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AN EXTRAORDINARY RECOVERY: KUWAIT FOLLOWING THE GULF WAR

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DISCUSSION PAPER 15.20

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ABSTRACT

Petrostates rely heavily upon revenues from petroleum exports and commonly face similar policy challenges in balancing the benefits of pertro-revenues against associated predicaments. Their economic performance has been shown to depend upon both pre-existing heterogeneous conditions and the quality of policy regimes. This paper addresses the particular case of Kuwait, with a focus on its extraordinary recovery following the Gulf War, teasing out policy lessons that are potentially applicable to other resource-rich states. It investigates factors favorable to the recovery while assessing the extent to which this recovery adhered to theoretical expectations or characteristics unique to Kuwait. Petroleum resources contributed to the advent of the war, the peace, and the expedited recovery. While the ability to generate petroleum wealth was central to Kuwait's reconstruction, the successful economic recovery was made possible through the interaction of three distinct yet indispensable factors—(a) the pre-existing political economy; (b) the country's economic policy, particularly its prior asset accumulation abroad in its sovereign wealth fund; and (c) the response of the global petroleum market postwar.

Keywords: Kuwait, Gulf War, postwar recovery, petroleum, petrostates, sovereign wealth fund.

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1. Overview

Despite their heterogeneity, *petrostates*, defined as petroleum exporting countries, face unique economic policy challenges to sustain economic growth and development. The advent of oil promised unprecedented growth and enviable wealth. Particularly striking was the transformation of countries that united to increase their collective bargaining power and economic strength by creating the Organisation of Petroleum Exporting Countries (OPEC) in 1969. This cartel controls petroleum pricing through production by its member states who, today, collectively own 80% of the world's petroleum reserves (Energy Information Administration [EIA], 2014a). OPEC's power was tested during the 1973 oil embargo, causing skyrocketing petroleum prices and earning its members unprecedented volumes of petro-revenues.

With illusions of prosperity and development notwithstanding, the path to the promised growth has proved variously bumpy and uncertain. High petro-revenues flowed, in some instances, at rates so fast there was no time to develop and establish adequate policies, regulatory infrastructure, and institutions that would ensure sustainable growth and development. Disproportionate fiscal reliance on petrodollars exposed petrostates to high volatility in global petroleum prices, resulting in "boom-and-bust" economies, which led to procyclical, rather than countercyclical, fiscal policy where governmental expenditures greatly expand during booms and contract during busts. Such tendencies were often further exacerbated by domestic macroeconomic and political instability (Frankel, 2011). Reduction in petroleum prices occurred when oversupply reduced export revenues, exposing structural defects in state services, as in Nigeria and Venezuela during 1983 and in Russia during 1998. More recently, since mid 2014, a 60% price slump has foreshadowed real declines for some petroleum exporters, the anticipation of which has led to redirection of financial flows and instability of exchange rates, most particularly in Russia. Even members of the Gulf Cooperation Council (GCC), who have historically enjoyed significant budget surpluses, are now threatened with equally significant fiscal deficits. These negative scenarios have led to a belief in an inherent resource "curse" among resource-rich countries.

On August 2, 1990, Iraq invaded neighboring Kuwait amid tense macroeconomic and geopolitical conditions involving petroleum and territorial disputes, which was followed by the Gulf War of 1990-91. The war caused a systematic destruction of the Kuwaiti petroleum

industry as Iraqi forces set fire to Kuwaiti petroleum wells, destroying capital-intensive production facilities, displacing the labor force, and damaging the environment. In 2 years, Kuwait recovered at an unmatched speed, producing more petroleum and growing at a greater rapidity and intensity than prior to the war.

This paper addresses an underresearched episode of postwar recovery, teasing out policy lessons with potential applicability to other resource-rich states in their quest toward sustainable growth and development.[1] The subsequent sections discuss the challenges facing petrostates, the geopolitical environment surrounding the Gulf War, and the war's economic impact on Kuwait. Section 4 analyses the extent to which this recovery was unique in theory and by comparison. Conclusions and relevant lessons complete this paper.

2. Petrostates and the Curse of Inappropriate Policy

Since the 1970s, many petrostates underperformed resource-poor countries, a surprising fact given their resource wealth. Sachs and Warner (1995) advanced that a significant negative relationship exists between economic growth and the intensity of petroleum (and other mineral resources), a relationship famously dubbed the "natural resources curse" (Auty, 2001; Sachs & Warner, 2001). This counterintuitive curse was attributed to a host of factors; however, no general consensus exists with regard to its exact causes. Most prominent among economic factors is the Dutch Disease, which represents a host of negative side effects from a resource boom during high dollar-denominated petro-revenues, causing significant appreciation of nominal and real exchange rates or inflation in countries with fixed exchange rates regimes. This appreciation, in turn, adversely affects nontraded sectors by "squeezing out" investments and relocating production factors, potentially leading to deindustrialization while causing booms in secondary services sectors (Arora & Tyers 2012; Corden, 1984, 2012; Corden & Neary, 1982; Venables & van der Pleog, 2010).

Other researchers attributed the resource curse to institutional quality (Bulte, Damania, & Deacon, 2005; Sala-i-Martin & Subramanian, 2003), terms of trade declines, poor inter-industry linkages, and rent-seeking behavior (Tornell & Lane, 1999). For Boyce and Emery (2005), the

[1] The analysis herein also serves as a platform for subsequent research on commodity-driven cycles, economic volatility, and policy regimes aiding adjustment in a general equilibrium framework. A model of the Kuwaiti economy is currently under construction to decompose the effects of the war and the recovery coupled with petroleum-price fluctuation.

curse is “the expected outcome for economies producing exhaustible resources” and it is a clear consequence of optimal intertemporal decisions (p. 2). This “paradox of the plenty” (Karl, 1997) is thus blamed for high poverty rates and inequality, weak public governance, corruption, and poor performance on social and political development indicators (Shafer, 1994).

Shortcomings of the resource curse literature have not gone unnoticed. Monzano and Rigobon (2001) indicated that the relationship between resources and growth is, on average, slightly negative but weak and is due to “bubbles” resulting from interaction between credit markets and collateralized goods. Alexeev and Conrad (2009) emphasized that this perspective largely ignores the industry cycle indigenous to petrostates. Some empirical studies reported positive effects of natural resources on long-term growth (Alexeev & Conrad, 2009; Boyce & Emery, 2005). In addition, other economic and development indicators show a large disparity in performance among petrostates. This disparity is evident when examining, for instance, 2013 per capita GDP levels of the world’s largest petroleum exporters and their performance relative to non-petrostates (see Figure 1). Thus, the claim of a direct causal relationship between natural resources and slow growth is questionable, and it fails to account for the long-term economic growth of petrostates.

Despite said disparity, petrostates face unique, yet common, policy challenges stemming from the high volatility of export revenue and, in association, of exchange rates; political friction over resource access and ownership; the complex oligopolistic nature of the petroleum industry; political pressures for inefficient distribution of resource rents; the exhaustibility of resource endowments; and constraints on production and pricing decisions in light of domestic demand requirements and production quotas. Particularly challenging is implementing efficient fiscal policies that reduce procyclicality and manage petroleum windfalls. Stabilizing resource income and securing non-exhaustible sources of revenue are particularly important policy objectives in petrostates.

The geopolitics and scarcity of resources introduce another layer of vulnerability by rendering petrostates more to conflict, from large scale wars, to civil conflict (Collier & Hoeffler, 1998)—such as in Angola, Peru, Cambodia, Sudan, and Iraq—to smaller skirmishes. Petrostates are found to engage in 50% more international conflict than non-petrostates (Colgan, 2011). Resource competition and conflict are fuelled by energy security concerns, among both petroleum exporting and importing countries, resulting from high dependence on petroleum, the

extractive sectors' immense rents, and the ensuing political power of resource owners. Further, abundance of natural resources internationalize otherwise local or regional conflicts by instigating foreign military or commercial intervention in conflict-torn areas. Examples are abundant, such as: Algeria's war of independence in the 1950s; Rwandan and Ugandan control of Zaire in 1996; oil wars in the South China Sea; Russian military campaigns in Chechnya in 1999 and in Ukraine in 2014; and the US conflict with Iraq in Kuwait in 1991. Thus, policies that prevent and/or manage conflict and effectuate post-conflict recovery are also pertinent policy objectives.

Striking variations in the economic and political status of petrostates suggest that petroleum-price volatility is at the root of this variance, and that economic performance depends upon both preexisting heterogeneous conditions and the quality of policy regimes. Therefore, if there is a curse, it is a curse of inappropriate *policy* rather than a *resource* curse. Indeed, the particular challenges common to petrostates would be better addressed by research focused on the drivers of growth and on policies that manage commodity-driven revenue, rather than debating the existence of a causal curse. From this perspective, Kuwait's successful economic recovery following the Gulf War is rather revealing.

3. Kuwait and the Gulf War

With a small, open economy, Kuwait is one of the world's largest petroleum producers and exporters, holding the sixth-largest petroleum reserve, estimated at 104 billion barrels (bbl)[2] (EIA, 2014a). A petro-dependent economy, petroleum production and refining represent more than 62% of Kuwait's GDP and more than 90% of its exports, the latter of which were estimated at US$108 billion in 2013. It is a member of OPEC, and its petroleum production is managed through the fully state-owned Kuwait Petroleum Company (KPC). Historically, monetary policy of the country has been tied to its stable currency, linked to a "basket" of reserve currencies and low inflation, at 1.5%. Its economy has been further aided by highly liberal trade policies.

Fiscal policy has been Kuwait's primary instrument of macroeconomic stabilization. Fiscal regulations have required that 10% of petroleum export revenue, which was increased to 25% in 2012, be contributed to and invested in the Kuwait Investment Authority (KIA), the country's sovereign wealth fund (SWF), with the remaining budget surplus accumulated in a

[2] Reserves include 2.5 bbl of reserves held in the Partitioned Neutral Zone of Saudi Arabia.

separate fund also managed by the KIA. Consequently, Kuwait has acquired a substantial and diversified international asset portfolio. The citizens enjoy a notably generous welfare system that includes various mechanisms for transferring petroleum rents. With historical dependence on foreign nationals, who represent the majority of the population and labor force, Kuwait invested heavily in the local labor force and implemented a policy of "Kuwaitization."

Kuwait's history is not devoid of periods of economic struggle such as those during which the strength of Dutch Disease forces dominated, as during the period prior to the price declines of 1982 and 1990 (Al-Sabah, 1988; Looney, 1991). The nature of its petroleum economy led to a factor-endowment imbalance in favor of capital. Due to high reliance on a volatile commodity, Kuwait would be expected to suffer the political and economic downturns common to other petrostates; however, it is one of the richest countries in the world. Also impressive is the Kuwait National Assembly, the most active and democratic among the GCC countries. Internally, the citizens are united, prosperous, and very politically active, a unique feature that also defies expectations.

3.1. Tension Leading up to the Iraqi Invasion

"Those who could [cheat] did; those who couldn't, complained," articulated Sheikh Ali al-Khalīfa al-Sabāh, the Kuwaiti petroleum minister, to the National Press Club. The Iraqi-Kuwaiti conflict was motivated by disputes over petroleum resources, pricing, and production. Nonetheless, it was justified by historical territorial disputes on the grounds that Kuwait had belonged to Iraq under the jurisdiction of the Ottoman ruler of Basra and arbitrarily separated by colonial powers. The historical evidence suggests, by contrast, that Kuwait had operated as an autonomous entity under British protection and only briefly (i.e., for 25 years) became, ceremonially, a region of the Ottoman Empire in 1871 in exchange for Kuwait's autonomy from Ottoman annexation (Al-Jāsim, 2010). The border demarcation separating Kuwait and Iraq was determined in the Anglo-Turkish Convention of 1913 that occurred after the ʿUqair Conference (Al-Jāsim, 2010; Al-ʿOtaibi, 2015). It was during the conference when the British government assigned two thirds of the area previously known as Kuwait to Saudi Arabia. The border demarcation was officially accepted by Kuwaiti and Iraqi leaders in an exchange of letters in 1923 and again in 1932. Yet, upon Kuwait's independence, Iraq attempted to annex Kuwait on similar grounds in 1963. The Iraqi Baʿathist leadership of the 1980s preached pan-Arabism, sovereignty, secularism, and the

removal of “artificial” borders between the region’s nation states, which culminated in Iraqi annexation of Kuwait in 1990.

The importance of Kuwait to Iraq is geopolitical and lies, first, in its control of various strategically important islands in the Persian Gulf including Būbiyān, Warba, and Failaqa, which border the Umm Qasr channel, the only waterway allowing Iraq direct access to the Gulf. Second, Kuwait’s possession of approximately 9% of the world’s petroleum reserves in 1989-90, as well as its proximity to Saudi petroleum fields, represented a solution to Iraq’s energy security concerns, which necessitated possession of abundant hydrocarbon resources along with access to markets and high petroleum prices. If Iraq could reach the Saudi oil fields adjacent to the Kuwaiti borders, it could secure 20% of the world’s reserves and command independent influence over global markets, notably OPEC. Nevertheless, Iraq and Kuwait maintained diplomatic and commercial affairs, strengthened through their membership in OPEC and by Kuwait’s support for Iraq during the 8-year Iran-Iraq War driven by the former’s geopolitical tensions with Iran.

Kuwaiti relations with Iraq deteriorated in 1989 amid intra-OPEC tensions over petroleum production quotas and prices. Quota controversy had persisted since 1988 within OPEC as Saudi Arabia secured 25% of the organization’s total production, a condition to raising the OPEC basket target price to $18 per barrel (pb) following the 1986 oil-price crash when crude oil prices fell to their 1974 level of $12 pb (Mohamedi, 1992). The “cheating” that ensued where production levels of Kuwait and the UAE exceeded their respective quotas by approximately 1 million barrels per day (bpd), threatened to further reduce prices, and created intra-OPEC battles, particularly with Saudi Arabia. In November 1988, OPEC agreed to limit total production and oil prices again rose to $20 pb. In 1989, Saudi Arabia, insisting on maintaining its position within OPEC and concerned over the regional expansion interests of Iraq, vetoed efforts to increase the quotas of other members of OPEC, despite much pressure. Saudi Arabia further isolated its neighboring GCC members when it entered into a Nonaggression Pact with Iraq without consultation with, or inclusion of, the GCC. In turn, Kuwait and the UAE continued to pump petroleum, far exceeding their agreed-upon quotas and challenging the effectiveness of the organization and Saudi Arabia.

The Iraqi economy was damaged by its war with Iran, which left Iraq with debts exceeding $80 billion, of which $14 billion were owed to Kuwait and $20 billion were owed to

Saudi Arabia (Marcus, 1992). Iraq also anticipated enormous costs associated with the rehabilitation of its destroyed oil ports and production facilities. The country hoped that petroleum prices would soar as a result of the supply restrictions mandated by OPEC and the significant production shortfalls from the collapse of the USSR. Conversely, Iraq faced swiftly declining prices due to the oversupply of OPEC, which as Figure 2 indicates, exceeded production quotas by as much as 66% by the end of 1988. It is estimated that, by June 1990, OPEC was adding approximately an extra 3 million bpd (Marcus, 1992), causing the January 1990 petroleum price of $22 pb to plummet to $12 pb (see Figure 3) and to $10 for low-grade crude (Marcus, 1992).

OPEC members reported revenue declines of $100 million daily. Iraq, along with the other poor states of Venezuela and Indonesia, publicly accused OPEC—primarily Kuwait and the UAE—of not adhering to their production quotas and thus depressing petroleum prices (Marcus, 1992). Iraq blamed Kuwait for an estimated $1 billion in daily lost revenue due to overproduction. Aspirations to annex Kuwait reemerged and, between February and July 1990, Iraq advanced territorial, political, and financial claims against Kuwait (United Nations [UN], 1996). Those accusations included illegal possession of strategic islands in the Persian Gulf, which adversely affected Iraq maritime access, and *slant drilling* into the Iraqi Rumaila oil field, 20 miles from the Kuwaiti border, extracting an estimated $2.4 billion worth of crude oil.

When Iraqi troops mobilized toward the Kuwaiti borders in July 1990, Arab diplomatic efforts attempted to mediate between the two countries (Khadduri & Ghareeb, 2001). The U.S. administration was planning a settlement *sans* external forces; however, Kuwait rejected mediation attempts, continuing its overdrilling (Khadduri & Ghareeb, 2001). In the July 1990 OPEC meeting, Iraq demanded supply restrictions and an increase in the petroleum target price to $25 pb. On July 27, 1990, with pressure from Saudi Arabia, OPEC agreed to raise its target price from $18 to $21 pb (Adelman, 1993), which was followed by the OPEC agreement on the prewar quota levels. Yet, on August 2, 1990, Iraqi troops invaded and annexed Kuwait. The UN Security Council issued Resolutions 660 and 662, which called for immediate withdrawal of Iraqi forces, as well as economic sanctions on both Iraq and Kuwait including the cessation of all trade in and out of these nations, with the exception of food and health and humanitarian needs. The U.S. government authorized military intervention in the form of Operation Desert Storm. When the Iraqi leadership ignored an ultimatum to withdraw by mid January set by UN Security

Council Resolution 678, the United States (U.S.) led a 32-nation coalition to liberate Kuwait on January 17, 1991. In retaliation, Saddam Hussain ordered the detonation and torching of Kuwaiti petroleum fields. By February 27, Iraqi troops had withdrawn, and Kuwait was declared liberated.

3.2. Impact on the Kuwaiti Economy

It is difficult to estimate a true reflection of the costs associated with the Gulf war that encapsulates direct and indirect economic losses, intangibles, and externalities, as well as various noneconomic costs including the social and intergenerational impact. The Kuwaiti government estimated the cost of the war at $65 billion (Central Bank of Kuwait, 2011). The UN (1996) estimated overall losses to the Kuwaiti economy, excluding assets, at "a minimum of $30 billion" (p. 18). Even this lower estimate exceeded the country's prewar GDP. The UN received over 235,000 claims, totaling $131 billion, for personal, governmental, environmental, and sectoral claims losses from the Iraqi invasion, of which $41 billion were approved and awarded by the UN. Total claims submitted by the petroleum sector exceeded $28 billion, while large private-sector companies' claims exceeded $9 billion in losses.

The destruction of the petroleum industry and the economic sanctions imposed after the war led to losses in export revenue, while government expenditures rose significantly due to large welfare payments made to Kuwaiti citizens during the war and transfer payments made to the U.S. and coalition troops. Kuwait's GDP collapsed from approximately $24 billion in 1989 to $10 billion by 1991. The government debt increased by more than 200% in 1991, with debt to military-coalition states estimated at $20 billion (Central Bank of Kuwait, 2011). It incurred a $26 billion current-account deficit, following a prewar surplus of $3.7 billion. Absent the war, the expected Kuwaiti surplus was $6.5 billion (Public Authority for Assessment of Compensation for Damages Resulting From Iraqi Aggression [PAAC], 1999).

The impact on the financial market was also significant. The banking system remained weakened by the Souq Al-Manākh stock-market crash of 1982, which left many nonperforming loans. The war also caused significant losses in the financial assets of banks and a collapse in real-estate value and the value of other assets. Moreover, large losses manifested in gold reserves, estimated at 1.3 trillion ounces of gold, or over $500 million, that disappeared from the Kuwaiti Central Bank (UN, 1996). The economic losses of the war include the destruction of petroleum production and factors of production.

Capital destruction. Central to the impact of the war was the destruction of Kuwait's physical capital stock. Although destruction did not reach the country's entire infrastructure equally, the loss of assets neared $100 billion (UN, 1996; PAAC, 1999). These losses were composed of its capital-intensive petroleum-production facilities such as oil rigs, loading facilities, shipping and refineries, and infrastructure and networks.

Petroleum resource damages. Significant damage resulted when Iraqi troops set fire to approximately 730 to 750 individual active petroleum wells, which represented more than one half of Kuwait's 1,330 active wells. The flames produced extensive dark emission clouds and a petroleum mist that covered Kuwaiti skies for 9 months and reached areas as distant as southwestern Pakistan (Limaye, Suomi, Velden, & Tripoli, 1991). The flames destroyed other infrastructure, delayed the resumption of normal life and economic activity, and caused significant environmental damages.[3] Moreover, Iraqi forces released an estimated 10 to 11 million barrels (mbl) of petroleum into the Persian Gulf from tankers and offloading facilities in Kuwaiti ports, which pooled in an area approximately 25 miles long by 10 miles wide, flooded the desert, and created petroleum lakes and rivers (Bechtel Corporation, n.d.). Historically, this was the largest petroleum spill to date. The extinguishing of burning wells also released large amounts of petroleum, and many of the resulting oil pools remain uncleansed, representing a source of potential production (EIA, 2014a). An estimated 5 to 6 mbl of petroleum were lost each day during the 9-month period (UN, 1996; EIA, 2014a), which translates to a loss of approximately 1.5% to 2% of the country's total reserves.

Petroleum-revenue losses. A conservative estimate of revenue loss can be calculated based upon Kuwait's sustained capacity in 1990 of 2.5 million bpd. At the high end are KPC and UN estimates of lost petroleum at a maximum of 6 million bpd. The calculations provided in Table 1 offer a range of lost revenue estimates reflecting three alternative petroleum prices scenarios had the war not taken place. The realistic estimate of lost Kuwaiti revenue is between $45 million to $142 million per day, or an astonishing approximate value of between $12.3 and $38.4 billion over the 9 months of the war.

Population and labor displacement. The invasion and the burning of petroleum wells

[3] The war caused also significant environmental impacts including the release of gaseous and particle emissions; pollutants such as dioxide, hydrogen sulfide, and carbon monoxide; and volatile compounds ayxg A benzene and formaldehyde (UN, 1996). Consequently, Kuwait suffered degradation of land, marine biology, and fisheries. This loss cannot be accurately quantified or measured.

prevented Kuwaitis who were already abroad for summer vacation from returning home, and led a large portion of citizens to flee mostly to Saudi Arabia but also to other GCC countries. Prominent members of the Kuwaiti royal family, including the ruler Sheikh Jābir al-Sabāh and Crown Prince Sheikh Sa'ad, also fled to Saudi Arabia and returned 1 month after the liberation in March 1991.[4] A sizable portion of the expatriate workforce fled either by force or by choice (Cordesman, 1997). The war especially affected Palestinian expatriates, who represented more than one half of Kuwait's Arab foreign workers or 60% of its foreign population (Ghabra, 1991).[5] Most Kuwaitis returned following the liberation, while restrictions were placed on many foreigners, most notably the Palestinians. The Palestinian exodus was significant. On one hand, it eliminated a threat to the internal political stability of Kuwait while teaching foreign workers a lesson. On the other hand, a large void was left in the skilled workforce that required replacement in various sectors, among bureaucrats, teachers, health-care and technical professionals, and other highly-skilled and unskilled employees.

4. Economic Recovery

4.1. Overview

In approximately 5 years, Kuwait's economic performance recovered to surpass that existing before the war. The country now stands once again as one of the world's largest petroleum producers and the 4th largest exporter with the 24th highest per capita GDP in the world. The speed of the Kuwaiti economic recovery is spectacular, although not dissimilar from other well-known, miraculous postwar economic recoveries.

Upon the end of the war, the government established martial law and announced emergency conditions. Its primary focus included the rehabilitation of infrastructure, rebuilding the petroleum sector, restoring economic and social services, and addressing the structural weaknesses of the Kuwaiti financial system. Adopted measures achieved internal security, allowed foreign involvement in military and reconstruction efforts, achieved fiscal rebalancing,

[4] The return of the ruling family and displaced Kuwaitis generated tension between them and those who opted to stay in Kuwait to fight Iraqi forces, including the Bedoun.

[5] Among the Palestinians who lived in Kuwait, some supported the Iraqi political rhetoric against Israel. Nonetheless, many, along with the Palestinian-leadership representative office there, opposed the invasion and even joined Kuwaiti resistance groups against Iraqi forces. When the Palestinian Liberation Front in Baghdad joined Iraqi forces, Palestinians in Kuwait were collectively considered as siding with Iraq. At the end of the war, more than 200,000 Palestinians fled Kuwait, either by force and intimidation or freely due to fear of prosecution, and many of them were denied return to Kuwait through the cancellation of their visas.

and changed the labor composition. Reform also encouraged privatization and financial stabilization.

Reconstruction. The most urgent priority for Kuwait was extinguishing the fires, which KPC commenced only 6 days after liberation with the help of contracted international experts and supporting companies. The processes involved military assistance to clear the petroleum fields of unexploded land mines and munitions that were placed by Iraqi troops before their retreat. The colossal magnitude of the fires motivated one of the largest nonmilitary mobilizations in history: more than 10,000 personnel and thousands of tons of machines were contributed by teams from 40 counties, each of which brought its own specialized tools and expertise (Douglas, 1992). The damaged infrastructure required participating companies and contractors to bring their own equipment to build warehouses, field hospitals, and housing (Bechtel Corporation, n.d.). The last fire was successfully extinguished on November 6, 1991(Kuwaiti News Agency, 2013), much sooner than initially expected.

Extinguishing the fires is estimated to have cost Kuwait over $1.5 billion (Husain, 1995; Al-ʾIbrāhīm, Al-Kawāz, & Arraḥmānī, 1992). Further construction expenses between 1992 and 1995 were estimated to have cost another $6.5 to $10 billion (PAAC, 1999). These major investments eventually restored and renewed local capital stock. Precise data on the scale of this capital restoration are unavailable; however, the original value of lost assets was nearly $100 billion (UN, 1996). Gross capital formation recovered fairly quickly after the war (see Figure 4).

The rehabilitation of the petroleum industry was another urgent priority for Kuwait which, between 1991 and 1992, continued to be constrained by destroyed production facilities and high government spending. Expenditures between $8 and $10 billion were planned over 2 years solely to increase production to over 2 mbpd (PAAC, 1999). Petroleum production resumed by June 1991 and local refineries were in operation by August 1991. Controlling the fires contained some of the potential damage to petroleum reservoirs, and by mid 1992, Kuwait managed to repair or redrill the existing wellheads. By 1993, less than 2 years after the war, petroleum production was at 1.9 mbpd, exceeding the prewar level of 1.4 mbpd, and its refinery capacity was fully reestablished within another year.

Financing. The economic costs of the war, the loss of export revenue, and continuing large welfare payments and transfer payments made to the coalition troops postwar left no way to finance reconstruction from recurrent revenue. The reconstruction process relied upon three

primary sources of financing. The first was accumulated savings in the KIA from Kuwaiti prewar fiscal surpluses and SWF contributions, which have been depleted in 1991 to fund capital accumulation and reconstruction costs. Despite legal requirements preventing the disclosure of the fund's details,[6] SWF assets in 1989 are estimated to be in the range of $35 and $40 billion, based on calculations of annual contributions and a low return to capital of 2%. Al-ʾIbrāhīm *et al*. (1992, p. 81) reported that Kuwait spent approximately $40-$50 billion of its foreign-investment portfolio. The production and exportation of petroleum allowed Kuwait to resume capital savings (see Figure 5).

The second source of financing was foreign debt, partially through inward foreign investment, which was made possible through the martial law which prevented the national assembly from opposing such investments. The Kuwaiti government raised its debt ceiling to $33 billion as part of the first phase of a 5-year plan (Al-ʾIbrāhīm *et al.*, 1992, p. 82), the largest debt in the history of the country. In May 1992, government liabilities increased when the government committed to underwrite nonperforming loans extended by domestic commercial banks and investment companies to Kuwaiti citizens, a program known as Kuwait's Debt Settlement Process. Intended to reverse the existing weakness of the financial market, this program converted nonperforming credit that was outstanding as of August 1990 to the government, thus transferring considerable private debt to the government (Central Bank of Kuwait, 2011). Interest on governmental debts by the end of 1992 amounted to approximately 30% of the revenue for the subsequent year. This collective debt reversed the country's prewar net lender position for 5 subsequent years (see Figure 6).

Iraqi payments mandated by the UN Compensation Commission represented the third source of funding. The Food-for-Oil program required Iraq to make regular payments of 30% of its petroleum export revenues over a number of years to a UN fund, an amount that was reduced to 5% following the fall of Saddam Hussein in 2003 (PAAC, n.d.). War reparations were managed by the UN and paid directly to Kuwaiti claimants, both individuals and (private or public) companies; only a 1.5% of large claims was withheld by the Kuwaiti government, which was a comparatively small amount. By December 2013, Iraq had fallen delinquent on its payments due to economic sanctions and owed $11.2 billion in war reparation to Kuwait (PAAC,

[6] Kuwaiti Law No. 47 of 1982, Clauses 5 and 8-9, bind the KIA to nondisclosure. Detailed data are provided to the Council of Ministers with strict restrictions on public access.

n.d.).

Recovery. The rebuilding of the petroleum industry allowed the economy to grow rapidly. The prewar level of GDP per capita was again achieved by the end of 1992 and thereafter surpassed. Between 1994 and 2008, the Kuwaiti real GDP grew at an average rate of 5.2% per year. Only in 2009 did Kuwait experience a growth setback with the onset of the global financial crisis (see Figure 7; EIA, 2014b). On a per capita basis, the first 2 years following the war appear particularly impressive, largely due to the initial loss of much of its population. As Figure 8 indicates, using data from Kuwait Central Statistical Bureau (CSB), when the population was subsequently restored in 1999, the level of per capita GDP temporarily fell. The negative macroeconomic effects of the war reversed within a few years. Kuwait's terms of trade benefited from stability in the global petroleum price following the war (see Figure 9). Large government-budget deficits resulted from the cessation of petroleum exports, large reconstruction expenditures, and the private-debt forgiveness program. These were accompanied by proportionally large current-account deficits, due also to the same reasons (see Figure 10).

4.2. Factors Favorable to Recovery

The major contributor on the policy front after the war was the government focus on reconstructing the petroleum sector and the technology upgrades that were embodied in the new investment. While the ability to generate petroleum wealth was central to allowing Kuwait to rebuild, this recovery was made possible through the interaction of the following three distinct, yet indispensable, factors: (a) the political economy and unity undergirding policy; (b) economic policies during the recovery, particularly the accumulation of assets abroad in its SWF; and (c) the global petroleum -market dynamics following the war. Each of these factors was necessary, but insufficient alone, to achieve the prompt recovery.

4.2.1. Political economy

Determinants of economic policies in Kuwait differ from the typical *rentier state* expected to prevail among petrostates. They are unique to Kuwait as they are rooted in its tribal and sheikhdom culture and reflect the evolution of modern Kuwait as a distinct entity since the 18th century. Understanding the political economy is indispensable to understanding the economic and labor policies adopted during or after the war and shaped its recovery. Central to this political economy is the historical emergence of a unity among Kuwaitis via four factors.

The first factor was the migration of various tribes (i.e., ʾāl-Sabāh, ʾāl-Jalāhima, and ʾāl-Khalīfa) within central Arabia circa 1713 to the area forming contemporary Kuwait (Al-Jāsim, 2010, p. 12). Second, the undiversified desert and sea environment allowed these otherwise nomadic tribes to establish settlements and detribalize, establishing intratribal links. They became commonly known as the Al-'Utoub clan, a name that translates to *those who traveled to a new place.* Third, geopolitical pressures during the 18th and 19th centuries that led the tribes to unify and seek protection from Ottoman, Wahābi, and Persian control. The fourth and most important historical factor is the form of the interdependent division of labor adopted by these tribes from approximately the 1720s to the mid 1750s,[7] which consolidated and equally divided the sum of all profits among the three tribes (Al-Jāsim, 2010; Al-ʿOtaibi, 2015). New traditions of collective power sharing diffused the power of a single tribe and replaced it with a new system of political tribalism, which formally established the first consultative national assembly in 1920-21. The ensuing sense of inclusion, equality, and reciprocity continue to inform contemporary policy and social relations. Collectively, these factors led to the formation of a new clan with interdependence between the ruling family and the other tribes. Based upon the patriarchal and tribal traditions of the Arab tribes, the sheikh is responsible for ensuring the welfare of the larger clan (Annaqīb, 1996), a role which, coupled with British protection, centralized the political structure surrounding the Sabāh family.

After the discovery of petroleum, economic policies continued to be formed based upon tribal tradition and new local dynamics, leading to the very generous welfare system and institutions of contemporary Kuwait. The merchant class became dependent upon the government, which created an unwritten, implicit arrangement of welfare for power, and the system eradicated the economic inequality prevalent among various Kuwaiti classes during the pre-petroleum era. The creation of the SWF was a manifestation of the responsibility of the sheikh. In turn, the Kuwaitis developed a sense of obligation to their leader, swearing allegiance to him while maintaining collective participation. This participation was reflected in the commencement of constitutional elections immediately following Kuwait independence and the creation of the Kuwaiti National Assembly as a legislative body. From these new dynamics

[7] One tribe—Banū Sabāh—occupied the governance positions such as security, diplomacy, and tribal relations. The second tribe oversaw and controlled maritime shipping and coastal security, and the third assumed the wealthy positions of merchants and pearlers.

emerged new class interests of a cohesive, equal, and exclusive society. The political system that maintained the local unity and sovereignty was of irrefutable importance. This led to large welfare payments for Kuwaiti citizens and large governmental expenditures during and after the war, despite the cessation of government revenue, which further strengthened loyalty and cohesiveness, regardless of prewar political challenges.

The above-described context shaped various policies in Kuwait after the war, especially the welfare system and SWF savings. Further, although it lasted only 3 months, the move to martial law allowed Kuwait to implement policies historically opposed by the National Assembly, including the involvement of the American military, military contractors, and foreign multinationals in the reconstruction and rebuilding of the petroleum sector. Kuwait labor policies—which focused on decreasing dependence on foreign labor and changing the composition of foreign labor away from Palestinians and other Arab nationals—were almost entirely driven by political considerations.

4.2.2. Policy reform and capital accumulation

The most important economic policy that effectuated a recovery in Kuwait was its savings of petroleum rents accumulated in its SWF, described in further details below. Other important policies include new macroeconomic policies, trade liberalization and labor policies, and the enhancement of the role of the private sector through microeconomic reform. In the year following the Gulf War, restoring fiscal balance was a priority while concurrently maintaining low inflation and high government expenditures through petroleum production and exportation. The removal of import duties reflected the government's commitment to maintaining low inflation, including for imports, given its high reliance on imported goods and services, as well as on stable exchange rates. This step stimulated private spending, which helped the return of citizens and the rebuilding of their households, as well as the restoration of activity within other product and services industries. The postwar commitment to liberal trade contributed to admission into the General Agreement on Tariffs and Trade, now known as the World Trade Organization, in 1995. Once petroleum production resumed, Kuwait requested and was awarded quota increases from OPEC to generate further revenue. The government then introduced the Offset Program, which required foreign firms that were awarded government contracts to invest at least 30% of the contract value in joint ventures with locally owned firms (Al-ʾIbrāhīm *et al.*, 1992). Resuming savings of a fixed portion of petroleum export revenue

(10% in 1992) and fiscal surpluses into the KIA along with earned interest income allowed the recovery of the KIA portfolio previously depleted by reconstruction costs.

Focusing mostly on reconstructing the petroleum-industry entailed a comparative neglect of other industries. Large subsidies continued to energy consumers in support of a continuing commitment to the generous welfare system of the country. Given the large domestic-energy requirements for reconstruction, private consumption, and desalination, these subsidies countervailed attempts to restore fiscal balance, at least in the immediate aftermath of the war. Structural changes in the composition of foreign labor also reduced the current account due to large increases in outward worker remittances.

To achieve its goal of restoring financial stability, the Kuwaiti government resumed normal banking operations immediately following the liberation, which led to swift increases in bank deposits. The Central Bank subsequently removed various controls limiting the outflow of capital and bank withdrawals or transfers, regardless of customer nationality. The government forgave various outstanding consumer and housing loans and introduced the Debt Settlement Program which helped the financial sector, which had been weak leading up to the war, as injections of government bonds into commercial banks allowed them to maintain relatively strong capital-adequacy positions. The opportunity was also taken to implement numerous financial reforms in line with international standards to strengthen capital-adequacy standards, accounting, and borrower risk exposure. There results included confidence in the domestic financial system, increased deposit holdings, and improved parity between instruments denominated in Kuwaiti dinar and U.S. dollar were all achieved, contributing to the revival of the stock market in 1995.

Kuwait faced a stark labor shortage following the war. New policies were intended to reduce the dependence on foreign labor; establish a pool of local skilled workers; and direct new citizen workers toward the private sector, rather than simply offering them guaranteed government positions. The number of nonnationals in postwar Kuwait was limited due to these policies that were driven by politics. Lost human capital was replaced largely by foreign workers admitted primarily on short-term contracts from all over the world, including developed countries for technical services. Further, the deported Arab foreign workers who had been in Kuwait with their families on long-term contracts were replaced by workers from Egypt and from South and Southeast Asia many of whom went to Kuwait without their families. Many of

the economic sectors, particularly education, suffered as a result due to shortages in Arabic speaking labor. Consequently, the structural composition of the labor force changed, causing skill shortages that placed a temporary slowdown on postwar growth. Prior restrictions on foreign involvement in the military, technical areas, and commercial ventures were liberalizing and expedited national recovery. Despite prewar political opposition for increased foreign participation in the country's economic activities, the martial law allowed the government to strategically bypass this opposition immediately after the war and secure large, private military contractors through the U.S. Corps of Engineers.

4.2.3. Global petroleum-market response

U.S.-led military protection guaranteed Kuwait sovereignty, and was motivated by the advanced economies' need to protect essential energy supplies and deter Iraqi (and other regional) geopolitical disputes that could potentially challenge energy security or cause disruption to the global petroleum market. The Gulf War tested the market. In September 1990, 1 month after the Iraqi invasion, petroleum prices sharply increased by 125%, reaching an annual record of $36 pb. Although Iraq initially controlled Kuwaiti petroleum fields, economic sanctions on Kuwaiti and Iraqi exports reduced global petroleum output by 4.3 mbpd, temporarily reducing global supply by 7% during the 4-month period from August 1990 to January 1991. This supply loss was significant, equating to the same supply shortage that occurred during the October 1973 Arab-Israeli War and subsequent Arab oil embargo imposed until March 1974.

Fear manifested that the Gulf War would cause a petroleum crisis similar to that of 1973-74, which would have contracted the global economy. Nonetheless, these effects were short lived as coordinated action prevented such an outcome. This was partially due to OPEC dynamics, which can be characterized by internal division and a general lack of cartel discipline. Saudi Arabia, the world's largest petroleum producer, exercised its self-assigned role as a stabilizer of global petroleum prices by increasing production to restore prewar levels, and the international price subsequently returned to approximately $16 pb by February 1991. Other members of OPEC, namely Venezuela, Algeria, and Nigeria, as well as Qatar and the UAE also increased production, albeit by much less. Notwithstanding indiscipline among OPEC members, these increases in production sustained the total production levels agreed upon prior to the war (see Figure 11).

Non-OPEC production also increased, which further contributed to stabilizing the market. The American government pressed large petroleum companies to increase production to prevent an oil-supply crisis. Numerous key net-petroleum importing countries that relied upon Middle Eastern petroleum, such as the U.S., Japan, and Germany, imposed fuel taxes which curbed demand for petroleum and contributed to the prevention of a crisis. Despite initial significant decreases in supplies, global petroleum production was restored to prewar levels only 4 months after the war and remained generally stable thereafter.

Following the end of the war, OPEC struggled to maintain global market share. In a strategic departure from its prewar practices emphasizing quota discipline, OPEC during its February 1992 meeting moved toward allocable output levels closely in line with members' output capacity. Therefore, OPEC could compensate for supply shortages in the Iraqi share of OPEC petroleum production caused by sanctions on Iraq while also preventing subsequent oversupply (and the resulting price crashes) by eliminating cheating incentives. Therefore, and since Kuwait started production faster than expected, its allocable production was expanded on request from nil during the war to 812 thousand bpd in 1992 and to 2 million bpd in October 1993 (compared with 11.5 and 1.5 million bpd prewar) (OPEC, 2014). Figure 12, which plots the overall world production of crude oil based upon IEA and OPEC data, clearly indicates the stability infused by both OPEC and non-OPEC countries between 1989 and 1991 and, generally, thereafter. The result was a stable market within which Kuwait could resume exporting which, in turn, facilitated its recovery. This is demonstrated, for example, by the movement of its GDP along its oil production (see Figure 13).

Had production losses associated with the Gulf War persisted, the petroleum price would have been initially higher, which in isolation suggests even a faster recovery for Kuwait. Nonetheless, a higher petroleum price would have heightened competition among OPEC members to capture market share and revenue, removing any incentives to divert from the previous quota system. Therefore, "cheating" would have persisted, including by Saudi Arabia in an attempt to assert its dominant market share of OPEC. In those hypothesized circumstances, oversupply due to cheating would have led to a plunge in the petroleum price which could have, once again, motivated further conflict especially among OPEC members who needed high petro-revenue (such as Venezuela after its government coup or Algeria during its emergency rule). Kuwait's production levels would not have been allowed to increase or persist, without which

postwar recovery would have been doomed. Further, the possibility of an energy crisis would have suppressed the global economy for an unknown period, therefore ultimately weakening demand for petroleum and rendering Kuwait's postwar revenue more volatile.

4.3. A Unique Experience? In Theory and by Comparison

4.3.1. Transitional growth in theory

John Stuart Mill (1848) offered an insightful explanation of postwar growth and recovery:

> An enemy lays waste a country by fire and sword, and destroys and carries away nearly all the removable wealth existing in it; all of the inhabitants are ruined, and yet, in a few years after, everything is much as it was before. (p. 94)

He further explained that, if a country is not overly depopulated from war and some infrastructure remains, accelerated high savings to reproduce capital, coupled with a local skilled labor force, will lead to rapid economic recovery.

One reason for this recovery is the dynamic of capital in the reconstruction phase following a large disaster. Its elemental explanation is grounded in the traditional neoclassical growth theory where the emphasis is on gradual, steady growth, during which the structure of the economy remains stable. In the vintage the Solow (1956, 1957) and Swan (1956) model with a closed economy assumption absent government spending, as in subsequent modified Solow models that include human capital, [8] output equals the sum of consumption and investment. As such, this steady growth occurs at a steady state level of capital $\overline{k_{et}}$ and manifests with capital depreciation and population pressure offset by new investment in capital,[9] as follows:

$$sf(\overline{k_{et}}) = i_{be} = (\delta + n + g)\overline{k_{et}} \quad (1)$$

where *s* is the savings rate; $f(\overline{k_{et}})$ is output per effective level of worker; δ is depreciation of capital (physical and human capital combined for simplification); *n* is population (or labor force) growth rate, and g is labor augmenting technology growth rate. The breakeven level of investment, i_{be}, maintains a constant level of capital per effective worker. In this steady state, the respective economy progresses at a long-term, underlying rate of innovation g, and aggregate

[8] By including human capital, subsequent models better capture the disparity of income between countries. For further reading, Mankiw , Romer, & Weil, 1992; Aghion & Hewitt, 1992; Grossman & Helpman, 1993; Lucas, 1988; and Romer, 1986, 1990.

[9] Investments in human capital occur through education and health, technological growth, and productivity.

variables of capital (*K)* and output (*Y)* exhibit the same behavior growing at the same rate:

$$\frac{\partial K}{K} = \frac{\partial Y}{Y} = (n + g + ng) \approx (n + g). \quad (2)$$

This structure can be used to theoretically explain postwar recovery, as follows. When the economy is "shocked" by an event such as a war, capital is largely destroyed by γ so that,

$$K_{t+1} = (1 - \gamma)K_t, \text{ where } 0 < \gamma < 1. \quad (3)$$

The concavity of production in physical capital ensures that investment exceeds the effects of depreciation and population growth during the transition to a new steady state. Initially, in the period after the war, output will fall so that,

$$\frac{\Delta Y_{t+1}}{Y_t} = A(1 - \gamma)^{\alpha}(n + g + ng)^{1-\alpha} < (n + g + ng). \quad (4)$$

The remaining capital falls short of the steady-state level, leaving investment at a level (i_{e1}) above its capital break-even point, causing growth to increase in the period following the war, as indicated in the following calculation:

$$\frac{\Delta Y_{t+2}}{Y_{t+1}} = \frac{\Delta K_{t+2}}{K_{t+1}} = \frac{\delta+n+g}{s}\frac{(n+g+ng)^{1-\propto}}{(1-\gamma)^{1-\alpha}} - \delta > (n + g + ng). \quad (5)$$

Postwar capital and growth levels converge back to prewar levels (see Figures 14 & 15). This transitional growth performance can be considerably improved if higher savings rates can be mobilized (see Figure 14).

The surplus of new investment is then over the break-even point and larger with an even faster recovery. Thus, a temporarily destructive war decreases the capital-to-labor ratio and raises capital per worker, increasing the productivity of capital and leading to temporarily "boom" of higher growth rates in the reconstruction phase. Diminished returns eventually return as the long-term growth path is approached. In this case of capital accumulation, recovery can be represented as a shift in the production possibility frontier (PPF) curve. A speedy recovery may also occur due to efficiency gains, represented normally as a movement along the PPF.

Despite limitations of the Solow model largely due to its underlying assumption of a closed economy, it aptly reveals how adjustment in postwar capital levels is essential to recovery. Newer growth models might offer more revealing explanations due to incorporating a more realistic assumption of economy-wide, increasing returns to scale and endogenous

technological changes at a steady rate.[10] Nonetheless, at their core, their expectations of the impact of capital adjustment are anticipated to be consistent with the vintage model. Further, capital is likely to adjust relatively faster than other factors of production; therefore, it offers a theoretical explanation, albeit incomprehensive, of post-war recovery.

4.3.2. Historical references

Despite grounding in theory, a successful postwar recovery is neither universal nor guaranteed. Recovery can fail because wars destroy long-run productive capacity, threaten the fabric of the larger social order, and challenge "governments to maintain or restore property rights together with a market system that .. support[s] the division of labor" (Hirshleifer, 1991). The complexity of post-conflict recovery and is depicted by numerous failed reconstruction efforts, such as those of Iraq post 2003; Sierra Leone after 2002; economic failures of Russia in 1917-21 after "war communism"; and Cambodia in the late 1990s. Therefore, this section draws on identifying successful experiences with which the Kuwaiti recovery can be compared.

The recovery and aggrandizement of France after the end of World War I, although seldom discussed, were impressive, especially when compared with not only the prewar conditions of France, but also those of its primary regional competitors postwar. France incurred tremendous economic devastation and annihilation of resources and population, especially within the northeast quadrant. Despite a prewar positive balance of payments and very large gold reserves,[11] war costs for France were tremendous including a large devaluation of the franc. After Germany defaulted on the reparation to which it committed via the 1919 Treaty of Versailles, the options available to France for financing reconstruction were limited and indebtedness soared. Recovery was largely due to the reannexation of the formerly German Alsace-Lorraine, which brought rich natural resources. The most notable was iron ore from Lorraine, one of Europe's greatest single deposits, but also potash, petroleum, and other resources. The reannexation also introduced well-established iron and steel industries, inland ports, and railway centers (Ogburn & Jaffé, 1929). Coupled with the adoption of new technologies, industrialization stimuli that were introduced directly contributed to economic recovery. Equally important was the importation of foreign labor and intensified machinery use

[10] For additional reading: Aghion & Hewitt, 1992; Grossman & Helpman, 1993; Lucas, 1988; and Romer, 1986, 1990.

[11] In an effort to increase its gold reserves essential for fighting the war against Germany, France replaced gold coins with paper notes. The gold reserves of the country grew further after the Great Depression of 1927.

to compensate for lost human capital (Ogburn & Jaffé, 1929). The possession of new colonial domain of former German and Ottoman territories in Africa and the Middle East expanded French access to abundant agricultural and natural resources. Access to capital, natural resources, and foreign labor in the French recovery run parallel to that of Kuwait.

In the cases of Germany and Japan following World War II, two ravaged and defeated countries that achieved recoveries that startled the world, accumulated assets were less central; assistance from abroad and a heavy export orientation provided the core means of financial recovery. The German *Wirtschaftswunder* (i.e., economic miracle) was facilitated by the Marshall Plan, which included considerable financial help from the U.S.. More importantly, forgiveness of one half of German foreign debt from the interworld wars was granted within the 1953 London Debt Agreement by major European and other partners. Extending repayment schedules relieved Germany from otherwise crippling debt repayment, thus allowing the country to rebuild. Germany was able to use generated export revenue to support local investments and reconstruction efforts. Prewar human capital and technical knowledge that survived the war were key contributors to rapid economic recovery. Erhard opined that sound economic-policy reform, including market-oriented liberalization (i.e., the *social market economy*), was also important to recovery (as cited in Reichel, 2001). The consequences were tight monetary policy, currency reform, liberal trade, and restricted redistributive systems.

After a population loss of nearly 3 million people, destruction of primary industries, and a loss of approximately one fourth of its national wealth during World War II, the economy of Japan recovered impressively during the 1950s and 1960s. This recovery was facilitated by the Dodge Plan, introduced by the U.S. to balance the Japanese postwar budget, control inflation, and repay government debt (Gordon, 2014). The reconstruction process was largely financed by loans, as well as by high rates of savings accumulated by the Japanese citizenry, which was drawn upon by private banks and public development institutions, such as the Industrial Development Bank, to finance capital to businesses. Importantly, part of the surge in investment modernized Japanese industry and advanced industrial technology, as did their export orientation focus. While the Japanese experience is unquestionably complex, attention is drawn to the key roles of savings and external financing as factors contributing to postwar recovery.

4.3.3. Kuwait by contrast

Similarities among the large-scale recoveries of France, Germany, Japan and Kuwait are

numerous; however, two are of primary importance. First, Kuwait had access to accumulated assets abroad managed by its SWF. Second, international assistance was possible in the form of loans due to Kuwait's good credit standing and in war reparations. Kuwait certainly experienced a reconstruction boom, a period of extraordinary growth driven by a surge in investment as well as an inflow of labor. The rebuilding of the petroleum industry involved the adoption of newer technologies. Additionally, postwar growth in income per capita occurred due to an initially low population as Kuwait had lost close to 40% of its prewar citizenry. This growth slowed as the population recovered, until 1997 when the population reached its prewar level. Nonetheless, a large part of the human capital was maintained or replaced by temporary foreign labor, and postwar reform focused on increasing the skill set of domestic labor and reducing dependency upon foreign labor.

To demonstrate the role of capital accumulation in this recovery and the extent to which the recovery is consistent with the abovementioned theoretical explanation, a numerical simulation that represents the country's economy on the eve of the Gulf War is used. Savings and investment decisions are exogenous, as are factor accumulation and technological growth. The prewar aggregate output function is represented by a standard Cobb-Douglas production function, with both physical and human capital (combined as *K*), labor (*L*), and labor-augmenting technology (θ), with constant returns to scale and diminishing marginal returns:

$$Y_t = AK_t^{\alpha}(\theta_t L_t)^{\alpha-1}, \text{ whereby } \theta L = L_e, \text{ effective labor, and } 0 < \alpha < 1. \quad (6)$$

The effective capital-labor ratio at steady state is $\overline{k_e} \in (0, \infty)$ given by the following equations:

$$\overline{k_e} = \left(\frac{sA}{\delta+n+g}\right)^{\frac{1}{1-\alpha}}, \text{ and} \quad (7)$$

$$\frac{f(\overline{k_{e_t}})}{\overline{k_{e_t}}} = \left(\frac{\delta+n+g}{s}\right). \quad (8)$$

Using the relationship in equation (5), the war is simulated through a large negative shock to capital and a significant reduction in population. Upon the end of the war and at the commencement of recovery efforts, the capital-to-labor ratio converged to prewar levels and GDP grew at diminishing rates that were larger than prewar levels (see Figure 16). To account for Kuwait's faster capital accumulation and new investment in human capital and technology, the simulation further positively shocks the postwar savings rate and the rate of technical growth. This result reflects how the rate of output growth in Kuwait was larger than that of capital accumulation. Also reflected is the expectation of capital and output growth rates exceeding

prewar levels and growing at substantial, yet diminishing, rates until reaching a new higher level of steady-state growth, as shown in Figure 17. The results are generally consistent with Kuwait's actual GDP recovery and theoretical predictions of successful recoveries.

Nonetheless, and despite the evident role of capital accumulation in the recovery, the above simulations do not take into account the factors that allowed Kuwait to accumulate the required capital. Consequently, they do not fully explain Kuwait's recovery.[12] Kuwait accumulated this capital through three unique elements: the SWF used to manage assets abroad; the extraordinary petroleum resource itself; and the political economy and unity of the Kuwaiti population.

Sovereign wealth fund. One of the most important factors in the successful Kuwaiti recovery is its foreign investments abroad. SWFs are government-owned investment funds commonly established during periods of government surplus. There are various types of funds with various reasons for each. [13] In resource-rich states, they are established to reduce the impact of volatile petroleum windfall on exchange rates, and they can also offer a mechanism to reinforce fiscal discipline and diversify government portfolios.

Established in 1953, 8 years prior to Kuwait's independence, the KIA is the oldest country-owned fund in the world, predated only by two state-owned funds within the U.S. state of Texas established in 1854 and 1876. It was nearly 20 years until other countries established similar funds. The Emiri decree—the highest decree in Kuwait issued by the leader himself—establishing the KIA as a separate entity articulated its mission as "[t]o achieve a long term [*sic*] investment return on the financial reserves… providing an alternative to oil reserves, which would enable Kuwait's future generations to face the uncertainties ahead with greater confidence" (KIA, n.d., para. 1). This mission expresses two primary related concerns—(a) the exhaustibility of petroleum necessitates finding alternative sources of funds that are more secure; and (b) the intergenerational commitment to Kuwaiti citizens as the owners of the resource who, rightly, ought to benefit from the assets.

The KIA manages the General Reserve Fund (GRF) and the Future Generations Fund (FGF). In 1960, as Kuwait was preparing for its independence from British protection, the GRF was established to serve as a government holding fund for revenues and assets. Budget surpluses

[12] Therefore, the recovery is further examined in a general equilibrium model of Kuwait, as a small open economy, which accounts for exports and capital flow in effectuating the recovery.
[13] For further reading: Collier, Spence, van der Ploeg & Venables, 2010; van der Ploeg & Venables, 2012.

are invested in the GRF, which serves a macro-stabilization objective to smooth out short-run governmental expenditures. It also holds other assets including those from Kuwait's participation in public enterprises such as the Kuwait Fund for Arab Economic Development and KPC. The FGF is a long-term intergenerational fund, which also manages Kuwaiti liabilities to multilateral and international organizations such as the World Bank, International Monetary Fund, and the Arab Fund. It was established in 1976 by transferring 50% of the funds within the GRF to this new fund to act "as an alternative to oil wealth" and income for future generations (KIA, n.d., para. 1). As previously noted, Kuwaiti law required that 10% (increased by an additional 15% in 2012)[14] of the annual general revenues allocated to the FGF were employed by the Ministry of Finance for various investments, with the associated returns and profits also allocated to the same fund. Expenditures are strictly controlled: the law does not permit any governmental body to either reduce the investment rates or withdraw any amount from the FGF expect in extreme circumstances and with the approval of the National Assembly and the government. The Gulf War was the first of these extreme circumstances.

The KIA was successful in acting as a financing alternative. In 1986, for the first time, revenues of the SWF exceeded those generated from petroleum following the crash of petroleum prices in that same year. The contributions of the KIA, its investment strategies, and rules governing the use of its returns provided funds to reinvest, even during high petroleum prices and revenue volatility. This offered a means through which to govern large account surpluses without exchange rate pressure and provided a stable buffer for volatile government revenue. One of the key features of the KIA is its autonomy from the political system, protecting it from competing political interests and internal struggles. Committed investments into the fund impose a level of fiscal prudence on a procyclical budget while also committing to large domestic spending on welfare and infrastructure. Without KIA's critical savings, Kuwait would have incurred crippling debt for recovery service costs.

The petroleum resource. The natural resource endowment of Kuwait unquestionably contributed to its rapid recovery. First, it drastically raised Kuwait's strategic importance and contributed to regional and global energy security concerns that motivated military intervention in Kuwait which was essential to preventing Iraqi annexation of this geographically small state.

[14] The contribution was temporarily set back at 10% for the 2014 fiscal year only to prevent budget deficit following the collapse of oil prices.

Existing literature on economic growth has typically overshadowed the importance of natural resources with technological advancements that have allowed industrializing countries to catch up. Yet, in less technologically advanced economies, natural-resource endowments are key contributors to recovery and growth. Wealth "in the ground" underwrites investments by ensuring high development returns. The volatile nature of the hydrocarbon industry requires hedging and balancing portfolio shares between the assets in the ground and alternative investments. Even if Kuwait had decided not to produce petroleum, its asset in the ground would have provided a long-term source of wealth. Rich resource endowments are valuable collateral, which along with the previously well-established reputation of Kuwait as a generous lender, have allowed Kuwait to borrow funds and manage its expensive reconstruction process.

Unity. Kuwaiti maintained unity and cohesiveness through the turbulent times before, during, and after the war, a product of the country's historical formation, patriarchal tribal tradition, and unique political economy. Kuwait has a complex political economy, underpinned by a social contract between the sheikhdom and the politically active population and National Assembly. The associated, well-defined sense of "Kuwaitism" emerged from historical power sharing, which is the origin of its generous welfare system and SWF savings. [15] Absent this tribal loyalty, Kuwaiti society would have been considerably less cohesive, leading to civil unrest over the distribution of petroleum rents.

5. Conclusion

Examining this under-researched episode of postwar recovery provides important lessons to petrostates experiencing conflict and countries that are starting to export natural resources. The weight of the evidence suggests that Kuwait's success is partially due to the associated construction boom which is in line with economic theory explaining rapid postwar recovery. Nonetheless, the expedited recovery was facilitated by features unique to the country. Petroleum resources contributed unequivocally to achieving the peace and also to the expedited recovery. Rich resource endowments provided immense collateral that enabled Kuwait to borrow funds from abroad to finance reconstruction and to provide goods and services. Exports of the produced petroleum also generated rapid revenue which aided recovery.

[15] This excludes non-Kuwaiti residents, comprising mainly foreign labor. It also excludes the Bidoun, residents who did not apply for Kuwaiti citizenship by the required deadline following independence and who remain without legal documentation to date.

In addition to petroleum resources, recovery was made possible through the interaction of three main Kuwaiti factors. The political economy in Kuwait managed oil rent transfers and also achieved political stability, preventing subsequent civil conflict, as occurred in Iraq after 2003. Policy reform focused on macroeconomic stabilization, on rapid revenue generation through exporting petroleum, and on alleviation of absorption constraints. The rapid recovery of the global energy market coupled with OPEC's strategic changes facilitated the reintergration of Kuwait into the market and allowed it to expand production within a stable price environment. Stabilized global petroleum prices positively impacted economic performance and demand for petroleum outside Kuwait. This is one important lesson for the global petroleum market, especially in contemporary times of increased unconventional energy sources and the ability of both OPEC members and nonmembers to affect petroleum prices when further stabilization measures are required.

Another lesson is the key role of fiscal policy and savings of nonrenewable-resource rents in managing volatile petroleum windfall and shaping economic performance. The balance between monetary, fiscal, and exchange rate policy within petrostates is naturally very important in moderating commodity-sourced volatility and smoothing Dutch disease effects. SWFs are a means to achieving this objective. Kuwait's savings of its oil revenue in an intergenerational fund and in a stabilization fund created a large foreign asset portfolio that stabilized revenue and acted as an insurance policy that financed capital accumulation and construction costs. Importantly, the KIA, the source of Kuwait's fiscal stabilization, was invested in ways that diversified its revenue sources away from petroleum, could hedge oil income risks, and earned interest. Said investments also funded considerable domestic spending on infrastructure and welfare before, during and after the war. Unlike other petrostates, Kuwait's expenditures wisely avoided diversifying by cross-subsidizing its industrial base in a manner contrary to its comparative advantage. Kuwait's KIA can act as a proxy to a fiscal rule by imposing a level of fiscal prudence on an otherwise highly pro-cyclical budget. Investments in the KIA can be coupled with fiscal rules to cap expenditures and/or fund additional investments in infrastructure, technology, institutions, human and private capital. Another lesson pertains to the political economy of SWFs and strict control over when and how SWF funds can be used.

The message here is that petrostate economies can benefit from capital accumulation and from fiscal practices that reduce budget pro-cyclicality, and impose prudent, sustainable, and

efficient spending and investment. Beyond the Kuwaiti experience, there are other potential ways of achieving these goals, such as Canada's pre-commitment to capping expenditures. The importance of these lessons is clear when examining the economic difficulties faced by petrostates in light of recent drops in petroleum prices. Most fundamental is the role of oil resources; the political economy of managing commodity rents and SWF savings; and that conflict over the distribution of those rents is managed peacefully, requiring firm yet participatory governance. This analysis forms a platform for subsequent study including examination of policy alternatives via an overarching economic model of Kuwait's petroleum economy. [16] While contributions from further research are expected to be constructive in the design of future policy, the lessons from the Gulf War experience and recovery from the conflict that are reviewed in this paper, as well as the emphasized fiscal-stabilization measures, are certain to remain central to policy formation within petrostates.

[16] Said model is designed to simulate the effects of numerous shocks, such as the Gulf War and oil price volatility, to the Kuwaiti economy and the policy responses that might be applied in each case. The unique features of the economic structures considered in this analysis include oligopoly rents and price distortions within its energy and services sectors. On the expenditure side, policy affecting the domestic electricity industry, the structural characteristics of the domestic energy market, and labor-force size and composition have been addressed.

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Table 1

Estimates of Lost Daily petroleum Revenue in Kuwait during the Gulf War

	Estimated daily loss of petroleum (million barrels)	
Average crude-oil price reference (US/barrel)	2.5 (Kuwait sustained capacity)	6 (Maximum UN and KPC estimates)
18.23 (1989 average)	45.57	109.36
20.00 (1991 average)	50.01	120.02
23.73 (1990 average)	59.31	142.35

Notes. Estimated revenue losses are calculated based upon Kuwait's sustained capacity in 1990 of 2.5 mbpd at the low end and 6 mbpd at the high end. Losses are also based upon Kuwait Petroleum Company (KPC) and United Nations (UN) estimates of lost petroleum. The calculations offer a range of lost-revenue estimates that reflect three alternative scenarios for petroleum prices had the war not taken place. The first assumes no change in the geopolitical status quo before the war and no increase in the 1989 average petroleum price. The second calculation assumes prices would have remained at their level at the time of the OPEC July 1990 meeting that immediately preceded the war and followed OPEC's accommodation of Iraqi demands. This last scenario assumes a high price could have been achieved had prewar diplomatic talks been successful at reinstating OPEC supply restrictions and raising prices closer to the $25 pb requested by Iraq. UN = United Nations; KPC = Kuwait Petroleum Company.

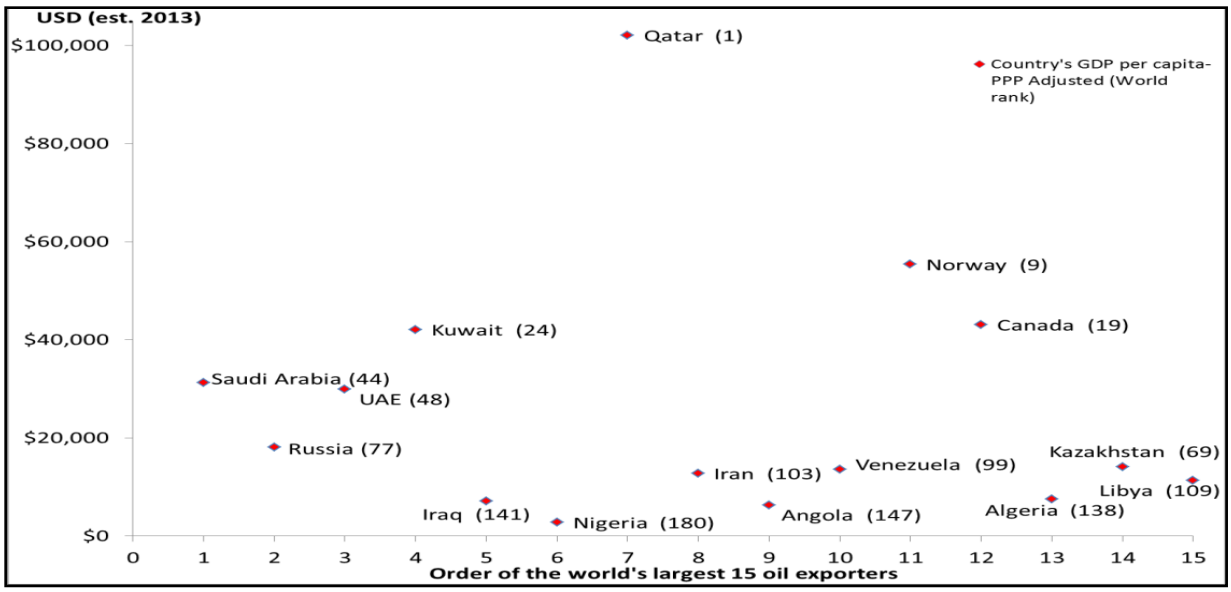

Figure 1. Per capita gross domestic product (GDP) adjusted to purchasing power parity (PPP) of the world's largest petroleum exporters and their performance relative to non-petrostates. Data source: The World Bank.

Note. Number in brackets represents the individual country's world rank.

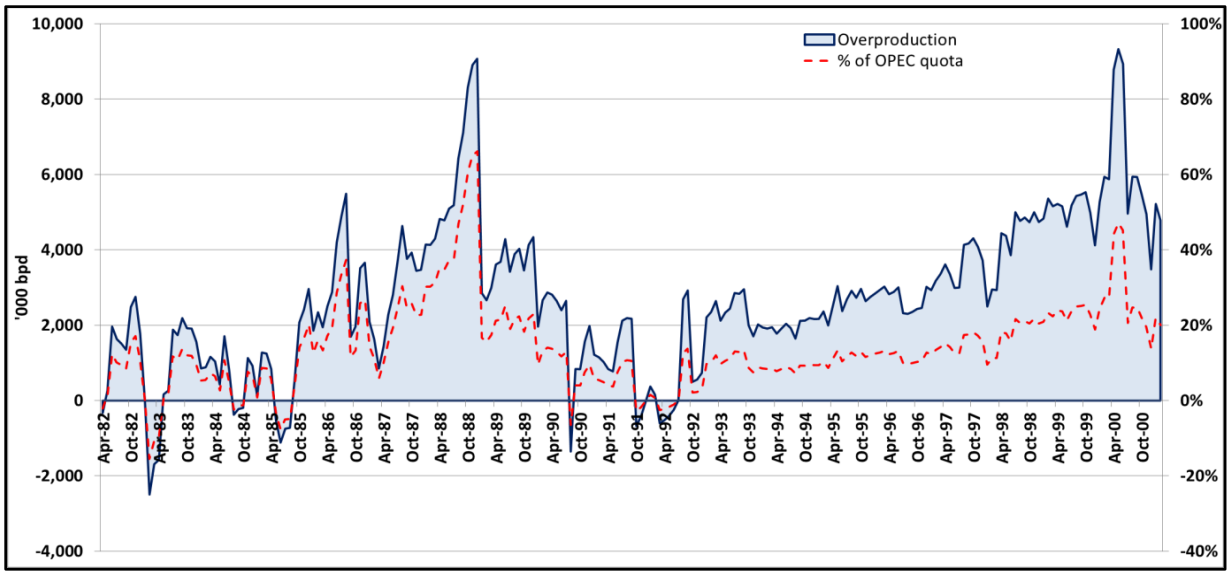

Figure 2. Organization of Petroleum Exporting Countries (OPEC) membership production in excess of production capacity. Data sources: OPEC and EIA.

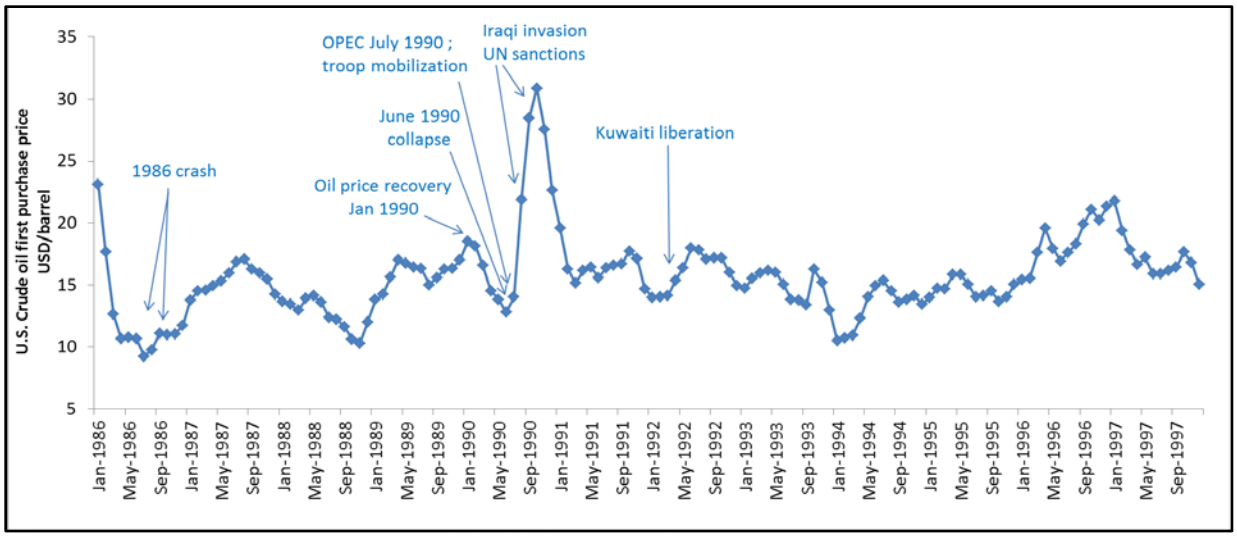

Figure 3. Average petroleum-price movement from 1986 through 1997. Data source: EIA.

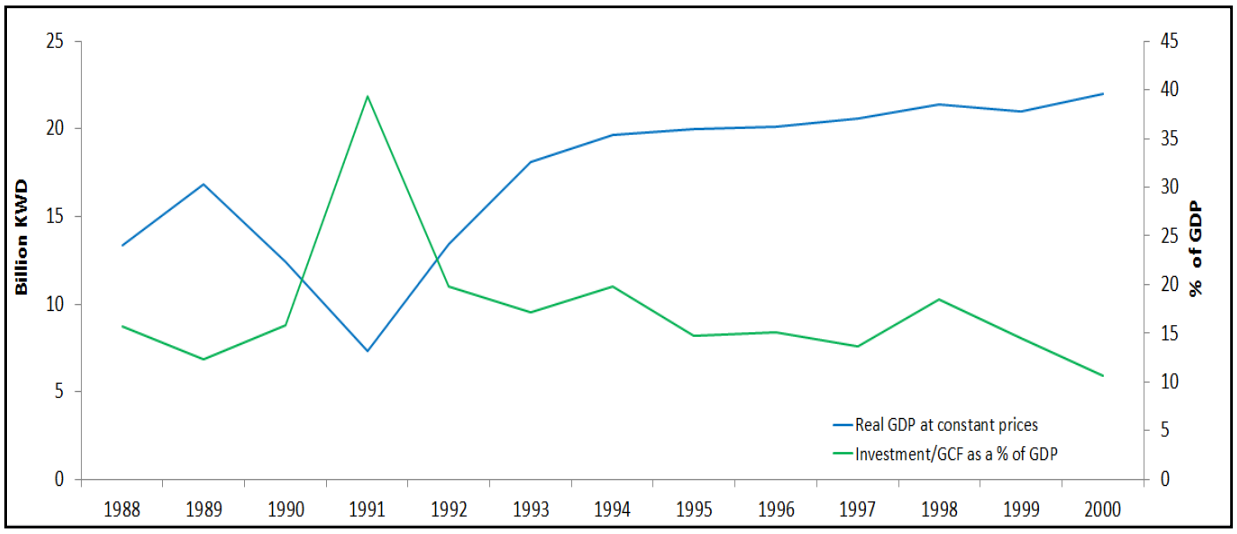

Figure 4. Kuwait gross domestic product (GDP) growth rate and gross capital formation. Data source: Kuwait CSB.

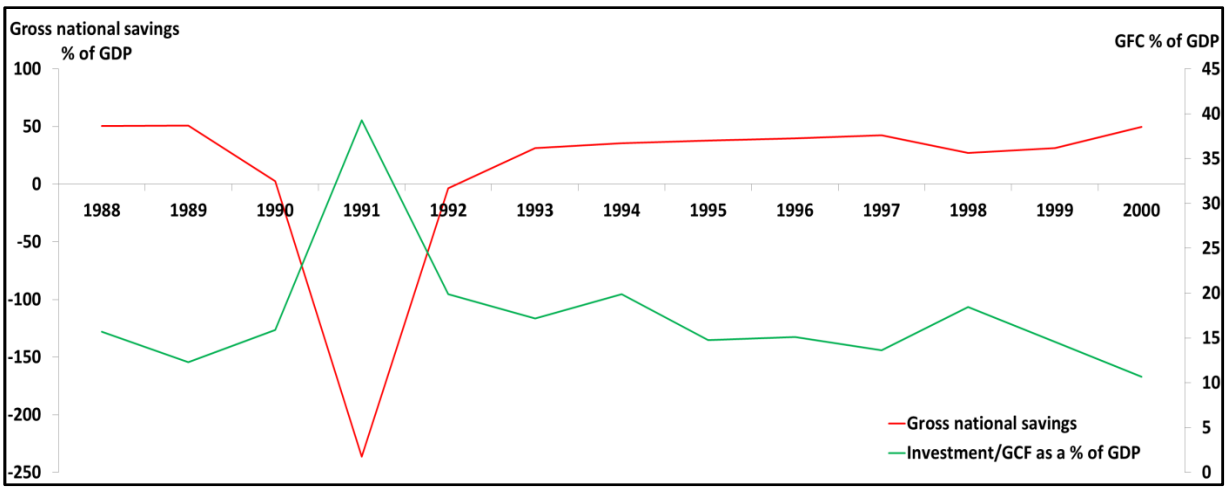

Figure 5. Kuwaiti total investment/gross capital formation and gross capital savings. Data source: Kuwait CSB. GDP = gross domestic product; GCF = gross capital formation.

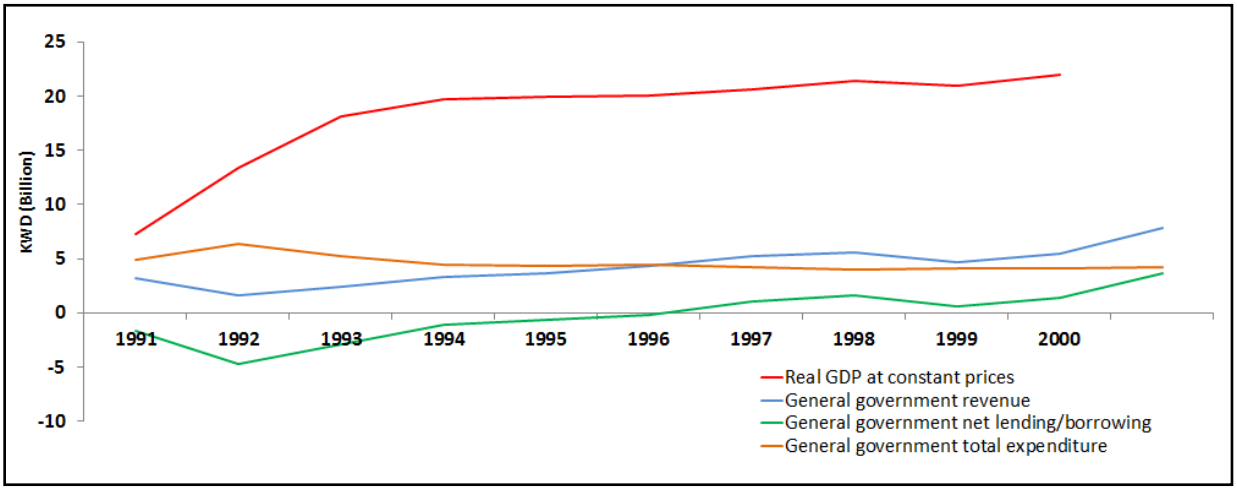

Figure 6. Funding the recovery. Data source: Kuwait CSB. GDP = gross domestic product.

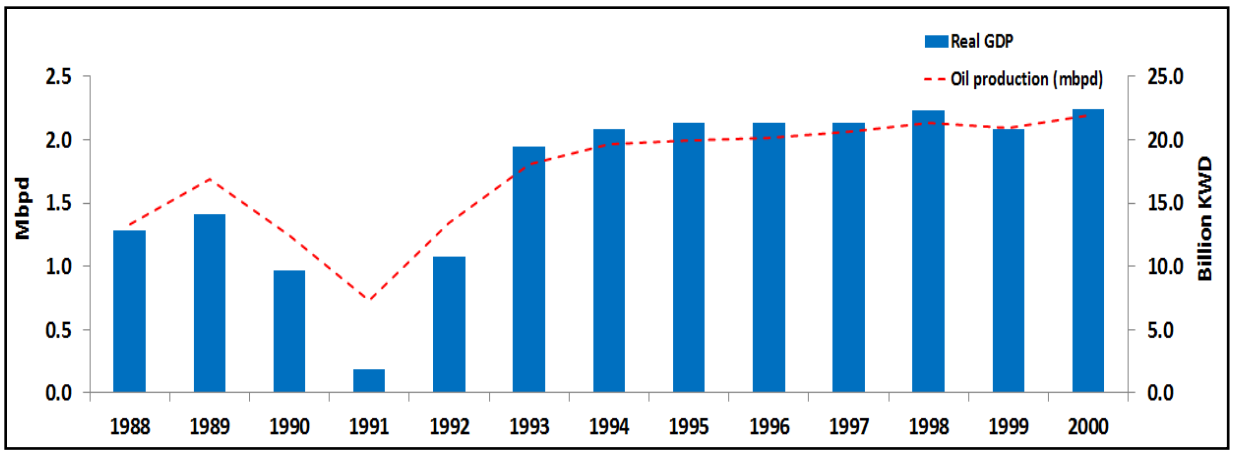

Figure 7. Kuwaiti petroleum production and real gross domestic product (GDP) following the Gulf War. Data sources: IEA and Kuwait CSB.

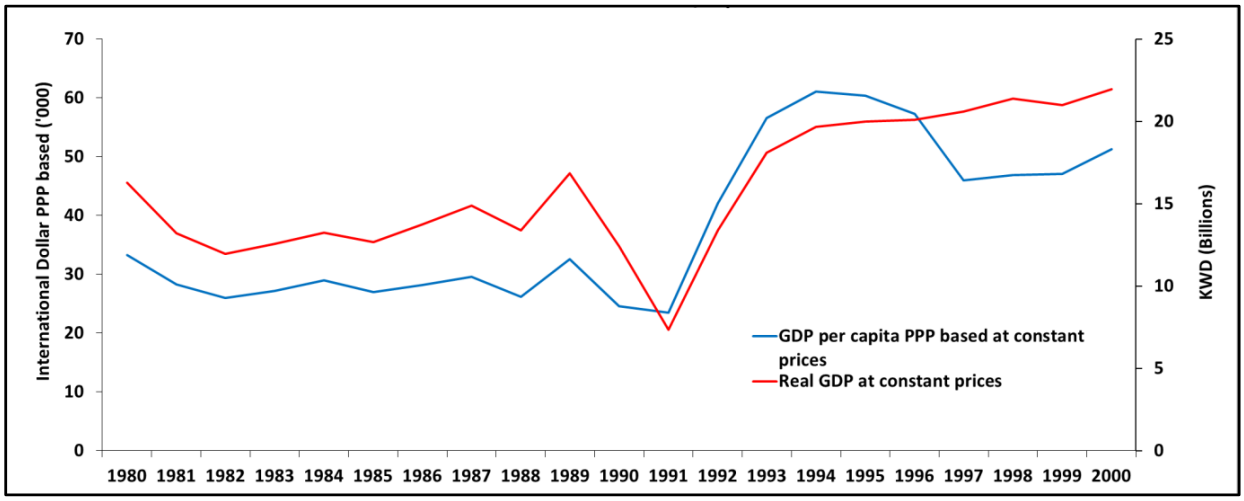

Figure 8. Recovery of Kuwait's gross domestic product (GDP) and GDP/capita. Data sources: IEA and Kuwait CSB. PPP = purchasing power parity.

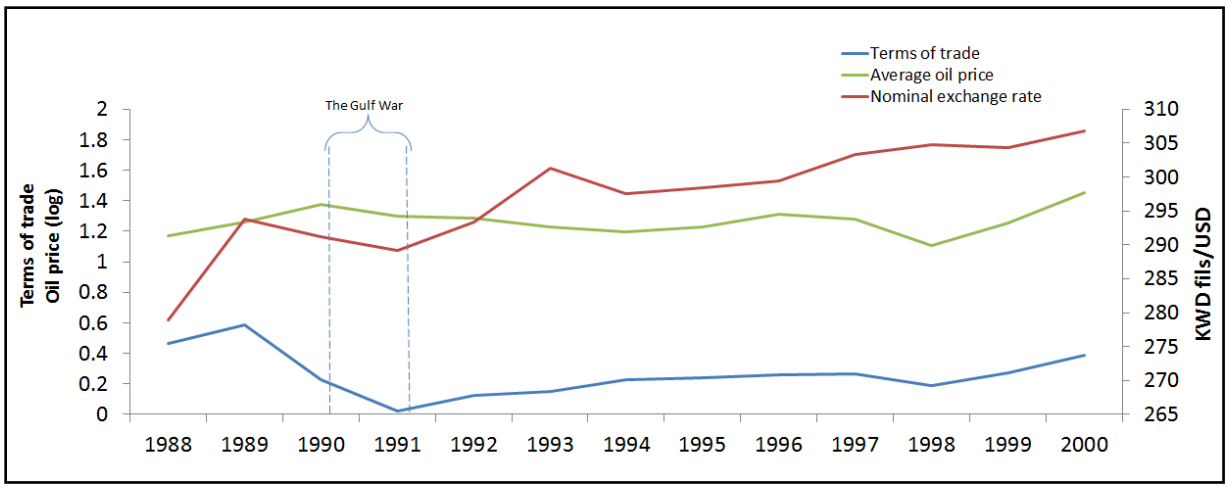

Figure 9. Terms of trade, nominal exchange rate, and petroleum prices. Terms of trade are calculated as the ratio of the export implicit price deflator to the import implicit price deflator. Data source: Kuwait CSB.

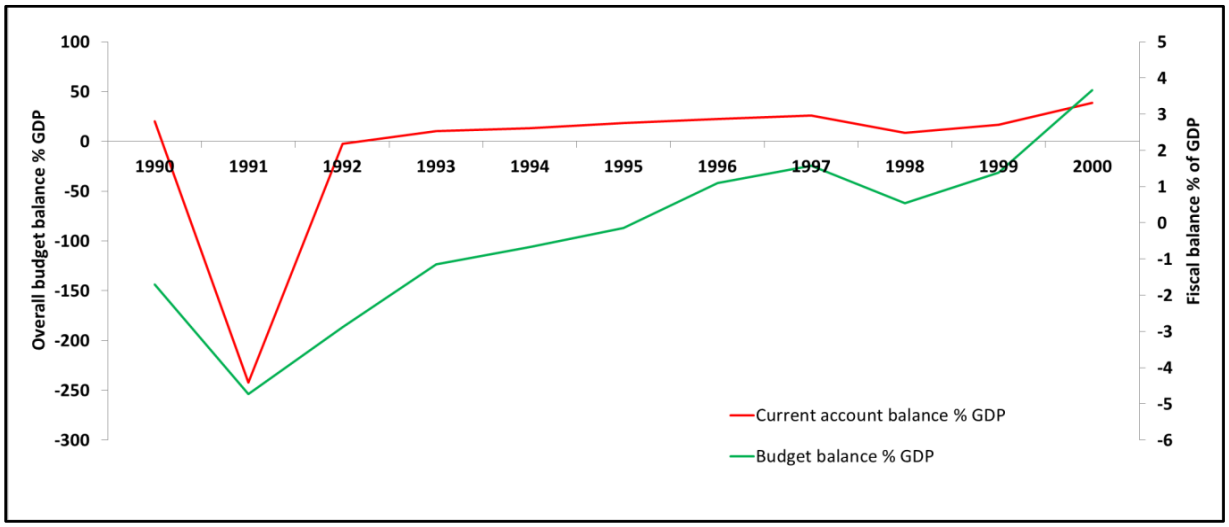

Figure 10. Recovery of Kuwaiti fiscal balance and balance of payments. GDP = gross domestic product. Data source: Kuwait CSB.

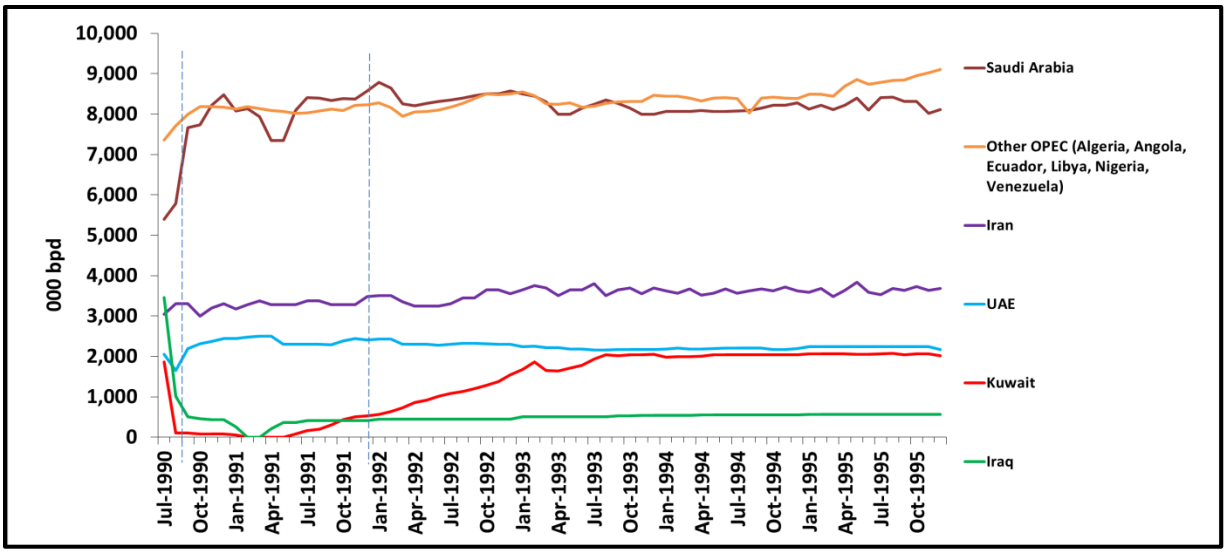

Figure 11. Organization of Petroleum Exporting Countries (OPEC) petroleum production during and following the Gulf War. Data source: IEA.

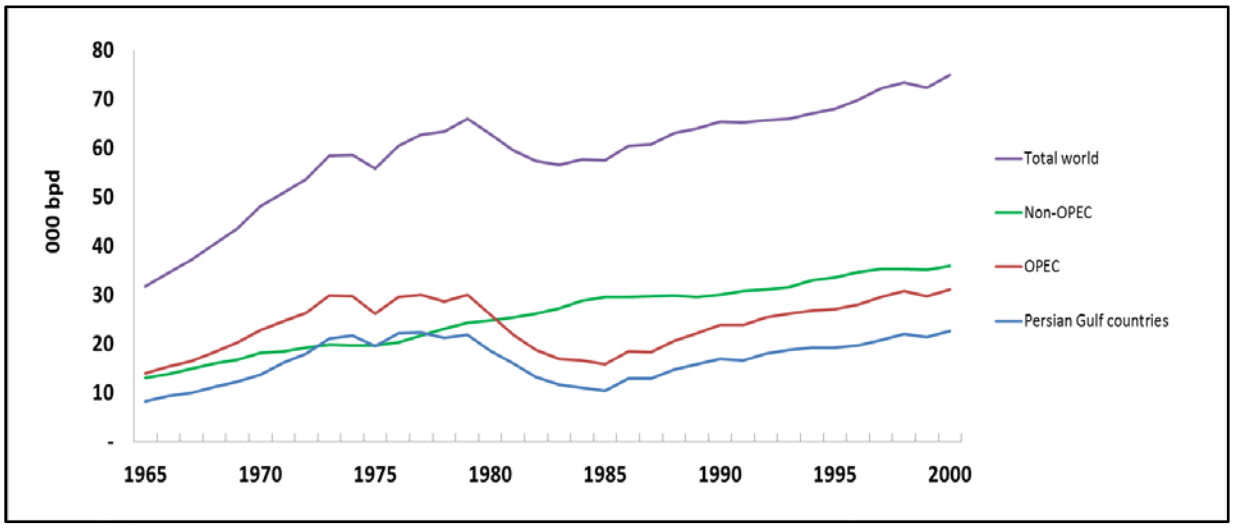

Figure 12. World crude-oil production. OPEC = Organization of Petroleum Exporting Countries. Data source: BP Statistical Review of World Energy.

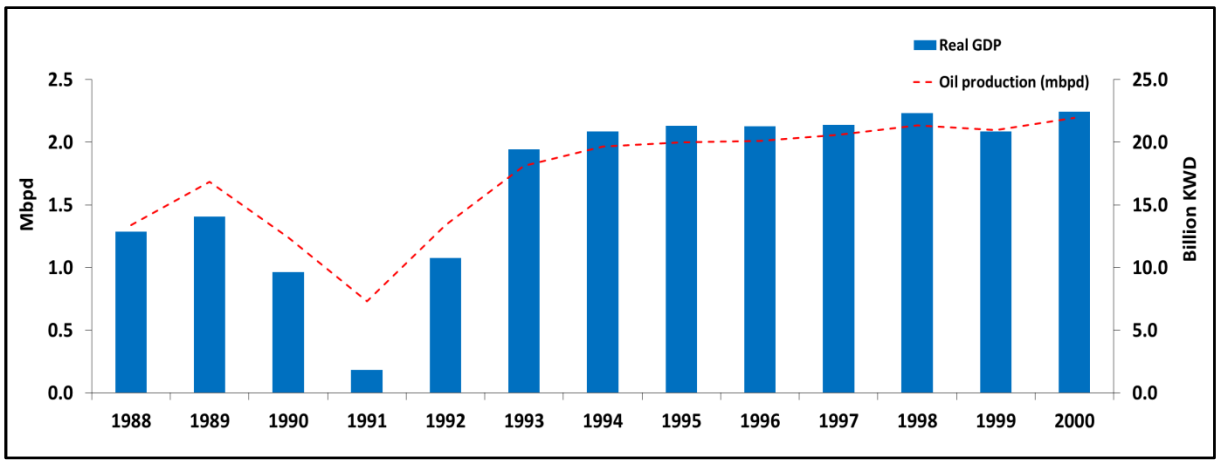

Figure 13. Kuwaiti petroleum production and price movements between 1988 and 2000. GDP = gross domestic product. Data sources: Central Bank of Kuwait, EIA.

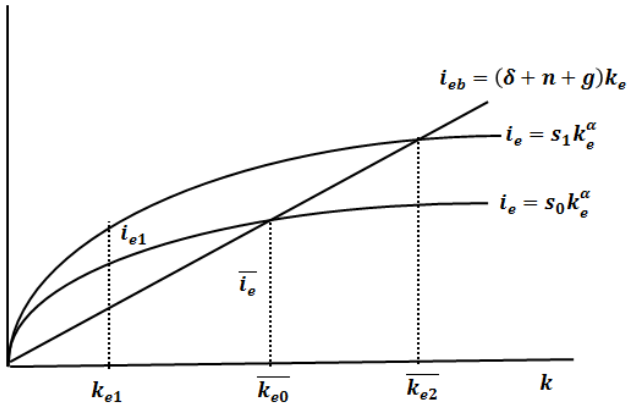

Figure 14. Steady-state growth and transition following a capital shock in the Solow model.

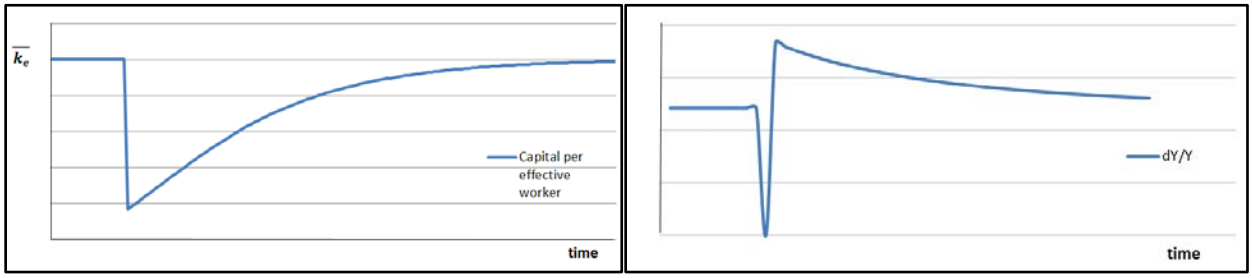

Figure 15. Transition in capital per effective worker and growth rate following a shock to capital stock in the augmented Solow model.

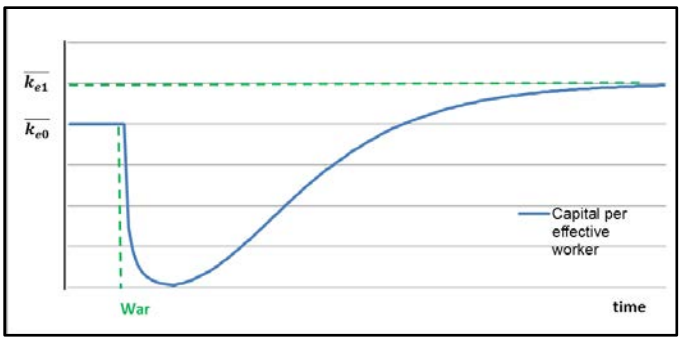

Figure 16. Simulated Kuwaiti recovery with effective capital-labor ratio postwar exceeding prewar levels.

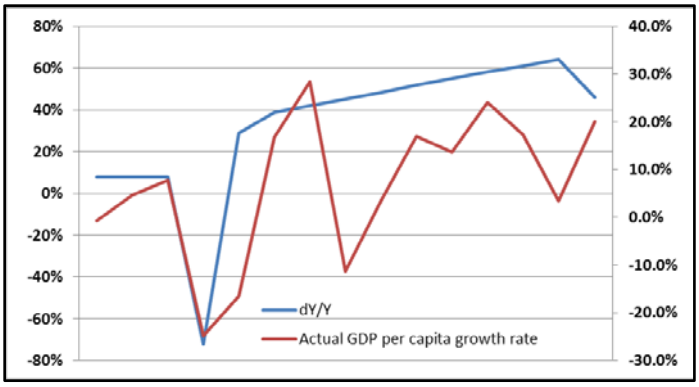

Figure 17. Simulated Kuwaiti recovery reaching a new steady state due to shocks in capital-to-labor ratio, savings rates, and productivity.

Notes. There is rapid gross domestic product (GDP) growth at the start of the recovery. The impact of the Gulf War on Kuwait is simulated here through the following shocks: (a) loss of 80% of physical capital, and (b) a 45% reduction in population. This postwar-recovery simulation includes a 30% increase in the savings rate, reflecting increased investment in human capital and a doubling of productivity. Output elasticities of capital and labor are calibrated to equal the following values in the GTAP VIII database entry for Kuwait in 2004: 0.75 for capital (the sum of the elasticities of capital and skilled labor of 0.68 and .07, respectively).

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