civilization, and was widely thought of as the economic center of the world. Its military power allowed it to invade Europe, Africa, China, and India simultaneously.² The empire stretched as far east as present-day Indonesia, and as far west as the western border of Africa. Before the development of modern science, no civilization engaged so many scientists, produced as many scientific books, and provided as varied and sustained support for scientific activity.³ Indeed the remnants of its scientific achievements are still demonstrated by the very label we give our numerals: “Arabic.” And through the Silk Road and other commercial networks connecting it to Asia, Europe, and Africa, the empire was involved in the trade of a wide array of commodities while forming what was largely considered the greatest economic power of the world.⁴

While the religion itself continues to have one of the highest numbers of followers and is widely considered one of the fastest growing religions in the world,⁵ the Islamic empire has been shattered into various political entities that reflect little if any of the prior achievements of what is perhaps one of the greatest civilizations in history. The cause for the gradual degradation of this empire constitutes the subject of a vast number of scholarly debates and texts, and has accordingly resulted in a variety of competing theories. Some

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¹ The “peak” of the Islamic empire is usually considered to be during the Abbasid Dynasty (750 A.D.-1258 A.D.) (e.g., Donner 1999; 18).

² Lewis 2002; 7

³ Dallal 1999; 155

⁴ Lewis 2002; 6

⁵ See, for example, Esposito 1999; ix

have used cultural explanation, and, for example, have argued that a lack of autonomy between social, cultural, and political institutions in Islam have precluded the religion from embracing modernization and progress in the same manner as other civilizations.⁶ Others have stayed clear from inherent cultural explanations, and have alternatively shown how objective criteria like social, political, or geographical aspects of regions have contributed to the gradual demise of an empire. For instance, one theory blamed much of the economic and political failure on colonial practices that encouraged the production of raw materials, but discouraged industrial development – resulting in a dependency for technology and final products that led to the impoverishment of the Muslim world.⁷ And of course a range of explanations between or even beyond the aforementioned types are theoretically possible, and undoubtedly implemented.

Causal relationships are typically weak forms of support due to the difficulty of proving correlation, yet they remain vitally important in this particular scenario beyond just the immediate sociopolitical consequences. The Islamic empire was once a paragon of achievement for civilizations, and it behooves any well-informed individual to understand and help reawaken this civilization to contribute to the world as it once had. It was in this light that the Islamic Legal Studies Project at the Harvard Law School held a seminar entitled “Economic Development and the Muslim World,” featuring Professor Jeffrey Sachs, Director of the Earth Institute and Quetelet Professor of Sustainable Development at Columbia University, and Dr. Ghiath Shabsigh, Deputy Director for the Middle East of the International Monetary Fund (IMF).

This expository paper is written to capture the arguments of both speakers to not only document the different perspectives, but to additionally serve as a useful resource for basic and preliminary research in the field of economic development in the Muslim world. Professor Sachs began by distinguishing his own perspectives from those of cultural explanations in the past and subsequently explained how geographical and ecological changes since the peak of the Islamic empire contributed toward the rise of Western industrial powers and the Islamic empire’s eventual demise. While acknowledging the significance of geographical and ecological factors, Dr. Shabsigh found such explanations less instrumental than the ability of a society to use its available resources. The ostensibly disparate arguments of both scholars promote a more comprehensive approach toward the economic development of the Muslim world by encouraging policies that realize the natural limitations of a region, yet seek, when possible, more efficient usage of available resources.

Sachs’ presentation

Specifically addressing the long-term perspectives on economic development in the Islamic world, Sachs states that prior analyses on the region have been subverted by largely false notions of moral superiority – eventually leading to cultural explanations of the Islamic world’s economic decline. While acknowledging that culture and religion are undoubtedly connected with a region’s economic development, Sachs found that long-term perspectives of a region are dictated more significantly by physical geography, geopolitics, and changes in the global economy. High-income economies, for instance, are almost entirely in temperate-

⁶ Eisenstadt, S.N. 1965

⁷ S.V. Nasr 1999; 572

zone regions that lack the public health and food production difficulties that less economically developed tropical and desert regions continually face. Moreover, these same high-income economies have enjoyed a relatively abundant and a continually increasing amount of human and material resources in comparison with the Islamic world in the Middle East and North Africa. International policies of economically wealthier countries that reflect these geographical and ecological differences, and that embrace the Middle East as a partner rather than as an object of manipulation will, Sachs argues, likely allow the world to once again recognize the vast potential of this region.

Prior Cultural Explanations

Cultural arguments have been propounded to support policies that find an overriding necessity for varying degrees of cultural or religious changes prior to any sustainable long-term economic development. These theories point to inherent characteristics in the Islamic culture that distinguish it from economically more successful countries. Sachs pointed to two contrasting types of arguments, both of which he found dissatisfying. On one side of the spectrum is Weber's famous protestant ethic thesis and Bernard Lewis' argument in a recent publication. On the other side of the spectrum is the modern Islamic fundamentalist movement.

Max Weber, the famous 19th and early 20th century father of sociology, and, to a much higher degree, his followers, argued that a particular form of rationality developed in Western countries as a direct product of protestant beliefs that was unlike that of any other culture.⁸ This form of rationality and "ethic" contributed to the rise of the spirit of capitalism, and the ability of the West to far outpace its eastern cultural and political counterparts in economic (and to some degree political) success.⁹

Bernard Lewis, in his recent book, *What Went Wrong?*, argues that much of the failure of the Islamic empire is a direct product of its own cultural and social practices. The only way for the empire to rise once again to its greatness is to abandon certain practices that have inhibited its growth, and to reunite under a common endeavor to use the resources and talents of the present Muslim world. Abandoning certain social and cultural practices and reuniting involves the concomitant embracement of Western practices: "Today, for the time being, as Ataturk recognized and as Indian computer scientists and Japanese high-tech companies appreciate, the dominant civilization is Western, and Western standards therefore define modernity."¹⁰ Lewis sees a cyclical nature of history in which the dominant

⁸ While the crux of the original argument is in Weber's *The Protestant Ethic and the Spirit of Capitalism* (*Die protestantische Ethik und der Geist des Kapitalismus*), future writings refined and expanded his theory, especially in reference to Islam. Although Weber's untimely death cut short his plans to write a detailed comparison between the Judeo-Christian heritage and that of Islam, he does make some highly pertinent remarks. For a detailed analysis of Weber's treatment of Islam, see Bryan Turner's *Weber and Islam: a critical study* (1998).

⁹ Weber's thesis is far too complex, elaborate, and tangentially important to comprehensively outline here. It is significant, however, to note that Weber is speaking of a very particular type of rationality here, and that the "spirit of capitalism" must be distinguished from mere "capitalism"; Weber, of course, was not making the argument that capitalism began with the development of the protestant ethic. For more information on the form of rationality that Weber is speaking of, see Levine's *The Flight from Ambiguity: Essays in Social and Cultural Theory* (1985).

¹⁰ Lewis 2002; 150

civilization, which Lewis says was at one point Islamic but is at present Western, defines modernity, and the Islamic world can join modernity (and presumably progress economically) only through the acceptance and implementation of that fact.

On the other side of the spectrum, which Sachs at least equally disagrees with, is the growing Islamist movement that blames much of the recent failures to a deviation from the practices of the past; a reestablishment of the early days of Islam coupled with a literalist interpretation of the religion would result in a return of the glorious days of Islam. There are a vast number of descriptions attributed to this fundamentalist movement; some have characterized it as a reactionary movement attempting to reinstate the past through an “awakening,”¹¹ others have distinguished it as a progressive movement that opposes tradition,¹² and yet others have attempted to synthesize such disparate understandings of the movement to facilitate academic discussion.¹³ Whichever interpretation of modern-day fundamentalism is used, it is sufficient here to state that the movement sought to eliminate traditional or cultural practices that tainted the true form of religion, and to reinstate – through violent or peaceful means – the original practices of Islam as seen by the early followers of the religion (*salafs*).¹⁴

Cultural explanations for the economic decline of the Islamic world lead to generalizations that require fundamental religious or cultural changes as overriding necessities for progress. Some authors, like Daniel Pipes, have thus argued that Westernization is a prerequisite for economic modernization in Islamic countries because some of the features of Islam, such as its restriction on usury, promotion of fasting, specific inheritance laws, and limitation of female participation in the work force are inherently opposed to necessary modern reforms.¹⁵ Along the same lines, but arguing for diametrically opposing results is the fundamentalists’ reactionary movement – an elimination of Western and other cultural practices that have tainted the purity of the religion is required in order to once again return to the glory days of Islam.

These prior cultural explanations, Sachs argues, were simplistic and generally unable to withstand the test of time, let alone any rigorous analytical testing. To be sure, Sachs states that there are cultural practices that, if changed, would certainly contribute to a better economy. He argues that cultural biases against women in education and in the labor force, for instance, have not only directly lowered per capita incomes but have also contributed to continuing high rates of population growth, which puts a heavy stress on the region’s natural resources (e.g., availability of water). But while culture certainly influences economy, Sachs argues that geographical, geopolitical, and world economic factors play a much more significant role in shaping the present-day economy of the Islamic world.

¹¹ McLoughlin 1978

¹² Burgat 1997

¹³ Riesebrodt 1990

¹⁴ There is a vast amount of literature on this subject. For a brief overview, see Voll’s “Foundations for Renewal and Reform: Islamic Movements in the Eighteenth and Nineteenth Centuries” (1999). Although Sachs did not specifically mention which forms of modern-day fundamentalism he disagreed with, he was presumably referring to any reactionary movement that sought to return and reinstate the past. For examples of peaceful fundamentalist movements, see the early Muslim Brotherhood under Hassan Al-Banna in Gilles Kepel’s *Muslim Extremism in Egypt: The Prophet and Pharaoh* (1984).

¹⁵ Pipes 1983; 107, 191

Ecological Differences

The Mediterranean and the Middle East almost consistently formed the physical divide between Islam and Christianity throughout history. Sachs argues that this division is more than just physical; the borderline forms an ecological separation between Europe's temperate climate and the desert regions of North Africa, present-day Saudi Arabia, and Central Asia. The gradual economic and political failures of the Islamic empire, Sachs proposes, can be better explained through this ecological difference rather than prior cultural explanations.

While Europe's population is heavily concentrated in temperate climate zones, that of the Islamic world in the Middle East and North Africa is primarily in desert and steppe regions.¹⁶ Table 1 breaks down the estimated population division between the two main regions and the corresponding climate zones.¹⁷ It demonstrates that 95 percent of Europe's population (which excludes the former Soviet Union in this table) is concentrated in temperate zones, in comparison with only 16 percent of the population in the Middle East and North Africa. Sachs additionally points out that of the 16 percent of Islamic world's population in temperate zones, 85 percent is concentrated in only three countries (Turkey, Morocco, and Syria) with Turkey having over 50 percent of that population. On the other hand, less than 1 percent of the European population lives in desert and steppe climate zones, in contrast to over 70 percent of the population in the Middle East and North Africa.

Temperate climate zones, where over 95 percent of the European population resides, has substantial long-term advantages for economic development over tropical or desert and steppe regions. Sachs states that there are two basic advantages: better ability to prevent against outgrowths of diseases, and easier production of food to support population increases. Infectious and parasitic diseases tend to be lower and much easier to control in temperate climates. In hot climates, bacteria grow particularly well, making it difficult to preserve food and increasing the likelihood of infections. Additionally, diseases, such as malaria and yellow fever, are highly concentrated in tropical regions. The easier production of food is yet another advantage enjoyed by populations in temperate zones. Hot climates generally decrease food productivity and have soils that generally prove to be difficult to cultivate. Water availability and preservation also prove to be formidable barriers in attempting to increase food productivity and to maintain hygiene in hot climates. And unlike temperate zones where valuable organic material is preserved during the winters and ready for use in the following spring, tropical weather rapidly depletes the soil of these organic materials and nutrients. There are also a variety of other factors that contribute to temperate regions' ability to better cultivate food, including a decreased amount of pests and an easier task of preventing post-harvest rotting.

Resource Balance between Europe and the Middle East

For the first 900 years, from the birth of Islam to 1500AD, the Islamic world

¹⁶ Sachs prefaced this ecological presentation by defining the "Islamic world." The ecology and economic outlook of Islamic countries in South Asia are far different than those of North Africa. For purposes of this seminar, Sachs focuses on the Islamic world of the Middle East and North Africa (MENA).

¹⁷ All tables and figures have been kindly provided by Professor Jeffrey Sachs.

significantly expanded its physical territories. Since its beginning, however, the Islamic world was in continual competition with the Christian world for physical space and manpower. At the end, the Christian world came out ahead with the eventual demise of the Ottoman Empire. Chronicles of the Ottoman Empire's decline many a time attribute the decline to cultural differences; Islam's cultural practices inhibited technological advancement and ultimately allowed the Christian world to get ahead of its eastern competitors. Sachs, however, argues that in addition to the advantages Europe gained from the temperate climate zone, a comparison of resources between the Christian and Islamic worlds over time will demonstrate that a better explanation of the eventual decline of the Ottoman Empire may be simply because it lacked the human and material resources of Europe.

To facilitate a comparison of resources, Sachs divides the period from Islam's inception to the present time into four phases of competition: the Arabian expansion (632AD – 1200AD); the Ottoman expansion (1200AD – 1500AD); European-Ottoman stalemate (1500AD – 1700AD); and the European expansion (1700AD – present). The divisions thus show the first 900 years of expansion of the Islamic world, a subsequent stalemate from 1500AD to 1700AD, and an eventual loss of economic and political power from 1700AD to the present.

Demographics, geopolitics, and the global economy, Sachs argues, had more to do with the decline of Islamic world than cultural weaknesses. For the first 900 years, the Islamic world reaped huge economic gains from their physical location which placed them at the center of the world's main trading routes. Gradually, however, sea routes were discovered and found to be far cheaper than the usual land routes that crossed the Middle East. The economy was thus significantly undermined as the Islamic world lost control of the trading routes.

Europe, in contrast, greatly benefited from the industrial revolution's technological advances and its lands' natural resources. The steam engine, which was introduced in the late 17th and early 18th century, proved to be particularly beneficial for Europe because of the relatively large amounts of coal deposits in comparison to those of the Islamic world. Additionally, the heavy and wheeled moldboard plow was introduced into Europe no earlier than the sixth century allowed farming in Northern Europe, where it was never before possible.¹⁸ The introduction of the plow coupled with the temperate climates gave Europe an even greater advantage over food production. In addition to the coal deposits for use with the steam engine, Europe benefited from more timber and better transport through the access of water. Timber and water were for obvious reasons not as plentiful in the desert regions of the Islamic world.

Demographics were also in favor of Islam in the beginning, but that too was gradually lost to the rapidly growing population of Europe. In 800AD, the population of the Islamic world and Europe were approximately the same, with the former having a more urbanized population. Thus, in 800AD, while both had approximately 29 million people, the Islamic world had 13 of the world's 40 largest (by population) cities, while Europe had only three cities. As figure 3 shows, Europe's population began to rapidly increase in comparison with the rather stable growth of the Islamic world in the Middle East and North Africa (MENA). By 1600AD, Europe boasted a population that was roughly three times the size of MENA. Similarly, by 1600AD, Europe had 11 of the 40 largest cities in the world, while the Islamic world in MENA had only eight.

¹⁸ Mokyr 1990; 32

While being in the middle of the known world brought huge economic rewards for the Islamic empire when the world's main trading routes still went through the Middle East, it was geographically a difficult position to defend; the Middle East lacked the natural barriers of bodies of water or mountainous terrain, and continually lost economic and human resources while defending its territories. Up to 1580AD, the Ottoman Empire expanded its physical boundaries, but was subsequently weakened not only by the gradual loss of the world's trading routes, but by a lack of resources when attacked from all fronts. The Ottomans were fighting the European powers in the Balkans, the Russian Empire in the Black Sea and the Caspian regions, and the Persians from the East. The Ottoman Empire was able to roughly maintain its boundaries up to 1683 when it failed in its siege of Vienna.

Failed Attempts at Technological Advances

As the Islamic empire approached its end and Europe gained power over the region, an image of the Ottoman Empire as an entity riddled with corruption and traditionalism that inhibited modern technological advances was frequently depicted. Sachs argued that a more convincing argument was simply that the Ottomans lacked the resources – both human and material – that Europe capitalized upon. Overwhelmed with an increasing debt and continual military failures, the Empire was not able to sustain itself.

The Ottoman Empire actually demonstrated a significant capacity to reform. Sachs shows how the Tanzimat, a broad-based reform from 1839-1876, was an attempt by the Empire to reform its legal, educational, financial, military and administrative systems. Although the reforms were at times terminated due to a lack of funding, the Ottomans promulgated a commercial, civil, and penal code, started a mandatory public education requirement, and allowed the establishment of private institutions of higher learning. And these reforms took place while the Empire was facing a fiscal crisis resulting from the military losses from the encroaching European powers.

Like the Ottomans, Egypt attempted educational, administrative, and economic reforms throughout the 19th century as well. Muhammad Ali, for instance, attempted to expedite industrialization by having state-owned cotton mills. But power to run the factory was limited to animals and steam engines, which requires natural resources that Egypt simply could not afford. One author describes “the enormous problems faced by the ruler of a small country with a narrow local market, no coal, wood or workable iron, and none of the accumulated technical or entrepreneurial resources of western Europe.”¹⁹ The cotton mill thus could not be sustained, and as the country's debt to European nations drastically increased after the construction of the Suez Canal, it joined the Ottoman Empire on the path of economic failure.

Shabsigh's Presentation

Shabsigh countered Sachs' suggestion that geopolitical, ecological, and global politics played a more instrumental role than culture, by stating that similar arguments were used in the past

¹⁹ Owen 1993; 72

for vastly different conclusions. Ibn Khaldun, the famous 14th century Islamic scholar, for example, argued in his *Muqaddimah* that the geographical location of the Islamic world was the very reason for their political success. While acknowledging that geopolitics and ecology play a significant role, Shabsigh argued that a better indication of economic (and presumably political) viability is how well societies organize themselves in order to respond to the challenges presented by the environment. The organizations of society necessarily include the manner by which resources are used and managed, and how the overall system is sustained through financing. Shabsigh uses the role of institutions, macroeconomic stability, and finance to demonstrate how social organizations impact economic development in the face of environmental challenges in comparison with geographical and ecological limitations.

While stating that the impact of ecology and climate on economic growth had some significance, Shabsigh found the explanation less convincing because of its usage in the past for vastly differing conclusions. Ibn Khaldun, for instance, argued that ecological and geographical advantages were the causes of the Islamic empire's *success* almost 700 years ago. In his *Muqaddimah*, he divides the world north of the equator into seven regions from south to north, and labels the third, fourth, and fifth "zones" to be "temperate." The most temperate for Ibn Khaldun was the fourth zone, which covered North Africa, the Middle East, India, and China. The temperate climate, Ibn Khaldun claimed, made the regions the most prosperous, with more food production, better trading routes, and the most natural resources. The theory was used to explain the economic success of those "temperate" regions in comparison to the sixth region, where much of Eastern Europe existed. Gradually, however, as the center of civilization and economic power shifted to the sixth region, Shabsigh explained how other theorists thought the sixth region was more "temperate." With the same theory used to explain the success of civilizations in different geographical and ecological conditions, Shabsigh found it more important to see how societies organize themselves to use the available resources.²⁰

Emerging civilizations have increased the availability of resources through trade and effective use of existing resources. To demonstrate the importance and effectiveness of organizational factors, Shabsigh proposed studying the role of institutions because he found it to be a manifestation of how societies organize themselves. A recent article that he found to be one of the best and most comprehensive area studies dealing with the subject concluded that once institutions are controlled for, geography and trade have very little influence on income levels in different parts of the world.²¹ The authors of the article found that the quality of institutions, to which geography and trade indirectly contribute, "trumps" other factors when determining the level of income of a region.

Beyond the mobilization of resources, Shabsigh found macroeconomic stability, or the management of resources, to be another factor in determining the economic development of a region. Although the literature dealing with the importance of macroeconomic stability in economic development is extensive, Shabsigh found them to support the conclusion that macroeconomic stability is an unnecessary albeit sufficient condition for economic growth and development. Using the results from a recent work,²² Shabsigh argued that the early Islamic empire practiced what was essentially a moderate fiscal regime. Large-scale

²⁰ Shabsigh noted that the climate may have indeed changed since Ibn Khaldun's time, but implied that it was improbable.

²¹ Rodrik, Danni, Arvind Subramanian, and Francesco Trebbi 2002

²² Charles Adams 1993

monetary reforms that were carried out by the early caliphs reestablished monetary stability; trade was opened up, and trade taxes were largely abolished except for retaliatory purposes. Unfortunately, Shabsigh argued, many governments in the Arab world forgot this lesson, and their 19th and 20th century economic history is riddled with episodes of imprudent economic policies and macroeconomic instability.

Shabsigh also found the continued support and sustainability of economic growth through finance to be another factor in determining economic development. Recent studies, Shabsigh stated, found a positive correlation between the functioning of financial systems and long-term economic development. He argued that financial systems influence growth by reducing information and transactional costs and encouraging financial savings. In determining the efficacy of financial systems, many factors are considered, including legal traditions, political economy, social development, and religion. Religion, for instance, is what encouraged the innovators of Islamic finance, and Shabsigh used its development over the past 30 years to illustrate how a society organizes itself to more effectively use its resources and how finance has proved to be conducive to economic growth.

At least for the banking sector, the financial systems for the Gulf Cooperation Council (GCC) members, Shabsigh found, were traditionally much less developed than that of industrialized countries. Although it is far too early to satisfactorily conclude the effectiveness of Islamic finance on the GCC members' economies, practical experiences have been promising. Shabsigh offered three points in his experience with Islamic finance: First, Islamic banks proved themselves so far to be strong competitors in the banking industry. Second, the Islamic finance industry is increasingly becoming an important player in the region in issuing sovereign and private securities. The pace of issuing securities, for example, has proportionately far outpaced conventional banks. Third, despite various limitations, the Islamic finance industry is moving steadily toward establishing infrastructure. The industry is gradually implementing regulatory and accounting practices that meet the demands and needs of respective government regulatory bodies.

The Islamic finance industry, Shabsigh concluded, is an example of an indigenous movement that reflects one way people can organize themselves to use available resources. Despite their religious restrictions prohibiting the use of usury, the innovators of Islamic finance have shown how a society can overcome inherent difficulties to compete at what is arguably at the same or higher level than conventional systems without such difficulties.

Conclusion

Both scholars, at least to some degree, discuss the role of cultural and geographical limitations in the economic development of a region. Sachs finds ostensible cultural limitations to be less instrumental in determining economic prospects than geographical limitations. Shabsigh, on the other hand, argues that geographical and cultural limitations can be overcome through more efficient mobilization, management, and financing of resources, and therefore both cultural and geographical limitations are less significant in determining economic success than the manner by which available resources are used. Sachs and Shabsigh's arguments promote a more comprehensive understanding of economic development by encouraging policies that acknowledge objective limitations while realizing that better management of resources may in some cases help overcome cultural, geographic,

or ecological limitations of a region.

Sachs argues that geographical and ecological conditions are often overlooked in favor of less convincing cultural explanations when speaking of the economic (or political) development of a region. Cultural theorists, such as Weber, Lewis, or proponents of many modern Islamic movements, rarely, if ever, consider the restraints on food production and disease control, and the simple yet highly influential technological advances in the West. Sachs emphasizes that cultural factors are relevant – cultural roles of women that have been retained in the Islamic world, for example, reduces the labor force – and geographical and ecological conditions are not solely determinative of economic prospects. It is easy, however, for the vanquishers to overlook, for instance, the scarcity of water or the difficulty in defending an essentially landlocked region, and emphasize their own cultural or moral superiority.

Geographical and ecological explanations, Shabsigh contends, have been used for centuries, and are many a time used to prove vastly different results. They are undoubtedly relevant, but like cultural explanations, geographical and ecological limitations can, in some regions, be overcome through better use of resource. Shabsigh finds a society's ability to use resources a better indication of a region's economic prospects than the cultural or geographical limitations. Islamic finance, for instance, is an example of a method by which a cultural limitation, such as the prohibition of usury, is overcome through an indigenous movement. Rather than being a financial innovation, Islamic finance is a cultural expression that has shown strong promises of being able to compete at least on equal grounds with conventional methods of financing.

Future research has much to uncover in understanding the economic development of the Muslim world. What geographical and ecological advantages beyond trade did the Muslim world experience during the Arabian and Ottoman expansion? How have attitudes toward the foreign policy of other nations influenced cultural movements and resistance to technological and political changes? There are regions like Ethiopia, Sachs suggested, that simply have no natural economic prospects – landlocked region with no easy access to bodies of water, mountainous terrain with little land for farming, and no valuable natural resources. Better institutions, organizations, or the ability to use resources in such regions would be irrelevant because the country simply lacks any resources. How can foreign countries assist such nations in economic development without adversely affecting its sociopolitical climate? Other regions, like those of the GCC members, enjoy significant financial advantages through an abundance of valuable resources, but have been economically less viable. Shabsigh finds there to be a lack of efficient use of available resources, while Sachs suggests that Western nations' political and economic hegemony has stifled the economy and inhibited organic growth. Would a policy that addresses both issues – better use of resources and less political and economic intervention – be more effective than a policy that finds both issues mutually exclusive (and thereby necessitating the use of one or the other)? There are various other aspects that still need to be researched, including the adverse effects of economic development (e.g., the low birth rates in Europe as a product of economic development), and reasons why technological advances in the Muslim world have been scarce in modern times.

In the mid-1970's the Saudi government began a strong effort to have its own milk dairies, and overcame tremendous natural hurdles, including oppressive heat and lack of

water to launch what is considered the largest integrated dairy farm in the world.²³ Although the land cannot naturally provide feed for the cows, through huge financial investments and technological advances, the farm grows its own hay, processes the milk itself, and distributes the milk products to stores across the country.²⁴ The dairies are now able to provide 60 percent of the country's demand, and produce revenues up to \$1.6 billion each year.²⁵ Saudi Arabia's innovative dairy demonstrates the importance of both Sachs and Shabsigh's presentations. The creation of such a large dairy farm in an area of the world that is one of the least conducive to such an industry would not have been possible without the immense financial assets of the Saudi government. Sachs would argue that regions exist that lack the financial resources of the Saudi government and still face similar ecological conditions that prohibit the production of even more essential resources than dairy products. Additionally, the ability of Western countries to produce dairy products with far cheaper methods and much less technological innovations allows them to invest resources to other industries. On the other hand, Shabsigh would see the dairies as a clear illustration of how a region can use its resources more efficiently to overcome natural barriers. The arguments of both scholars are needed to implement an effective policy to promote economic development in the Muslim world. While there are certain mutually exclusive arguments that require further research, such as the role of institutions in the Islamic world, but there is significant overlap as well. An effective policy should take geographical and ecological differences into serious consideration while attempting to use available resources in a more efficient manner. Implementing such a policy will hopefully reawaken the Islamic empire, and allow it to contribute to the world as it once upon a time so impressively had.

²³ Smith 2002

²⁴ *Ibid.*

²⁵ "Dairy Industry Works Toward Self-Sufficiency." *Saudi Arabia Magazine*. January 26, 2005. <<http://saudiembassy.net/Publications/MagSpring97/dairy.htm>>.

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Figure 1. Koppen-Geiger climate zones

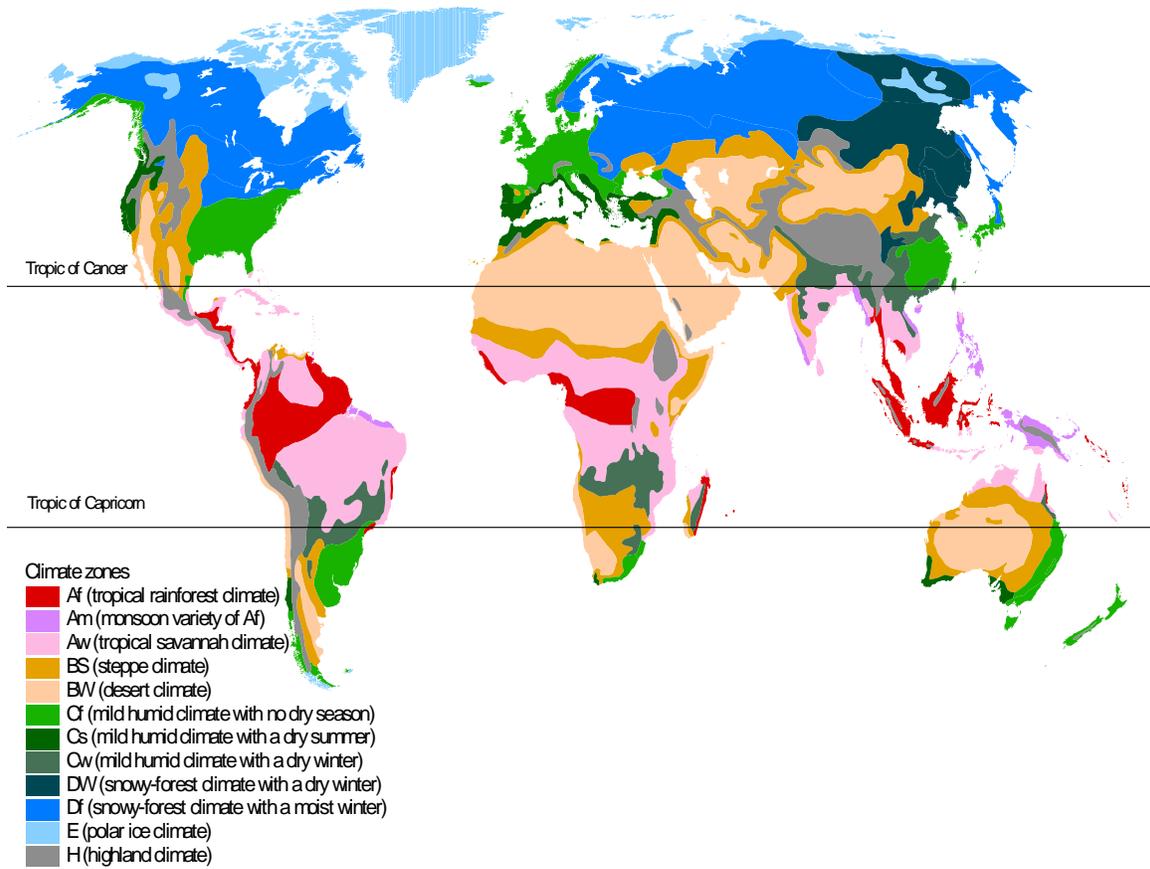
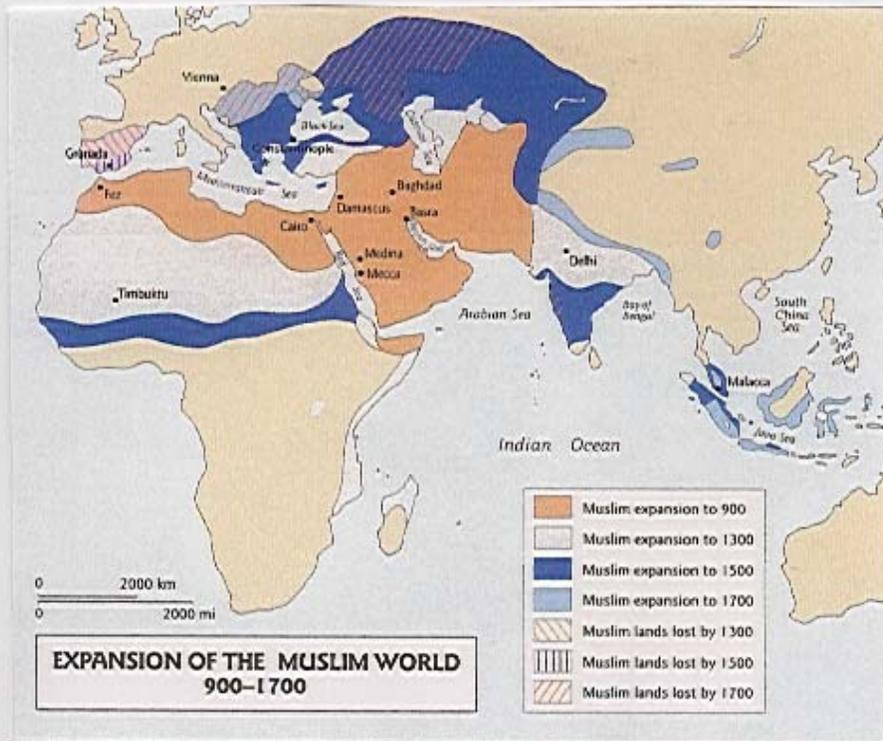


Figure 2. Expansion of the Muslim World, 900-1700



Source: Espisito (1999, p. 313)

Table 1. Population by Climate Zones – Europe and MENA

Share of Population, 1995, in each climate zone	Europe	Islamic Middle East and North Africa
Tropical	0.0	0.0
Temperate	95.2	16.2
Arid	0.8	70.7
Ice	0.2	0.0
Highland	3.7	13.1
Total	100.0	100.0

Notes: Climate classification as in preceding table. For purposes of this table, Europe is defined as the European Union plus Switzerland, the successor states of former Yugoslavia, and Eastern Europe (Poland, Hungary, Czech Republic, Slovakia, Romania, and Bulgaria). The Islamic Middle East and North Africa is defined as the Maghreb (Morocco, Tunisia, and Algeria), Libya, Egypt, the Levant (Lebanon and Syria), Turkey, the Arabian Peninsula, Iran and Iraq.

Table 2. Population by Climate Zones, High-Income Countries and World

Share of World Population, 1995, in each climate zone:	High-Income Countries	Entire World
Tropical	2.7	35.7
Temperate	81.3	26.6
Arid (desert and steppe)	8.8	25.5
Ice	2.5	0.6
Highland	4.7	11.5
Total	100.0	100.0

Note: Climate classifications are based on the Koeppen-Geiger system. Tropical climate zones include Aw, Af, Am, and Cw; temperate climate zones include Cf, Cs, Dw, Df; arid climate zones include Bs, Bw; ice climate zones include E; and highland climate zones include H. The high-income classification is from the World Bank, World Development Report 2000/2001. The table includes all economies with a population of 1 million or more in 1995.

Figure 3. Estimated Population (millions), Europe and MENA

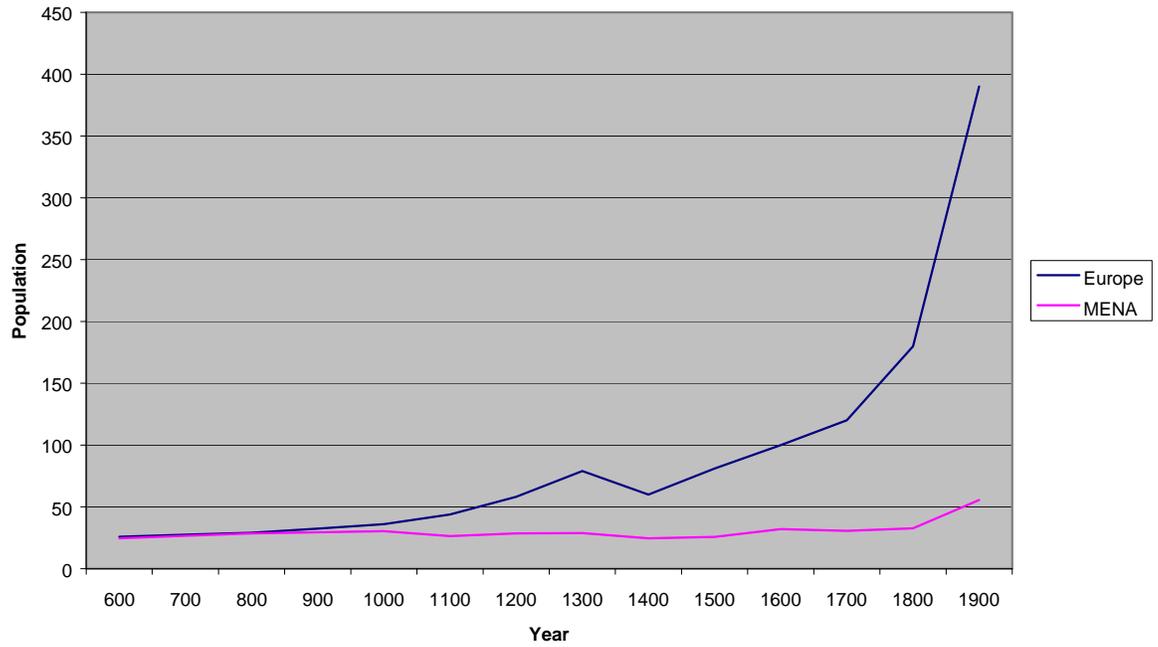


Table 3. Top Cities of Europe and the Middle East by Population, 800 AD – 1900 AD
(population, 000s)

800 AD	1200 AD	1600 AD	1900 AD
Europe and Byzantium	Europe and Byzantium	Europe	Europe
Constantinople 250	Constantinople 150	Paris 245	London 6480
Caeserea 55	Palermo 150	Naples 224	Paris 3330
Rome 50	Paris 110	London 187	Berlin 2707
	Venice 70	Venice 151	Vienna 1698
Islamic MENA	Milan 60	Seville 126	St. Petersburg 1439
		Prague 110	Manchester 1435
Bagdad 700	Islamic MENA	Milan 107	Birmingham 1248
Cordova 160		Palermo 105	Moscow 1120
Basra 100	Fez 200	Rome 100	Glasgow 1015
Fostat (Old Cairo) 100	Cairo 200	Lisbon 100	Liverpool 940
Rayy 100	Marrakesh 150	Moscow 80	Hamburg 895
Alexandria 95	Seville 150		Budapest 785
Mecca 80	Bagdad 100	Islamic MENA	Ruhr 766
Kairwan 80	Damietta 100		Warsaw 724
Samarkand 75	Damascus 90	Constantinople 700	Newcastle 615
Damascus 70	Rayy 80	Cairo 200	Naples 563
Mansura 60	Bokhara 70	Adrianople 150	Brussels 561
Jerusalem 60	Isfahan 70	Marrakesh 125	Barcelona 552
Merv 60	Samarkand 60	Isfahan 100	Dresden 540
	Cordova 60	Fez 100	Madrid 539
		Bokhara 100	Leipzig 532
		Tabriz 80	Amsterdam 510
			Islamic MENA
			Constantinople 900
			Cairo 595