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The Current Economic Situation in Iraq

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1. Introduction

On April 9, a Coalition led by the United States, the United Kingdom, and Australia ended the 25-year reign of the Baathist party in Iraq. In the subsequent months, the reconstruction of Iraq has assumed monumental implications. As New York Times columnist Thomas Friedman writes, “Iraq is the whole ballgame. If we can produce a reasonably decent, constitutionally grounded Iraqi government, good things will happen all around the Middle East. If Iraq turns into a quagmire, it will be a disaster for U.S. interests all around the world” (Friedman, 2003). Most of the popular discussion of Iraq’s reconstruction has focused on the ongoing need to secure the country from attacks by Baathist holdovers and other Coalition enemies. Less discussion has centered on the economics of the reconstruction effort. The need to provide basic services for the Iraqi people has been highlighted by the Bush Administration’s request for \$20.3 billion in reconstruction aid and the 13 needs assessments jointly released by the United Nations and World Bank, in preparation for the recent donors’ conference in Madrid.⁴ But what economic policies should Iraq follow once basic services have been restored? And how has the Coalition’s economic program affected Iraq so far? To provide some context for these discussions, this paper presents some new data on Iraq’s economy over the past two decades and outlines the economic situation that Coalition officials confronted soon after the war ended. We also try to give a sense of the model for Iraq’s economy that Coalition economists had in mind as they helped frame economic policy in 2003.

¹ The views expressed in this paper are solely those of the authors, and do not reflect official positions of the Coalition Provisional Authority (CPA), the U.S. Treasury, the Bank of England, the U.S. Federal Reserve System, or any other national or international agency. All three of the authors of this paper worked in the CPA-Baghdad’s Office of Economic Policy in 2003, under the direction of Peter McPherson, George Wolfe, and Marek Belka. Officials of the International Monetary Fund and World Bank participated in many of the discussions outlined below. We thank The Gallup Organization for kindly supplying some of their results from its recent survey of Baghdad residents. Though the number of people who worked with us and thereby contributed to this paper is far too large to name, we would like to single out the particularly useful contributions two persons: Scott Brown, the IMF’s resident representative in Iraq, who was injured in the bombing of the Canal Hotel on August 19; and Jacob Nell, an senior adviser to Iraq’s Ministry of Finance on leave from the British government, who was injured in the attack on the Al-Rasheed hotel on October 26.

⁴ Of the President’s original request, about \$18.6 billion was approved by Congress. While some legislators had preferred that half of the money come as loans, all was eventually approved as grants. The donors’ conference in Madrid generated about \$13.2 billion in both loans and grants.

The new data paint a consistent picture of Iraq's broad economic predicament. Even though Iraq is blessed with oil wealth, its economy has been reeling for some time. While the "socialist" Baathist party was not particularly interested in economic ideology, the government's influence was felt in virtually every corner of economic life, with disastrous results for efficiency and growth.

The effects of economic mismanagement are especially apparent in the data on investment. Capital formation collapsed in the 1980s as the war Iran drained national resources and forced an increase in foreign debt. During the post-Gulf-War sanctions regime of the 1990s, investment was virtually non-existent. While the war of 2003 and the subsequent looting worsened matters, the dilapidated infrastructure that Iraq's new leaders will inherit is a direct consequence of the astonishing collapse in investment spending after 1980.

Regarding output, US government estimates of oil exports and Ministry of Planning data on the non-oil sector suggest that per-capita income in Iraq was less than \$3 per day in 2001. Only about one-third of this income came from the non-oil sector. Detailed GDP data for 2002 and 2003 do not exist, but currently low living standards are suggested by more direct measurements of food intake and employment opportunities. About 60 percent of Iraq's population is dependent on free handouts of food (paid for through the UN's oil-for-food program) for most of their nutritional requirements. According to a poll done by The Gallup Organization, less than one-fifth of the men in Baghdad worked for wages as of early September 2003. In short, Iraq's political transformation will be far more difficult if the economy does not substantially improve soon. Encouraging rapid and sustained economic growth is therefore crucial to the Coalition's national security goals.

Aside from security considerations, several features of Iraq's economic situation are of potential interest to professional economists. A large number of countries have attempted pro-market reforms in the past 15 years, but Iraq's reconstruction is taking place under unique political constraints. As an occupying power, the Coalition enjoys sweeping authority to reform the economy in the best interest of the Iraqi people. This freedom is constrained, however, by the wariness with which many Iraqis view the Coalition's goals. For example, the Coalition could raise gasoline prices above their 4-

cent per gallon price tomorrow, a move which would undoubtedly promote economic efficiency and discourage smuggling at the same time it improved the government's fiscal position. But the move would probably worsen the political situation by exacerbating mistrust of the Coalition. A second political constraint on Coalition policymakers is that the occupation is temporary. Whatever the Coalition does, a future Iraqi government can undo. This possibility has encouraged Coalition advisers to seek input, advice, and approval from Iraqi leaders on controversial policies, such as the opening of the country to widespread foreign investment, or the introduction of the new currency.

Iraq's economic reconstruction holds other potential lessons for economists as well. The economy moved from highly closed to completely open in a matter of weeks, with profound effects on the prices of tradable goods. Additionally, the bizarre currency situation that Coalition policymakers inherited in mid-2003 forced a banknote exchange with a number of unique features. Finally, the lessons learned by economists studying the post-socialist transitions of the 1990s were closely studied by Coalition advisers. The influence of these transitions on policy in Iraq will illustrate whether the lessons learned in the 1990s extend to transitions made under very different political circumstances.

One of the central lessons from past transitions is that market reforms are not easy. In Iraq's case, reallocational frictions will limit growth in aggregate income as money-losing state-owned enterprises are closed, agricultural production is placed on a market basis, and energy subsidies are reduced. If these frictions reduce living standards substantially, the political situation could worsen. Yet there are a number of reasons to be optimistic about Iraq's economic future. Most obvious is the country's oil wealth. Revenue from oil exports alone will not return the country to middle-income status anytime soon, but these exports will support Iraq's living standards during the transitional period. Additionally, the presence of oil revenues for the government means that tax rates can be low, supporting the growth of the small and medium-sized private firms that have been so crucial to successful transitions in the past. The very fact that Iraq is in many ways "starting from scratch" may also speed its economic revival. Investment in the

rebuilding of infrastructure will support aggregate demand, offsetting near-term reallocational frictions that would lower GDP.

Even more importantly, new businesses in Iraq will not have to encounter the mountain of red tape that often frustrates potential entrepreneurs in other countries. Iraqi businesspersons seized on the “tariff holiday” granted by the Coalition authorities for 2003, filling ancient street markets with imports ranging from soap to satellite dishes. A recent initial assessment by World Bank researchers suggests that the relatively clean regulatory slate offered by Iraq will make it a good place for both foreign and domestic investment once the provision of security and other basic services is assured.

The plan of this paper is as follows. Section 2 outlines the performance of Iraq’s economy under the Baath party, drawing in many places on data from Iraqi ministries. Section 3 discusses the steps the Coalition took to stabilize and improve Iraq’s economy in the immediate aftermath of the war. Section 4 (to be developed at the seminar) discusses long-run economic policies that have will be put in place, while Section 5 concludes.

2. Iraq’s Economy Under the Baath Party

The formal name of the party that ruled Iraq from 1968 to 2003 was the “Arab Socialist Baath Party,” but the party’s economic orientation was far more “Arab” than “socialist.” The party gained strength in Syria and Iraq in the 1950s, amid the groundswell of Arab nationalist pride that also swept Egypt’s Gamel Abdel Nasser into power in 1952. The main ideological underpinnings of the Baath party were Arab unity and independence from foreign domination, not class struggle.⁵ Private property and inheritance were encouraged by Baathists, who saw both institutions as consistent with past Arab practice and the Islamic faith.

The government did play a large role in economic development policy. The Baathists followed a “top-down” approach to development, financing the creation of large state-owned industrial firms with oil revenues. The hope was to diversify the

⁵ A leading intellectual of the Baath party, Michel Aflaq, cautioned his followers to “take care not to lose their nationalism nor to confuse it with the felonious notion of class interests, so as not to endanger national unity” (quoted in Alnasrawi, 1994). The importance of Arab unity to the Baath party is evidenced by their initial refusal, once in power in Iraq, to require entry visas of travelers from other Arab countries.

economy and kick-start economic growth. Many of these enterprises still operate in Iraq today, albeit as models of inefficiency.⁶ A typical assessment came from a technical expert after he visited an aging glass plant soon after the war. “This plant was set up in 1959 by Russian technology,” he said. “Need I say more?”

In the 1990s, government intrusion into Iraq’s economy was increased further. The government set up a Food Distribution System (FDS) in 1991 to distribute food to the after the UN sanctions prevented the country from exporting oil. The FDS made use of private stores, but it required each family to present a government-supplied card to receive a ration.⁷ The oil-for-food program, which began in 1996, significantly raised the amount of food available for distribution, but the food continued to be distributed by the government.⁸

The private sector is heavily represented in industries such as light manufacturing, agriculture, and retail and wholesale trade. Baathists had no aversion to making money in business, and relatives of the former regime’s top Baathist, Saddam Hussein, often owned large private firms. Perhaps the best example was Hussein’s eldest son Uday, who owned two major newspapers and a number of smaller firms.

Two quick snapshots of the labor market

A good place to start an analysis of Iraq’s economy is with two snapshots of the labor market. The first was taken by the Ministry of Planning in 1997 as part of the country’s decennial census.⁹ Census takers asked Iraqis about their “labor market activity” as of the census day (October 16, 1997). Table 1 shows that only 36.7 percent of persons 10 and over reported that they were “economically active” on that day, with 16.3 percent of economically active persons stating that they were unemployed. The low

⁶In the second-half of the 20th century, the top-down approach to economic development was common in the developing world (Easterly, 2001). Alnasrawi (1994) writes that the Baathist development policies were virtually identical to those of all Iraqi governments that ruled after the overthrow of the British-installed monarchy in 1958.

⁷ The resulting system of record-keeping did wonders for the regime’s ability to keep an eye on its citizens.

⁸ The government of Iraq was not responsible for distributing oil-for-food rations in three northern provinces, or “governates,” which achieved autonomy within Iraq at the end of the Persian Gulf war. The United Nations administered the oil-for-food program in these Kurdish-dominated governates directly.

⁹ Results of this census are published in the Ministry of Planning’s Annual Abstract of Statistics for 2001. An electronic version of this abstract was produced in August 2003. The data in Table 1 and Appendix Tables 1 and 2 exclude the three autonomous Kurdish governates.

participation rate stems results from very low labor-force participation among women. (Appendix Tables 1 and 2 break out the data along gender lines, showing that the participation rate of men is about 67 percent, while that of women is less than 10 percent.) Iraq is generally recognized as a progressive Middle Eastern country regarding the status of women, but widespread employment opportunities for women in Iraq are scarce nonetheless.¹⁰

Another salient feature of Table 1 is that less than one percent of persons are employed in “mining and quarrying,” which encompasses the oil industry. As will be noted below, oil production accounts for about two-thirds of Iraq’s GDP. Yet this industry requires little labor input, so Middle Eastern oil exporters like Iraq are challenged to create enough jobs for their rapidly growing populations. Earlier attempts to diversify Iraq’s economy through the importation of ready-to-operate (“turnkey”) manufacturing plants financed by oil money have proven unsuccessful, as evidenced by the low fraction of manufacturing employment in Iraq (less than 5 percent).

The second snapshot of the labor market comes from The Gallup Organization’s poll of Baghdad residents in late summer 2003.¹¹ Using recent data is not intended to give a “before-and-after” perspective to the past six years. Rather, the Gallup data ask different questions and thereby enhance the picture presented by the census data. The new data, graphed in Figure 1, show that only 18.3 percent of men in Baghdad were working for pay when the poll was conducted. Of this fraction, 16.7 percentage points are accounted for by “employees” while 1.6 percentage points correspond to managers.¹² Eighteen percent of men reported themselves as unemployed, about the same rate as in the census data.

¹⁰ Other census data show that while women are not as well-educated in Iraq as men, those women who are in the labor force are generally better educated than economically active males. For example, about 30 percent of women aged 10 and over are illiterate, about double the fraction for men. But among those persons who are economically active, the fractions are much closer to one another (20 percent and 17 percent, respectively). Moreover, more than 15 percent of women in the work force hold a college degree, about three times the fraction for men.

¹¹ This poll, conducted from August 28 to September 4, was based on a scientific sample of 1,178 Baghdad residents. Face-to-face interviews were conducted in respondents’ homes and lasted for an average of 70 minutes. Details about the poll are available at <http://www.gallup.com>.

¹² The corresponding percentages for women are lower (10 percent and 0 percent), but interestingly, the employee fraction female is not as low as the nationwide 1997 census data would imply. This may reflect changing economic opportunities for women as the reconstruction began.

A particularly important feature of the data is the large fraction of men that report themselves as “self-employed” (45.3 percent). Other data from the poll show that self-employment status is negatively correlated with income, suggesting that the self-employed are likely to be engaged in a low-paying activity (like street vending) or to be working sporadically. Because the 1997 census data do not ask about self-employment status, it is hard to know whether this fraction has risen in the past several months, perhaps in response to the new opportunities to import goods from neighboring countries. It is also possible that some of the self-employed may be more accurately categorized as underemployed. A “self-employed” respondent may occasionally do odd jobs for pay, but he might be idle more often than not.

The self-employment rate for Baghdad’s men is encouraging in at least one vital respect. Iraqis appear to have no aversion to striking out on their own in response to changing or difficult economic circumstances. This is a positive sign for Iraq’s transition to market economy. Research on market transitions in other countries indicates that successful transitions economies followed what the World Bank calls a “discipline and encourage” strategy (World Bank, 2002). Policymakers disciplined existing state-owned enterprises, imposing hard budget constraints so the state firms could not absorb scarce resources. At the same time, policymakers encouraged the growth of small and medium-sized enterprises in the private sector (SMEs). The Gallup data indicate that there is probably no shortage of potential SME entrepreneurs in Iraq.

In short, the two snapshots of the labor market present a “good news/bad news” picture of the economy. The bad news is that formal employment opportunities are scarce in Iraq, especially for women. The formal male unemployment rates of 16.3 percent (1997 census) and 18 percent (2003 survey) probably mask a great deal of underemployment and tenuous attachment to the labor market. The good news is that Baghdad’s high self-employment rate is a positive sign for the growth of SMEs, which have been important to successful transitions elsewhere.

GDP and oil statistics: The importance of the exchange rate

Individual-level data from the 1997 census is one of the few reliable areas of economic data available before the war. The previous regime had little desire to publish

bad economic news. Some statistics, like the inflation rate, were calculated but not published. Other statistics, like a monthly or quarterly unemployment rate, were not calculated at all. Real GDP, the most basic measure of economic activity, was calculated throughout the Saddam Hussein era, though it was not reported publicly after the mid-1990s.¹³

Coalition advisers gained access to all GDP accounts after the war, but they soon learned that even the unreported real GDP data did not paint an accurate picture of the economy. Iraq's national accounts statisticians were required to use the official exchange rate of 0.311 dinars per U.S. dollar when tabulating all international transactions. Because the dinar depreciated dramatically after the Gulf War, reaching about 2,000 to the dollar by the late 1990s, the use of the official exchange rate severely undervalues oil exports – the sector that accounts for most of Iraq's economic output.¹⁴

An imperfect but more accurate GDP series can be calculated by figuring value added in the non-oil and oil sectors separately. To obtain an estimate of non-oil GDP, first subtract the official measurement of nominal GDP in the oil sector from total nominal GDP. Because the exchange rate issue is likely to be much less severe for the non-oil sector, this difference gives a reasonable current-dinar estimate of non-oil GDP. Then deflate this series into 2002 dinars using Iraq's consumer price index.¹⁵ Dividing the resulting constant-dinar series by the 2002 exchange rate (1,955.25 dinars = 1 dollar) gives an estimate of real non-oil GDP in terms of 2002 U.S. dollars. This constant-dollar estimate is graphed in Figure 2 on a per-capita basis. The figure shows that non-oil output-per-capita declined by more than two-thirds from its peak in 1982 (\$873 per person) to 2001 (\$278).¹⁶

This estimate of non-oil GDP is likely to be an overestimate of the true number. When state-owned enterprises imported inputs under the oil-for-food program, these inputs were often booked as expenses according to the official exchange rate. Because

¹³ Nominal GDP was published, but a corresponding GDP deflator was not.

¹⁴ Consider the export of one barrel of Iraqi oil for \$25 dollars. Using the market exchange rate of 2,000 dinars to one dollar, the sale raises Iraq's gross output by 50,000 dinars. With the official exchange rate, the sale raises gross output by less than 8 dinars. In the official estimates from the Ministry of Planning, both the real and nominal figures would reflect the 8-dinar figure.

¹⁵ Use of a GDP deflator would have been more appropriate, but the official deflator is also contaminated by the use of the official exchange rate.

¹⁶ The per-capita figure excludes output in the three autonomous regions after 1990.

these inputs did not make up a large part of oil-for-food spending, however, the overestimate is not likely to be large.

The next step is to figure real GDP in the oil sector. This is done by first calculating gross output in this sector, then transforming this figure into a value-added estimate. The production numbers used here come from the Energy Information Agency of the U.S. Department of Energy and are graphed in Figure 3.¹⁷ Much of Iraq's recent economic history is written in this chart. War-related disruptions to production in 1980 (Iran-Iraq war) and 1990 (invasion of Kuwait) show up clearly, as do the effects of the post-Gulf War sanctions and the oil-for-food program that began in 1996. During the first half of the 1990s, when sanctions prevented Iraq from selling oil abroad, production was held to Iraq's domestic consumption (about 500,000 barrels per day). The oil-for-food program allowed Iraq to resume oil exports in return for imports that were closely monitored by the United Nations. Oil production recovered at something close to pre-Gulf War levels, though production and exports fluctuated wildly, often for political reasons.

After multiplying these production numbers by the base-year oil price, one must adjust for the use intermediate inputs to get value added.¹⁸ The adjustment factor used here assumes that value added is 70 percent of gross output, a figure that is generally consistent with gross output data from the Ministry of Planning. Real output from the non-oil and oil sectors are then added together to get overall GDP.

Real GDP in 2002 dollars is graphed on a per-capita basis in Figure 4. Output-per-person reached a peak of \$2,427 in 1979. It then fell to less than a dollar a day in 1991, recovering somewhat after the oil-for-food program was instituted. A comparison with Figure 2 shows that in 2001, the last year for which GDP figures exist, oil exports accounted for more than 70 percent of Iraq's economy.

The GDP data convey only a part of Iraq's economic decline. The country's economic situation worsened after 1980 not only because its military misadventures

¹⁷ Oil production data from the EIA matched that of Iraq's Ministry of Planning during periods of overlap.

¹⁸ The Department of Energy assumes that the "world oil price" is closely approximated by the U.S. refiner's acquisition cost of imported oil. This price in our base year (2002) was \$23.68.

reduced its oil exports, but also because the real price of oil fell.¹⁹ Because real GDP is calculated with constant base-year prices (including export prices), it abstracts from the decline in the world price of oil to focus only on the production decline. To get a rough picture of the effects of both output and price declines in real terms, one can simply deflate yearly oil-export revenues (figured with current prices and quantities) into 2002 U.S. dollars using the U.S. GDP deflator.

The results of this calculation is graphed in Figure 5. Measured in 2002 dollars, the purchasing power of Iraq's oil exports reached about \$4,160 in both 1979 and 1980, falling to less than \$1,400 in 1982. In the late 1980s, prices fell by about as much as output recovered, leaving revenues basically stable at about \$1,000 per person. International sanctions in the early 1990s reduced the value of export revenues to near zero. The purchasing power of oil revenues recovered somewhat under the oil-for-food program, reaching about \$500 in 2002.

The role of the Iran-Iraq war

The economic data show that Iraq's economy was hit by a one-two punch in the early 1980s: the decline in world oil prices and the start of the Iran-Iraq war. The effect the "Persian War" on Iraq's subsequent economic development is difficult to understate. Early on, Iraq was able to cushion its population from the full effects of the war by drawing down international reserves and undertaking massive borrowing from abroad. Imports rose by more than 400 percent from 1978 to 1982, mostly due to an increase in non-military goods.²⁰ Development programs drawn up during the halcyon days of the late 1970s were continued until 1982. As discussed below, Iraq's now-massive foreign debt complicates its reconstruction effort, but during the 1980s, the debt run-up propped up the economy. One widely cited indicator of living standards, infant mortality, was essentially stable during the 1980s, totaling 54 deaths per 1,000 live births in the 1979-84 period and 47 deaths in 1984-89 (World Bank, 2003).

¹⁹ Oil prices averaged \$37.05 per barrel in 1980, falling to a low of \$14.00 during the 1986 price collapse and rising to around \$15-\$20 for most of the late 1980s and 1990s. Since 2000, oil prices have fluctuated around \$25.

²⁰ Alnasrawi (1994). Because the market exchange rate was very close to the official exchange rate over the this period, the author's use of official statistics is appropriate.

The government grew increasingly unable to mask the effects of falling GDP as the war with Iran dragged on. In 1990, two years after the war ended, debt service payments soaked up 55 percent of Iraq's oil revenues (Alnasrawi, 1994, 2000). Tension over Kuwait's level of oil production, which Iraq claimed was driving down prices and worsening its own economic situation, helped precipitate Iraq's invasion of that country on August 2, 1990. Four days later, the Security Council passed Resolution 661, preventing Iraq from trading with the rest of the world, and the economy collapsed. Infant mortality rose to 79 deaths per 1,000 births in 1989-94, then to 108 in 1994-99 (World Bank, 2003). From 1990 to 2001, Iraq slipped from 76th place on the UN Human Development Index in 1990 to 127th.

Investment and infrastructure

Some other data provides the context for how the fall in GDP affected the country's infrastructure, one of the biggest concerns of the Coalition immediately following the 2003 campaign. Iraq's infrastructure was badly damaged by allied attacks in the 1991 Gulf War. A few weeks after that war ended, the head of a UN fact-finding mission reported that

... nothing we had seen or read had quite prepared us for the particular form of devastation which has now befallen the country. The recent conflict has wrought near-apocalyptic results upon the economic infrastructure of what had been, until January 1991, a rather highly urbanized and mechanized society. Now, most means of modern life have been destroyed or rendered tenuous. Iraq has, for some time to come, been relegated to a pre-industrial age, but with all of the disabilities of post-industrial dependency on an intensive use of energy and technology (UN Security Council, 1991, p. 5).

One of the hardest hit components of Iraq's infrastructure was the electricity grid. According to a joint World Bank/UN assessment made in 2003, peak demand before the Gulf War had been about 5,100 megawatts (MW). Gulf War damage reduced generating capacity from more than enough to meet this demand (around 9,300 MW) to less than half of demand (2,325 MW).²¹ Another infrastructure component affected by the Gulf

²¹ See UN/World Bank (2003a) for more details on Iraq's electricity sector.

War was the water system. Damage to the electricity grid contributed to a drop of more than 50 percent from 1990 to 2000 (UN/World Bank, 2003b).

Official data on investment show that this damage occurred at a particularly bad time. Figure 6 reports real gross capital formation in both the private and government sectors from 1980 to 2001, according to unadjusted data from the Ministry of Planning.²² The figure shows that by the time the Gulf War occurred, investment had been falling for eight years. Investment did not recover after the Gulf War; in fact, it was virtually non-existent for most of the following decade. The decline in investment is corroborated by the joint UN/World Bank assessments made in 2003. The yearly budget for maintenance and improvements in the water system, for example, declined by 92 percent after the Gulf War (UN/World Bank, 2003b).

The investment data also shed light on some other general features of Iraq's economy. Government investment is always larger than private investment, reflecting the state-centered investment strategies of the Baathist regime. The peak year of investment spending is 1982 – two years into the war with Iran, and the last year in which 1970s-era development projects could be fully funded with borrowed money. Additionally, investment begins to increase from its 1990s lows only in 2000 – several years after the beginning of the oil-for-food program – when the government opened the door to major construction projects once again.

Infrastructure would be weakened further by looting and sabotage in the wake of the 2003 war. Thieves dug up transmission cables for the copper inside them and saboteurs toppled transmission towers. While electricity capacity had recovered to about 4,500 MW by 2002 – about half of the 1990 level – it fell to about 3,300 MW immediately after the 2003 war ended. Capacity regained pre-war levels in early October.

Effects of sanctions on money growth and the overall price level

By reducing oil exports and GDP, the post-Gulf-War sanctions profoundly worsened the government's budget constraint. Denied its traditional funding source,

²²These figures have not been adjusted for the use of the official exchange rate. Because the investment they measure the quantity of domestic investment in real terms, however, they are affected much less by the use of the official exchange rate in their construction than the GDP figures. This was confirmed by our conversations with officials at the Ministry of Planning familiar with the investment data.

Iraq's government resorted to the time-worn strategy of printing money. Until the early 1990s, Iraq had not been a high inflation country. Ministry of Planning data collected by the IMF in June indicates that inflation generally remained in the single digits or below after 1945 (the first year for which data is available), though three temporary episodes of double-digits price increases did occur.²³

Figure 7 shows that inflation rose markedly during the early 1990s, reaching nearly 500 percent in 1994. The figure also shows the rate of increase in prices was generally much larger than growth in the official measure of M1.²⁴ Two explanations for this divergence are possible. The first is an increase in velocity. As money lost value more quickly, the opportunity cost of holding money rose. This could have caused money demand to drop, velocity to rise, and prices to increase by more than the rate of money growth. An alternative explanation for the discrepancy between money growth and inflation is counterfeiting, perhaps by high-ranking members of the regime itself. This would have caused "money" in circulation to rise faster than Central Bank figures indicated.

The relationship between the growth rate of prices and the growth rate of money was not just of academic interest in the summer of 2003. One of the first tasks of Coalition advisers was to replace the country's dysfunctional currency with new banknotes. When deciding how much new currency to print, Coalition advisers insisted on a large cushion of extra notes. The fear was that counterfeiting during the early 1990s and in the immediate aftermath of the 2003 war cause more old dinars to turn up during a banknote exchange than would be implied by official data.

By late 1995, Iraq's fiscal position had reached a crisis stage. On December 3, Saddam Hussein wrote a letter to all ministries ordering them to refrain from spending money on anything except salaries without direct approval from his office. Figure 7 shows that this restriction of government spending during had the desired effect in 1996. The money growth rate fell from 195 percent to 36 percent the previous year. Prices

²³ Inflation reached 12.8 percent in 1976, after the first oil shock. Because Iraq had a fixed nominal exchange rate in the 1970s, appreciation in its real exchange rate prompted by the oil shock had to occur via an increase in the domestic price level. Inflation ranged between 10.7 and 19.7 percent from 1979-1983, after the second oil shock pressured the exchange rate further and the 1980 disruption to oil sales reduced potential government revenue. Finally, inflation was 14.0 percent in 1987 and 21.4 percent in 1988, the last years of the Iran-Iraq war.

actually *fell* by 15 percent in 1996, compared to an increase of 351 percent the year before.

The economic crisis of 1994-1995 also set the stage for Iraq's acquiescence to an oil-for-food arrangement with the United Nations. On January 18, 1996, Iraq announced that it was ready to talk about implementing the oil-for-food deal that the UN had approved the previous April. The final arrangements for oil shipments were made in December 1996, with the first shipments of food arriving in Iraq in April 1997. The data show that money growth and inflation remained relatively tame thereafter, though M1 growth has trended upward after 2000.

The behavior of relative prices during sanctions and oil-for-food

Theory suggests that the 1990 sanctions should have increased the relative price of tradable goods and lower the price of non-tradables. The reverse should have occurred when these sanctions were partially relaxed by the oil-for-food program. For the most part, this pattern is observed. Figure 8 plots relative price indexes of seven major components of the consumer price index from 1990 to 2002. The relative-price series are calculated by dividing the component index by the overall index, then normalizing this ratio to equal 100 in 1990. As one would expect, relative prices of food and clothing (both tradables) rise in the first half of the decade, then decline after the oil-for-food program begins.²⁵ The relative price of rent (a non-tradable) declines with the onset of sanctions, but somewhat surprisingly, it remains low even when sanctions are partially relaxed.

One relative price of particular importance to future reforms in Iraq is that of fuel and lighting, a category that encompasses both electric power and gasoline. Because the government did not raise the state-subsidized price of gasoline in line with the overall increase in prices, the official price of gasoline is now only 20 dinars per liter (about 4 cents per gallon). The imperfect indexation of state-subsidized gasoline prices explains much of the relative decline of energy prices during the past 13 years.

²⁴The growth of in M2 was virtually identical to that of M1 over this period.

²⁵ The price index for food in Iraq's CPI is an expenditure-weighted combination of the price of food obtained from the oil-for-food program (which charged each person a nominal handling fee) and food from

From oil-for-food to a market economy

The low price of gasoline also illustrates a challenge to economic reform in Iraq that is often overlooked: Prices of many consumer staples in Iraq will have to rise. The gasoline subsidy drains government revenue and encourages the smuggling of gasoline for sale in neighboring countries. Moreover, needed price reforms are needed for other products, too. The oil-for-food program required Iraqis to pay only 250 dinars per person (about 13 cents) for a monthly food ration, which discouraged domestic agriculture.²⁶ Also, Iraq's antiquated electric metering system must be substantially upgraded if electricity users are to face market signals.

Price reforms must be managed carefully in light of the current political situation. One strategy would be to "monetize" the subsidies by rebating the expected price increases back to consumers in lump sum payments. This method would free relative prices to find their market levels, give citizens more choice in what they consumed, and, on average, shield consumers from the negative income effects of the reforms.

A main issue is whether such a rebate would last only for a transitional period, or whether the rebate would be transformed into a permanent "Alaska-style" dividend for all of Iraq's citizens. A permanent dividend would be one way to make sure that Iraq's future oil revenues were shared widely. This goal might also be achieved by setting up a "trust fund" to fund retirement or other social programs.

Summing up: Iraq's economy in 2003

By 2003, Iraq's economy had been hollowed out by more than two decades of profound mismanagement. The Iran-Iraq war emptied the country's reserves, saddled the country with debt, and sent investment spiraling downward. Destruction from the Gulf War still scarred the economy more than a decade later, due to the continuing dearth of investment spending in the 1990s. Iraq's once-stable currency had been debased by high inflation in the early 1990s, though the resumption of oil exports under oil-for-food

the private market. The expenditure basket comes from a 1993 household survey, the last such survey completed in the country.

²⁶ The oil-for-food program did have an offsetting positive supply effect, however, in that it allowed Iraq to import needed agricultural inputs, such as tractors.

reduced the government's need for seignorage revenue and stabilized money and price growth in the last half of the decade. Underemployment was endemic and formal labor-market opportunities were scarce. The economy remained dominated by the state, with consumer staples subsidized at distortionary prices. Looting and sabotage in the aftermath of the 2003 conflict worsened the country's infrastructure problems and reduced economic activity further. As the reconstruction began in the spring of 2003, Iraq faced a difficult period of adjustment as it reintegrated its economy with the rest of the world.

3. Coalition Economic Policy in 2003

The economics staff of the Coalition Provisional Authority (CPA) were among the first advisers to arrive in Baghdad when the war ended. The staff included economists and financial professionals from government and academia, as well as the private sector.²⁷ Peter McPherson, the director of the Office of Economic Policy from May to September, had served as the director of the US Agency for International Development and as Deputy Treasury Secretary in the 1980s. He later worked in the international banking division of Bank of America before becoming President of Michigan State University in 1993, returning to that position when his time in Iraq ended. McPherson was succeeded on an interim basis by George Wolfe, the U.S. Treasury's deputy general council. In November, the office came under the direction of Marek Belka, a transition economist from Poland who had served as that country's deputy prime minister as well as the head of CPA's international coordination body.²⁸ The director of CPA's Office of Management and Budget, David Oliver, was a retired two-star admiral from the Navy and former Pentagon acquisition official who volunteered to come to Iraq privately. He was assigned to CPA's OMB job shortly after arriving in Baghdad.

The economic staff grew from about 15 in late May to more than 30 in September. It consisted mostly of treasury department employees from the US, UK, and Australia. Other staff members came from Coalition central banks, the Army's Civil

²⁷ CPA began as the Office of Reconstruction and Humanitarian Assistance (ORHA), a Pentagon agency. L. Paul Bremer became head of CPA on May 6. A career foreign service officer, Bremer had served as Executive Secretary of the State Department and was President Reagan's Ambassador at Large for Counter Terrorism.

²⁸ Among other jobs, this group was instrumental in organizing the Madrid donors' conference.

Affairs branch, or Bearing Point, Inc.²⁹ The staff's efforts were complemented by the work of international agencies such as the World Bank, International Monetary Fund and United Nations, each of which sent missions and assessment teams to Iraq as soon as major military operations ceased.³⁰

In addition to advising the CPA administration on economic policy, the economics staff worked extensively with Iraqis at the Central Bank of Iraq, the Ministry of Finance, and Ministry of Planning.

In the early days of the reconstruction, CPAs efforts centered on six main areas: payments to government workers and pensioners, managing the currency, reopening trade, imposing a hard budget constraint on state-owned enterprises, framing budgets for the second half of 2003 and for 2004, and reopening banks. This section of the paper discusses each of those areas in turn.

Salary and pension payments

As the interim authority in Iraq, the CPA had responsibility for making payments to government employees, pensioners, and employees of state-owned enterprises after the war ended. In late 2002, US Treasury officials worked out a payments strategy that would be funded with assets seized from Baath government during the Gulf War.³¹ On March 20, President Bush issued an order for \$1.7 billion of these assets to be “vested” in the Federal Reserve Bank of New York, to be used for the benefit of the Iraqi people. Such benefits included reconstruction costs and the payment of government salaries.

The next step was to send the cash to Iraq. The first shipments totaling \$199 million (mostly in ones and fives) were trucked from the Fed's East Rutherford, N.J., currency warehouse to Andrews Air Force base in suburban Washington, D.C. The bills were then flown to Camp Arifjan in Kuwait in mid-April, only a few days after the Baathist regime fell. The money initially was used to make emergency payments to essential employees such as dock, rail, and electric utility workers. Once on the ground, Coalition economic advisers learned that Iraq's existing cash-based salary system could

²⁹ Bearing Point had won a USAID economic reconstruction contract in late July.

³⁰ Back in the United States, CPA economists were supported by Treasury employees in Washington assigned to a special task force. This group met in a secured room in the Treasury building, dubbed the “Iraq shack.”

function in the post-conflict environment with only a few modifications. The main tactical issues would be moving the cash around the country and confirming the accuracy of employee lists. The major modification to the payments system the Coalition imposed was the compression of the previous salary schedule, widely perceived as unfair to those at the bottom, into a temporary schedule of four pay grades.³²

While the salary payments were originally planned to be in dollars, April salaries were made in dinars, the local currency. This was done for two reasons, the first of which was concern about the potential dollarization of Iraq's economy. Dollarization (or euroization) had been suggested by some outside observers as a way to stabilize Iraq in the aftermath of the war.³³ But dollarization would have carried political disadvantages. Moreover, it would have forced Iraq into a fixed exchange rate with the United States, at least until a new currency could be printed. Economists have argued for generations whether fixed or floating exchange rates are preferable, but advisers did not want to force this decision right away. A second and perhaps even more important reason for making payments in dinars was that Iraqis preferred to be paid in dinars, the local medium of exchange.

In light of these concerns, Coalition advisers decided to pay the approximately 1.3 million public-sector workers and pensioners their April payments in dinars rather than dollars, though they gave each person an emergency payment of \$50 as well. The dinars came from Ministry of Finance accounts at the country's two large state-owned banks, Rafidain and Rasheed. All in all, the value of April salary payments was about \$130 million, or around \$100 per person.³⁴ The value of salary and pension payments for the last six months of 2003 would be more than \$1.1 billion.

While dollars flowing into the country could have been used to back any dinar-denominated salary payments, advisers soon learned that there were not enough dinars available in the vaults of the state-owned banks to pay future months' salaries in local currency. Printing enough additional dinars was impossible. Only two denominations of

³¹ See the Congressional testimony of Taylor (2003a and 2003b) for details of the payments strategy.

³² The schedule would be modified into a final, 13-tier system in early October.

³³ See, for example, Svejnar (2003).

³⁴ As discussed below, the three autonomous, Kurdish-dominated governates in the north did not use the Saddam dinar. They used the pre-war "Swiss" dinars, which had not been printed since the Gulf War 13 years earlier. Hence, April payments in these governates were made in dollars.

the Saddam dinar circulated widely by the end of the war: the 250-dinar note (worth about 13 cents) and the 10,000-dinar note (worth about \$5). Rumors of extensive counterfeiting of the 10,000-dinar note in the aftermath of the 2003 conflict, as well as the difficulty of using the 10,000 in everyday transactions, caused the large note to trade at 10-30 percent discount relative to the 250. The Coalition therefore decided to make future salary payments in dollars.

In addition to maintaining liquidity in the country at a difficult time, the payment of April salaries in dinars had two major consequences. First, it sent the signal that the Coalition had no interest in seeing the Saddam dinar collapse. Since the Gulf War, all dinars printed in Iraq had carried Saddam Hussein's picture. Fears that the Coalition would invalidate Saddam's currency for political reasons had weakened the dinar from around 2,000 to the dollar in 2002 to 3,000-4,000 in the weeks immediately preceding the war. These fears were quieted as Iraqis saw Coalition officials hand out Saddam dinars to salary recipients. Another factor helping to stabilize the dinar was the large inflow of dollars later in the summer. By June 1, the dinar was trading around 1,400 to the dollar, far stronger than its prewar level.

A second consequence of the April salary payments was to show that Iraq's crumbling currency situation had to be fixed. The discount on the 10,000-dinar note, coupled with the lack of a functioning payments system, meant that future government salaries would have to be paid in dollars until a new currency was adopted. But every month of dollar salary payments brought the country closer to dollarization. Waiting for a future Iraqi government to design the new currency would have been preferred for political reasons, but there was not enough time.

Currency reform

The fact that Iraq was a cash-based economy running on a banknote worth less than a quarter was not the only problem with the country's financial system. Since the Kurdish-dominated northern governates had become autonomous after the Gulf War, they had eschewed the use of the Saddam dinar. Instead, they used the dinars that had been in use in Iraq before the Gulf War, because these dinars did not carry Saddam's picture. These dinars had been printed before the inflation of the early 1990s, so they

were also in low denominations (ones, fives and tens). Nicknamed “Swiss dinars,” they had remained in fixed supply for 13 years.³⁵ Many were worn out from overuse, held together with tape and staples.

The inability of the Kurds to print new Swiss dinars caused serious problems for the Kurdish governates in 2002 and 2003. The Swiss dinar began to appreciate for unknown reasons in the spring of 2002, almost one year before the war began (Figure 9). A great deal of economic activity northern Iraq was funded by international agencies, who had budgets denominated in foreign currency. The appreciation of the Swiss dinar reduced the ability of these agencies to pay salaries in local currency, so unemployment rose.

The inelasticity of the supply of Swiss dinars complicated the design of a new, unified currency for the entire country. Any plan to unify two currencies would implicitly specify a conversion rate between the Swiss dinar and the Saddam dinar. The ideal conversion rate would allow similar workers to earn the same wage in both regions. In this way, the conversion would not increase relative labor costs and unemployment in either part of the country.³⁶

Figure 10 shows how the implied exchange rate between the Saddam and Swiss dinars was affected by the appreciation of the Swiss dinar throughout 2002 and the fall in the Saddam dinar right before the war. The price of a Swiss dinar rises from a relatively stable 100 in early 2002 to more than 300 in early 2003. Converting at the market rate in mid-2003 of about 250-to-1 would have made northern residents wealthier, since they would be able to convert the Swiss dinars they held for more of the new currency. But the rate could have damaged the northern economy in the near term.

³⁵ We are not sure why this currency is called the Swiss dinar; even the acting Minister of Finance was unable to tell us. One possibility is that people believed that the dinars were printed in Switzerland, although they were actually printed in England. Another rumored possibility is that because Iraq did not have a history of inflation before the Gulf War, people thought the Iraqi dinar was “as solid as a Swiss franc.”

³⁶ To see how the implied conversion rate influences wages, assume two identical workers, one of whom lives in Baghdad and earns 100 Saddam dinars per hour, and another who lives in the north and earns 1 Swiss dinar an hour. Choosing a conversion rate of 1 new dinar = 1 Saddam dinar = 1/100 Swiss dinar would encourage the northern worker to multiply his wage by 100 and ask for 100 new dinars an hour, the same rate as the Baghdad worker. If a conversion rate more favorable to the north were chosen, say 1 new dinar = 1 Saddam dinar = 1/250 Swiss dinar, then the northern worker would be likely to ask for 250 new dinars per hour. The price of northern labor would be thus priced at a disadvantage relative to labor in Baghdad.

As shown in Figure 10, the Saddam/Swiss cross rate had been stable at about 100-to-1 for most of the previous five years, rising only in early 2002. Additionally, data gathered by the Coalition suggested that nominal wages for labor of various types differed by a factor of 80 to 130 across the two regions, not by a factor of 250. Hence, if the 1/250 rate were chosen, wages in the north were likely to be set at very high levels relative to wages in the south, at least until prices and wages had time to adjust. After extensive discussions that included Iraqi leaders in both parts of the country, it was decided to set the conversion rate at 1 Swiss dinar to 150 Saddam dinar.

Another matter to be decided was which currency would serve as the “numeraire” for the conversion. The agreed-upon conversion rate could be accomplished by making 1 new dinar = 1 Saddam dinar = 1/150 Swiss dinar, or by making 1 new dinar = 1 Swiss dinar = 150 Saddam dinar. A number of factors pointed to the second approach. First of all, this approach would simply require new Swiss dinars to be printed and distributed, and plates for these dinars were still available at the British printing house where they had last been used. Secondly, because the north had not suffered inflation, using Swiss dinars would lower the denomination of Iraq’s currency. This is standard practice in currency reforms that follow high-inflation regimes. Finally and perhaps most importantly, using the Swiss dinar plates absolved the Coalition from making the tricky political decision of what – or who – should appear on the new banknotes.

Unfortunately, the simple Swiss-dinar solution had a serious disadvantage. Spreading the Swiss dinar to the entire country meant the center and south – home to 87 percent of the population – would have to change their prices and wages. The associated “menu costs” incurred under a Swiss-dinar policy would therefore be much larger than the alternative of linking the new dinar one-to-one with the Saddam dinar.

The solution to this problem came from a visiting currency expert, who pointed out that technology existed to change the *denominations* on the Swiss dinar plates without affecting the *designs* on their faces. Post-inflation reforms typically lower denominations on banknotes, but here, the plan would be to raise the denominations on the Swiss dinar plates to match the price level in the largest part of the country.³⁷

³⁷ To prevent too much confusion with existing Swiss dinars, the new currency would also be printed with different colors than the existing currency. While only three denominations of Swiss dinars circulated

CPA Administrator L. Paul Bremer announced a banknote exchange along these lines on July 7, to begin on October 15 and run for three months. Figure 11 shows the associated response of exchange rates, according to data from the Central Bank. On May 5 (the earliest date for which daily official data are available), the exchange rate for the 250 was about 2,000 to the dollar while the rate for the 10,000 stood at more than 2,500. Both denominations had strengthened significantly since the immediate run-up to the war, when they had occasionally traded at more than 3,000 to the dollar, according to informal data from street trading.

The appreciation of the two dinars continued in May. In late June, the exchange rate for the 250 stabilized, but the 10,000-dinar note weakened, opening up an even larger gap between the two notes. This widening was especially worrisome, in light of the Coalition's decision in early June to print 250-dinar notes (Saddam's picture included) in an effort to reduce the discount.³⁸ Advisers had hoped that signaling their willingness to print the 250s would affect expectations over the future values of the two denominations and eliminate the discount. It didn't. By mid-July, the CPA had printed more than 20 billion dinar (\$13.3 million) in 250-dinar notes, but the discount on the 10,000 remained stubbornly large.

The 250/10,000 gap narrowed following the announcement of the banknote exchange on July 7, but remained positive for months, until a quick depreciation of the 250 note brought the smaller bill into line with the larger one in September. Since the currency conversion started on October 15, there has been no gap between the two Saddam dinars, which have traded at around 2,000 to the dollar. The exchange rate for the new dinar has been identical to the older notes.

The behavior of the Swiss dinar over this period is graphed in Figure 12. The most interesting feature of the chart is that the implied cross rate did not jump instantly to the stated 150-to-1 rate immediately after the July 7 announcement. While the rate approached 150 in mid-August, it diverged again before settling at the specified conversion rate as the banknote exchange began.

widely in the north, enough old plates existed to make six denominations of the new dinar. Anti-counterfeiting measures were also included on the new dinars.

³⁸ The 10,000s exchanged for the new 250s would be retired from circulation, so that the monetary base would not be affected.

Reopening trade: The tariff holiday

After more than a decade of sanctions and limited trade under oil-for-food, Iraqis were starved for imports as the reconstruction began. On June 8, the CPA announced a “tariff holiday,” eliminating any tariffs, customs duties, licensing requirements, or other barriers to trade until December 31. The private market responded immediately. Trucks brought goods from Jordan, Syria and other neighboring countries into Iraq’s stores, street markets, and roadside stands. Demand was especially high for goods that had been prohibited by the previous regime, such as satellite dishes.

Prices of relatively expensive imports, such as home appliances, were often quoted in dollars. And for the first time in years, Iraqis had dollars to spend. The decision to pay public-sector salaries in dollars starting in May put more than \$100 million into the pockets of public sector workers every month. Iraqis who worked directly for the reconstruction effort (translating documents, working construction jobs, cleaning irrigation canals, etc.) also received dollar salaries as well.

The decline in the dollar relative to the dinar in April and May led to some concern that the dollar would continue to fall as more dollars were dropped on the economy during the summer. Had the dollar continued to fall, public-sector workers would have received pay cuts if their salaries did not rise in dollar terms.

Looking back, the fact that the dollar *appreciated* in the summer of 2003 instead suggests that the dollars dropped on Iraq did what theory predicts: They left the country. An Iraqi holding a dollar that is able to fewer domestically produced, dinar-denominated goods has a strong incentive to spend it on imported goods instead.

The tariff holiday also helped keep inflation down. Countrywide price measurement ceased in March due to the war, but the Ministry of Planning was able to construct its CPI for Baghdad starting in July. Traditionally, Iraq’s CPI has had a pronounced seasonal component, because more than 60 percent of the market basket was for food.³⁹ In particular, the Baghdad CPI had fallen by an average of seven percent between February and July in 2000-2002, rising in later months to account for the positive inflation rate. In 2003, the Baghdad index rose by only one percent from

³⁹The country’s headline CPI was not seasonally adjusted.

February to July, suggesting that recent economic upheavals had not affected prices very much.

Looking beyond the headline number tells a different story. Figure 13 graphs the changes in each of the Baghdad CPI's nine major components along with that of the aggregate index for the city. The salient feature of this graph is the 356% percent increase in the cost of fuel and electricity. This increase was driven by the jump in the black-market price of gasoline, which is included in the CPI. Disruptions to Iraq's refineries and gasoline distribution system meant that refined fuel products were in short supply in the immediate aftermath of the war. Because gasoline was priced at state-sponsored gas stations at a constant 20 dinars per liter, the supply squeeze resulted in long lines at these stations and a skyrocketing black-market price.⁴⁰ (Black-market prices would fall sharply as the supply of gasoline increased over the course of the summer.)

The other components of the CPI suggest the importance of the tariff holiday. Price declines of 30-40 percent were registered for most tradable components of the index CPI (e.g., clothing, furniture, and tobacco and alcohol), while non-tradables like rent rose in price. This pattern is good news for the country in coming months if the fuel situation remains under control. All in all, the price data give no indication that inflationary pressures were building up in the country as of the middle of the year.

Imposing budget constraints on state-owned enterprises

As noted above, Iraq had traditionally attempted to diversify its economy through state-sponsored industrial projects that relied heavily on foreign technology. Because these projects did not face the logic of the market, they were rarely efficient. Like many other countries that followed a government-centered development strategy, Iraq's industrial landscape is littered with inefficient state-owned enterprises (SOEs) that had lived off subsidies from the central government. In 2003, these SOEs employed nearly 500,000 people.

One of the central challenges of transitioning to a market economic is imposing discipline on these firms, which drain resources from the national budget and inhibit

⁴⁰ Breakdowns in the electricity sector are unlikely to have contributed to the increase in the energy index to the same extent. Electricity is supplied by the government, and while the quantity of electricity change, its price did not.

private-sector growth. In Iraq, this challenge was complicated by the number of unique factors.

First was Iraq's government accounting conventions, which convinced many SOE managers they were making money. Imported inputs were hard to come by, even under oil-for-food. Yet the government typically billed these inputs at the fictitious official exchange rate, which overvalued the dinar and thereby underestimated the true cost of imported goods. The implicit subsidy to imported inputs came on top of the subsidies for electricity and other fuel inputs produced domestically. Sometimes, the government would awarded oil-for-food financed imports to an SOEs for no consideration at all. The imported goods (cars, for example) could then be resold to people held in favor by the ruling party at very low prices. Since the importing SOE had not paid for the goods in the first place, whatever revenues it received from the transaction were booked as profit. Such profit often entitled SOE managers to large bonuses that exceeded their official salaries.

A second, related factor complicating SOE reform is that the SOEs were crippled by the general reduction in imported inputs during the previous 13 years. By importing industrial projects that relied heavily on foreign technology, Iraqi development planners built Iraq's industry around the importation of foreign raw materials. Examples included the television plant that received 95 percent of its inputs from abroad, and the truck plant that imported both the chassis and the body of the trucks, then merely bolted them together.

One longtime Ministry of Planning official told of research he had done privately, which found that the dependence on foreign inputs helped limit Iraqi industry to only 70 percent utilization rate even in the 1970s. Utilization declined gradually during the Iran-Iraq war, the official said, then crashed to an average of around 40 percent in the 1990s as the supply of inputs dried up.

The SOEs' close relation to the government was a third factor that made reform difficult. SOEs had atrophied in recent years by the reorientation of production and economic activity to military ends. Many workers and engineers had left for military jobs. The quality of those that remained at the top of the industrial hierarchy declined. Some firms sold exclusively to the government, developing no experience in marketing

or sales. An example was the Persian rug company that devoted 100 percent of its production to outfitting Saddam Hussein's personal palaces.

While misleading accounting conventions, a high sensitivity to imported inputs, and the past dependence of SOEs on the government made reform more difficult, the Coalition did have a major advantage. Namely, it held a wide-ranging authority to implement needed changes that other reformist governments have lacked. The best illustration of this authority was the Coalition's decision to cancel inter-SOE debt, including the deposits of the SOEs at the state-owned banks. This decision prevented the SOEs from wasting government resources by emptying their bank accounts in last-ditch efforts to become profitable.

The decision also forced SOE managers into a brave new financial world on April 9. Infusions of working capital could not be withdrawn from bank accounts, but instead were supplied to SOEs under the close supervision of CPA officials as part of Iraq's budget process. Of course, the need for working capital was significantly reduced by the Coalition's decision to pay SOE salaries through the end of 2003.

Not all SOEs were adversely affected by deposits freeze and debt cancellation. The biggest winners were firms that had ordered large amounts of raw materials from other SOEs, but had yet to pay for them. Regardless of their working capital positions on April 9, however, each SOE was still required to meet any obligations it had incurred to the private sector before that date.

Constructing government budgets for 2003:H2 and 2004

Saddam Hussein never produced a public budget. In addition to being secret, budget practice under Iraq's previous government was bifurcated into the construction of a "current" budget and an "investment" budget, prepared in isolation by different government ministries. In June, the CPA began preparing a budget for the second-half of 2003, using existing procedures for the current budget overseen by the Ministry of Finance. Each of the 27 major governmental units⁴¹ drew up its budget with the help of a senior adviser from the CPA. The budget was then presented to the CPA's Office of Management and Budget, the Ministry of Finance, and the Ministry of Planning for

⁴¹ These units included the 21 ministries as well as various commissions, the Board of Supreme Audit, etc.

approval. The final stamp came from CPA Administer Bremer, who announced the new budget on July 7, the same day as the announcement of the currency exchange.⁴²

The 2003:H2 budget was calculated on a dollar basis. It called for total expenditures of \$6.1 billion, including improvements in the electrical system (\$294 million), security and justice (\$233 million), and public health (\$211 million). Revenues were forecast at \$3.9 billion, due mostly to the \$3.5 billion of expected oil receipts. The \$2.2 billion deficit was to be made up with refunds from unspent receipts from the oil-for-food program, the vested assets in the FRBNY account, and about \$825 million in assets of the former regime that had been seized during the war.

Executing the 2003:H2 budget presented a number of challenges. The need to draw up a budget quickly meant that the various ministries and other governmental units had not had time to draw up spending plans for the money they would receive. Additionally, in order to better monitor spending by the ministries, the CPA consolidated nearly 4,000 ministry bank accounts into one account for each ministry. Finally, although the government's previous system for devising the budget had generally been followed, there still needed to be clear audit trails and internal controls for every dinar spent. Reestablishing these safeguards under the CPA took time.

The 2004 budget was released in October and included projections through 2006. Table 2 lists revenues and expenditures for the budget window, including revised numbers for the second half of 2003.⁴³ Budget deficits are expected to persist through 2004, with the shortfall of \$590.9 million to be covered by the return of unspent oil-for-food funds. The 2004 budget process identified "very substantial" reconstruction needs that could not be covered by Iraqi government revenues. These needs were set before donors at the Madrid conference in late October, along with those identified by the joint needs assessments of the World Bank/UN teams.

Reopening banks and encouraging lending

⁴² The third major announcement that came on July 7 was that the Central Bank of Iraq (CBI) would subsequently be independent of the Ministry of Finance. Their relationship had been ambiguous under the previous regime's laws; in practice, the CBI was completely subservient to the finance ministry.

⁴³ The major revision concerns revenues, which are about \$724 million lower due to lower-than-expected oil revenues.

Iraq's banking system is dominated by the two state-owned banks, Rafidain and Rasheed. In practice, however, some degree of specialization developed between the two banks, with Rafidain concentrating in international banking and Rasheed focusing on the domestic economy. Together, they held about \$2 billion in assets, constituting about 90 percent of total banking sector assets (Taylor, 2003c). Rounding out the banking system are four much smaller specialized banks (real estate lending, agricultural lending, etc.), and 17 private banks. The largest of the private banks had about \$1 million in capital (Taylor, 2003c).

Rafidain and Rasheed maintained an extensive branch system, with more than 340 offices around the country servicing a total of about 1.7 million accounts (UN/World Bank, 2003c). Each of these branches operated essentially as a self-standing, "unit bank," making loans within small limits approved by home offices in Baghdad.

The bank branches came under extensive pressure during the looting that immediately followed the war. Some bank managers displayed no small amount of heroism during this period, trying to save the assets and records of the banks from being destroyed or stolen. Looters also attacked the Central Bank of Iraq's main building, gutting it completely and firing a rocket-propelled grenade at one of the vault doors. (It held.)

A major task in the opening months of the reconstruction was reopening bank branches. In mid-May, only about 15 branches were functioning. Opening other ones typically required the physical movement of currency to a branch, an exercise that required military support. In general, reconstruction of the banking system was complicated by its unit-bank nature. The branches had operated semi-autonomously before the war, and the lack of communications networks increased the branches isolation after the war.

Even so, reopening of the banks had largely been accomplished by the middle of the summer. By the end of June, the number of Rasheed and Rafidain bank branches that were open had risen to about 238. By the middle of July, all of Rasheed and Rafidain's customers in Baghdad could be serviced somewhere, though not necessarily at their previous branches (if they had been looted or destroyed).

Later in the summer, attention focused on encouraging Rafidain and Rasheed to lend again. Credit committees at the banks' central offices were encouraged to lend (in dollars) up to \$50,000 for small business projects. Additionally, "micro-lending" credit facilities were planned, with the first project, overseen by CHF International, covering the part of the country south of Baghdad. Other projects would extend micro-lending over the rest of the country through the end of the year.

4. Economic policies for growth (to be developed at the seminar)

- Central Bank independence
- Low individual and corporate taxes
- Legal reform
- Liberal foreign investment regime
- Foreign banks

5. Conclusions: Current outstanding issues (to be developed at the seminar)

- Course of price liberalization
- Monetary policy regime
- Role of foreign investment in the oil industry

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Table 1: Economically Active Population 10 and Over: Males and Females

Activity	Urban		Rural		Total	
	Number	Share	Number	Share	Number	Share
Unemployed	494,609	15.4	287,561	18.0	782,170	16.3
Unknown	8,135	0.3	3,874	0.2	12,009	0.2
Organizations & commissions	1,395	0.0	54	0.0	1,449	0.0
Household (includes users)	8,237	0.3	1,043	0.1	9,280	0.2
Personal and social services	63,495	2.0	10,375	0.7	73,870	1.5
Health and social services	71,777	2.2	9,061	0.6	80,838	1.7
Education	256,731	8.0	41,111	2.6	297,842	6.2
Administration and social security	682,169	21.2	227,252	14.3	909,421	18.9
Commercial projects	22,136	0.7	1,906	0.1	24,042	0.5
Finance	15,665	0.5	501	0.0	16,166	0.3
Transport, communications and storage	219,897	6.8	53,234	3.3	273,131	5.7
Hotels and restaurants	39,696	1.2	2,029	0.1	41,725	0.9
Wholesale and retail trade	785,247	24.4	76,160	4.8	861,407	17.9
Construction	183,415	5.7	34,630	2.2	218,045	4.5
Electricity, water and gas	22,919	0.7	5,348	0.3	28,267	0.6
Manufacturing	192,269	6.0	26,900	1.7	219,169	4.6
Mining and Quarrying	25,638	0.8	5,184	0.3	30,822	0.6
Fisheries	12,093	0.4	12,497	0.8	24,590	0.5
Agriculture, hunting and forestry	114,367	3.6	794,735	49.9	909,102	18.9
Total Economically Active Population	3,219,890	100.0	1,593,455	100.0	4,813,345	100.0
Population	12,945,776		6,238,767		19,184,543	
Aged 0	429,311		268,722		698,033	
Aged 1-4	1,574,169		944,845		2,519,014	
Aged 5-9	1,867,989		986,443		2,854,432	
Aged 10 and over	9,074,307		4,038,757		13,113,064	
Participation Rate	35.5		39.5		36.7	

Source: 2001 Annual Abstract of Statistics

Figure 1a: Male Labor Market Activity in Baghdad, September 2003

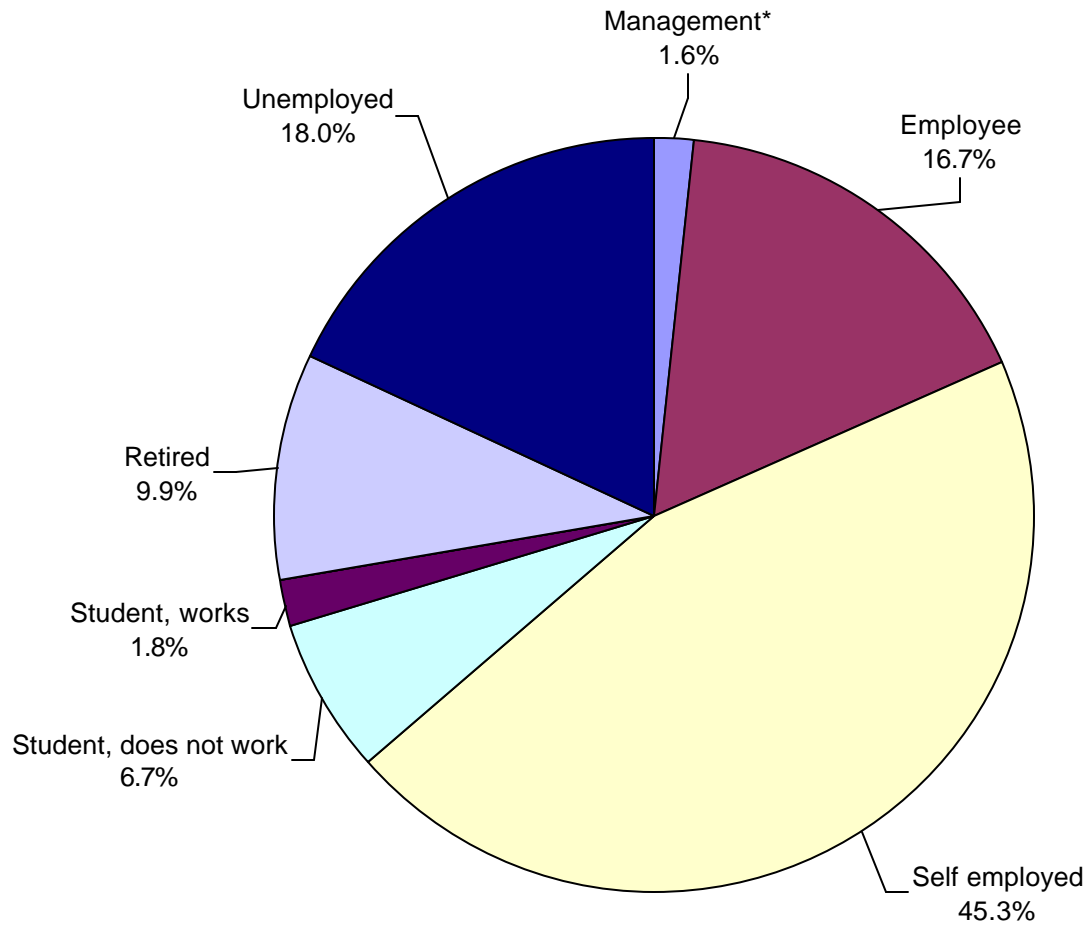


Figure 1b: Female Labor Market Activity in Baghdad, September 2003

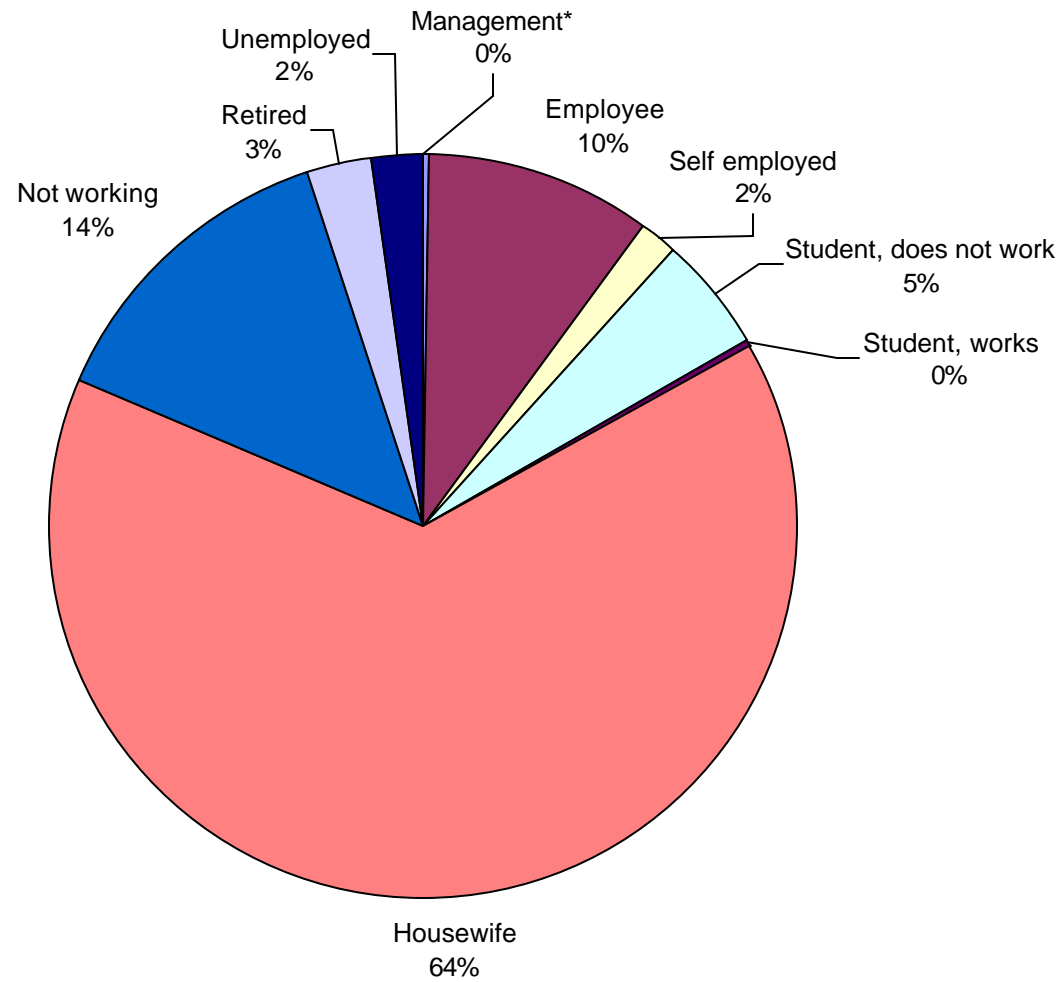


Figure 2: Real Non-Oil Per Capita GDP (1968-2001)

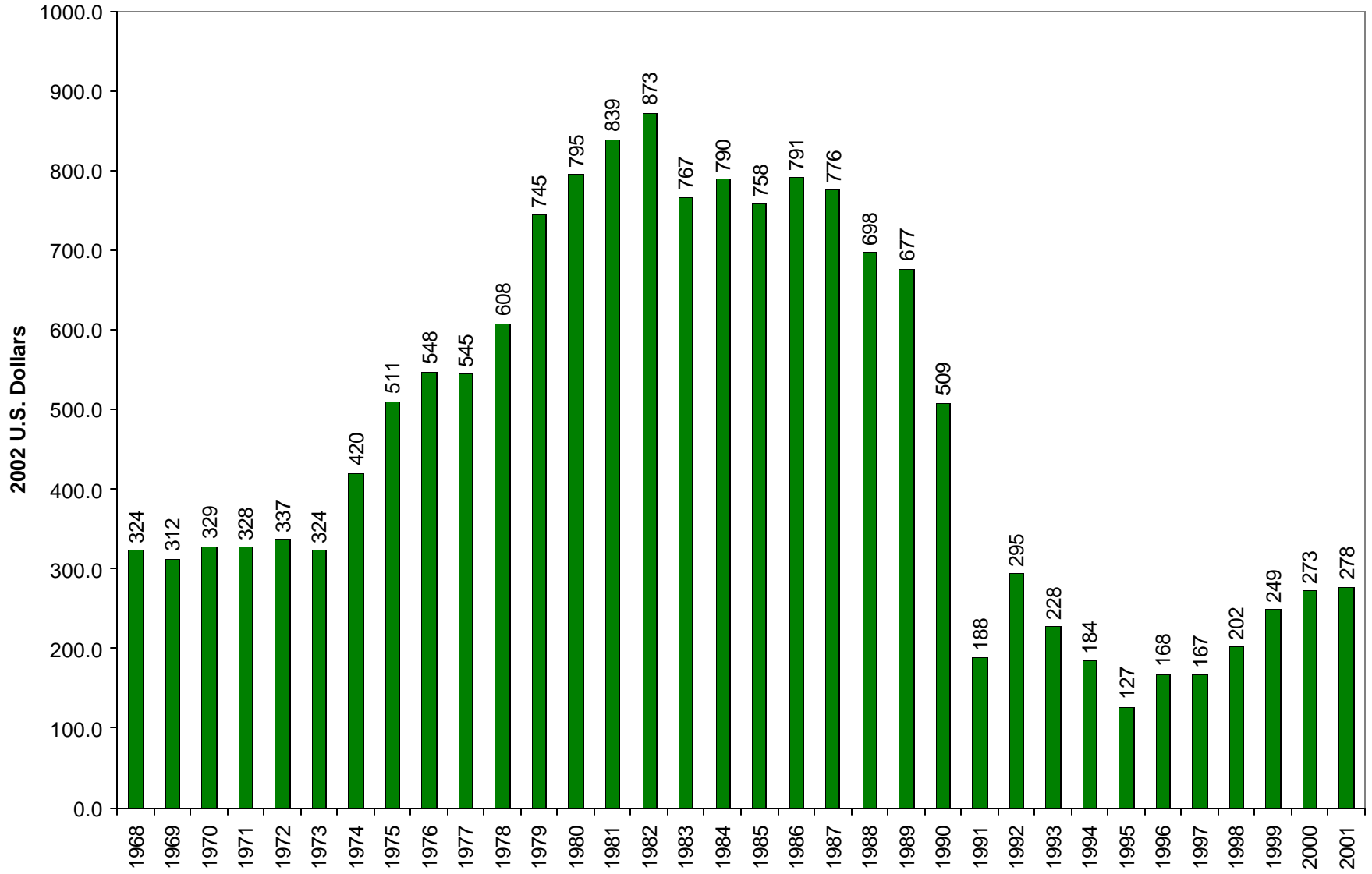


Figure 3: Monthly Oil Production in Iraq (1973-2003)

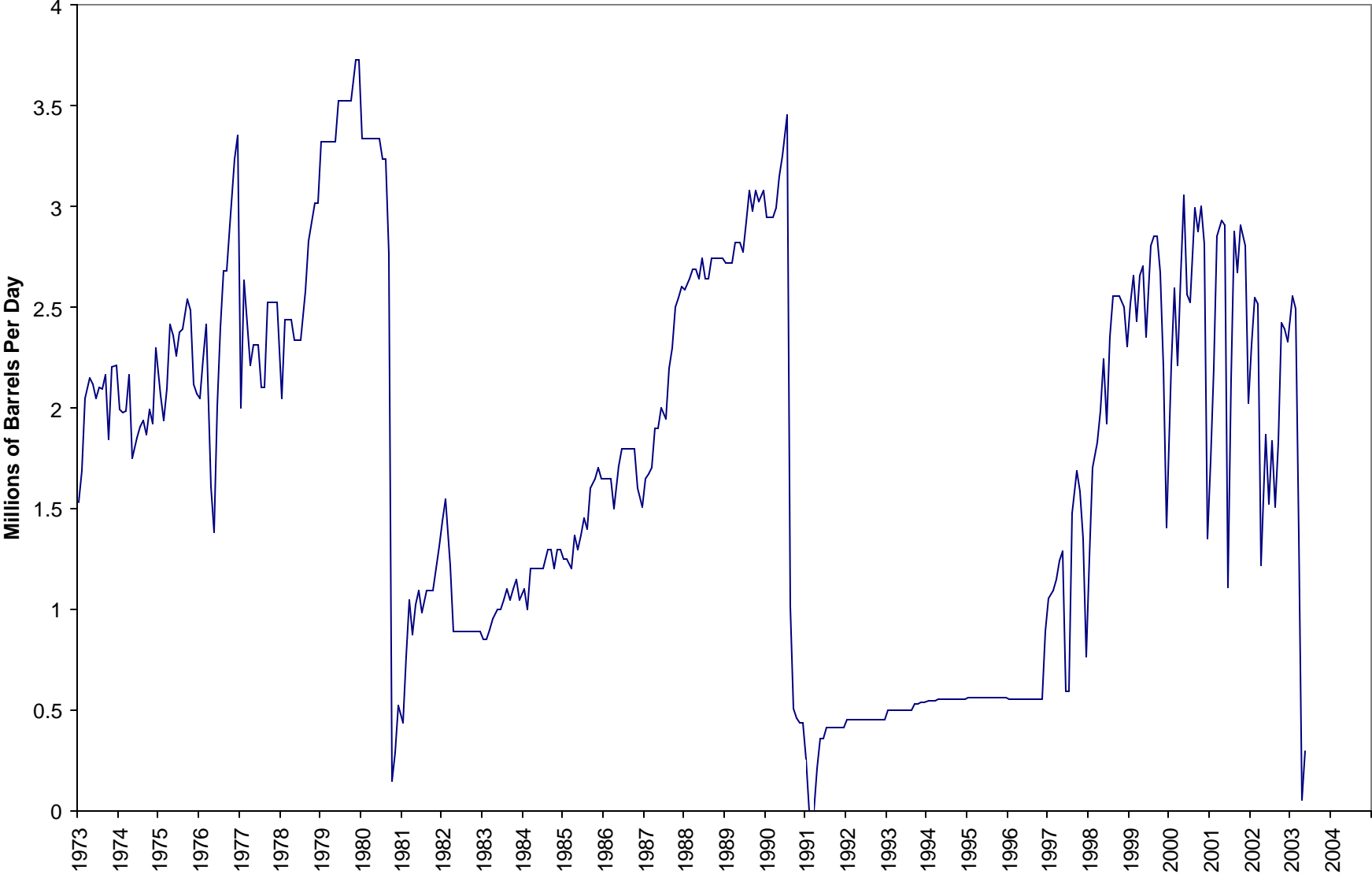


Figure 4: Real Per Capita GDP (1968-2001)

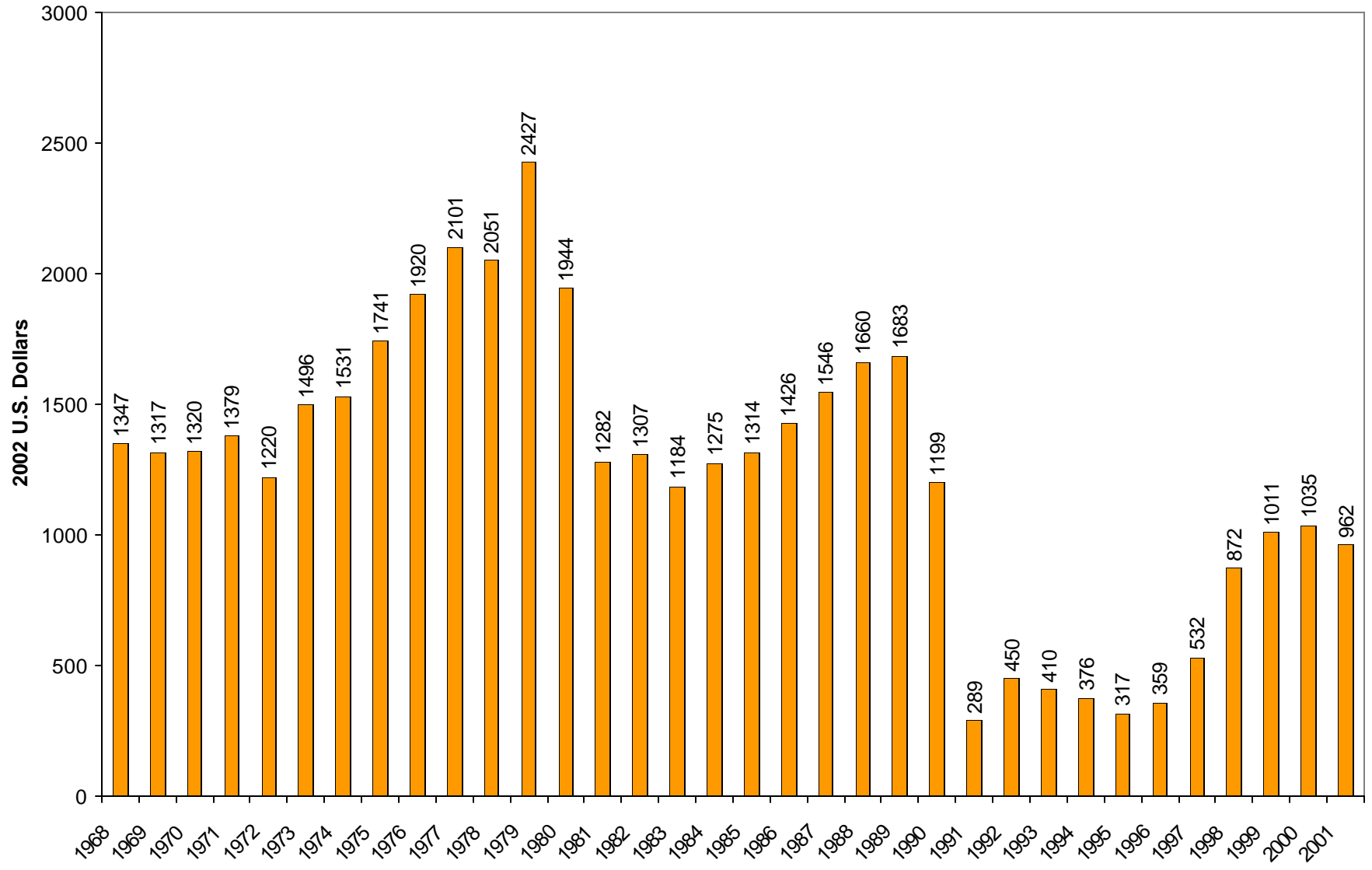


Figure 5: Real Value of Oil Export Revenues Per Capita (1970-2002)

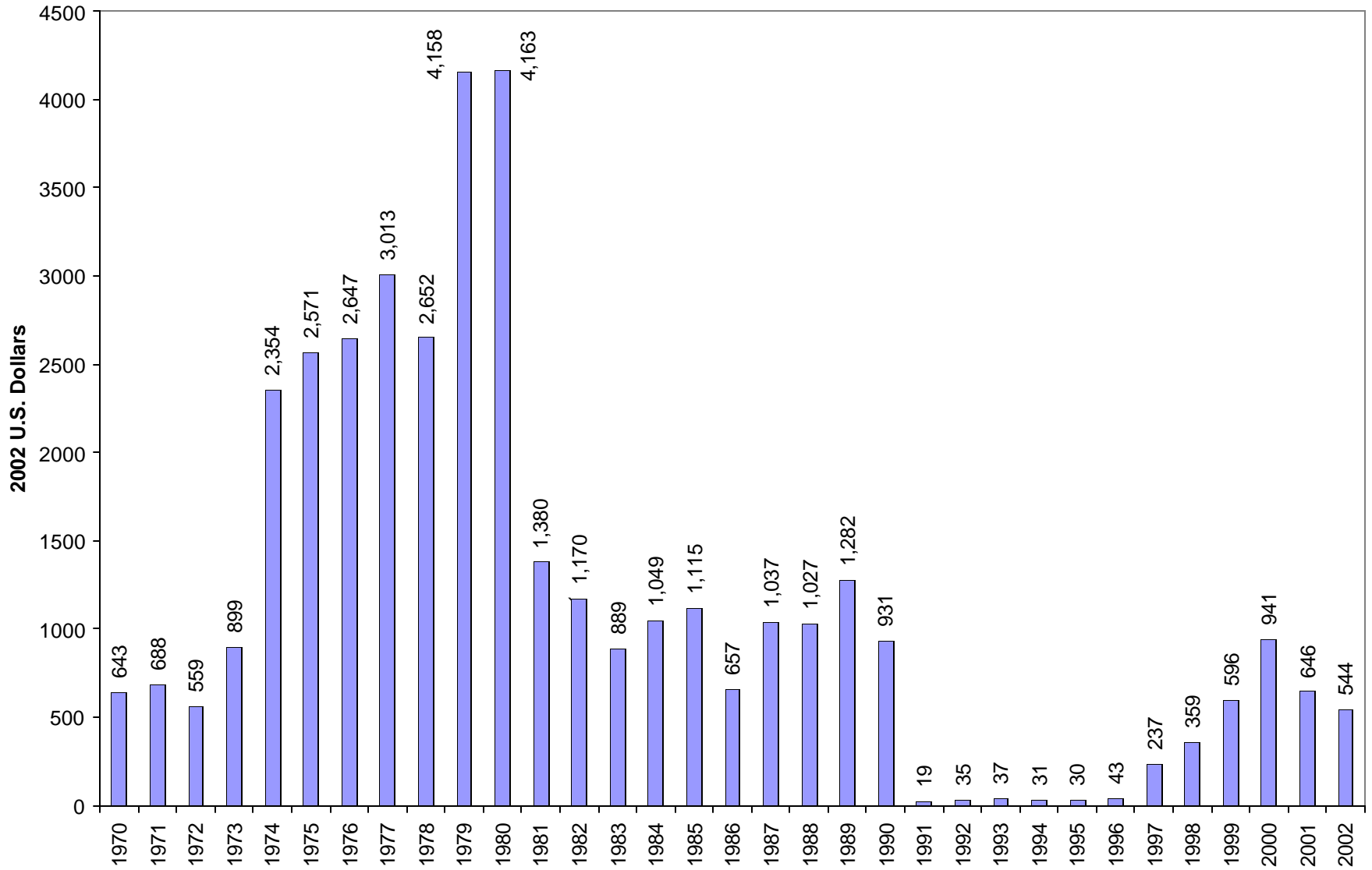


Figure 6: Gross Capital Formation (1980-2001)

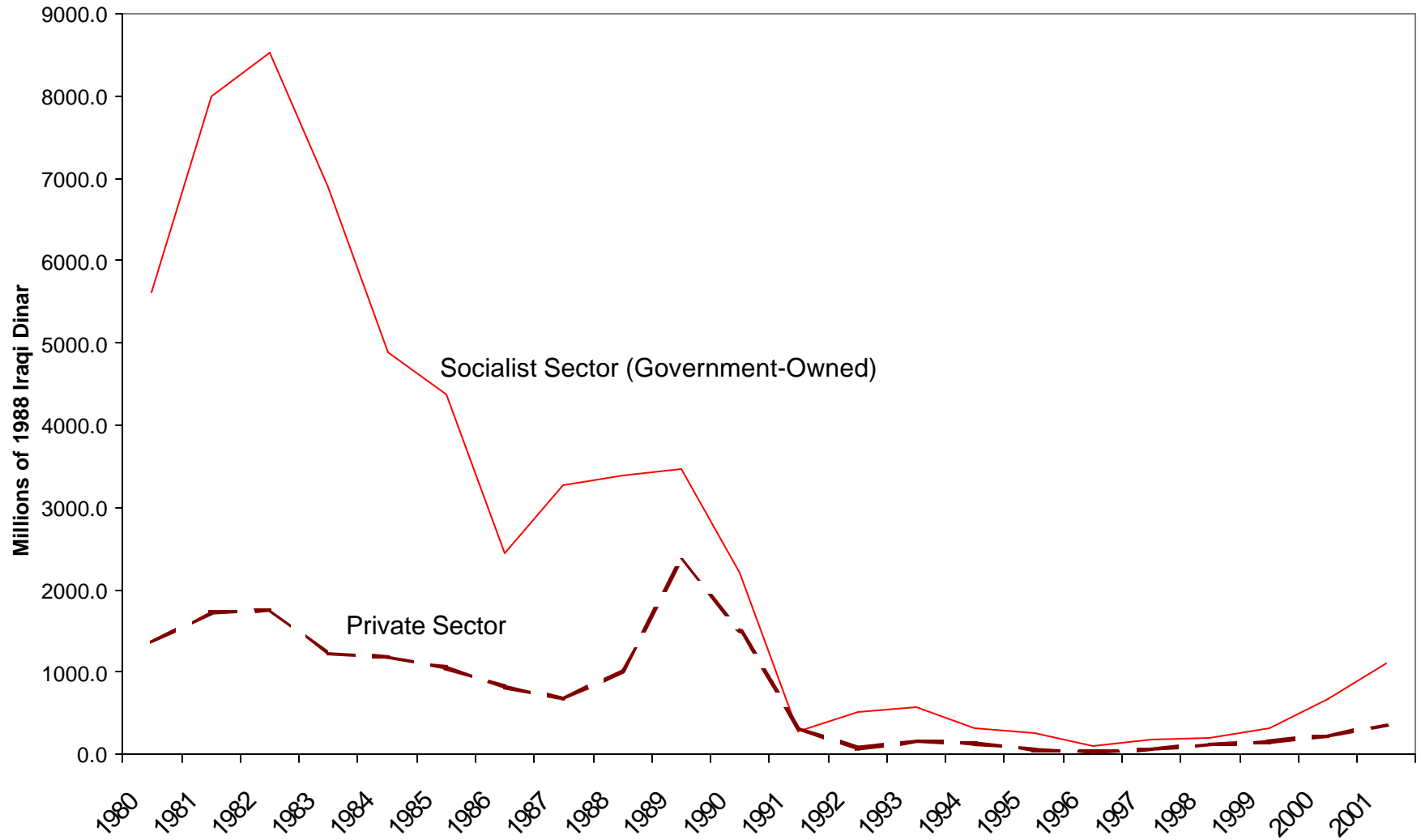


Figure 7: Growth Rates for Prices and Money (1989-2002)

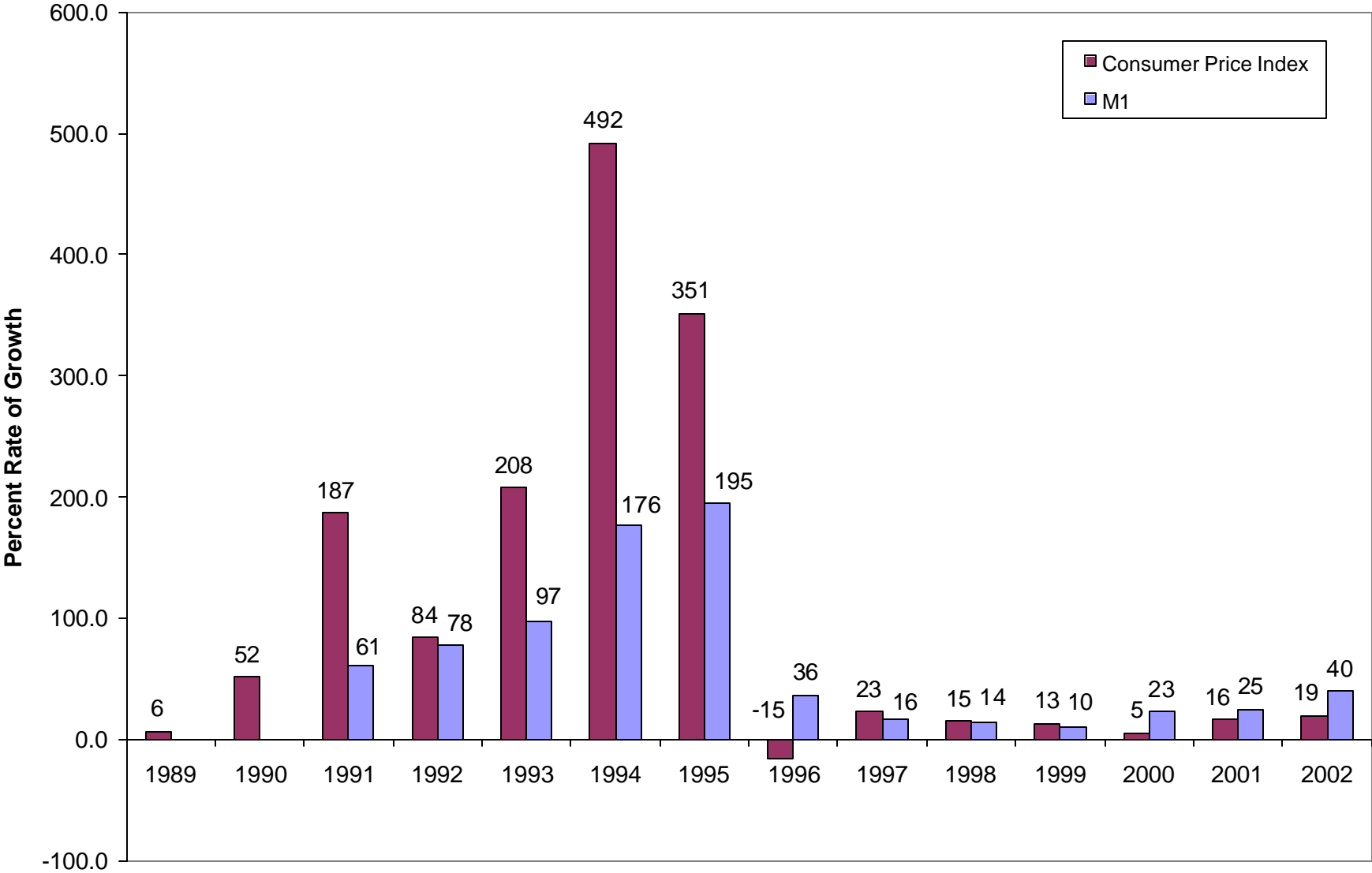


Figure 8: Behavior of Relative Prices (1990-2002)

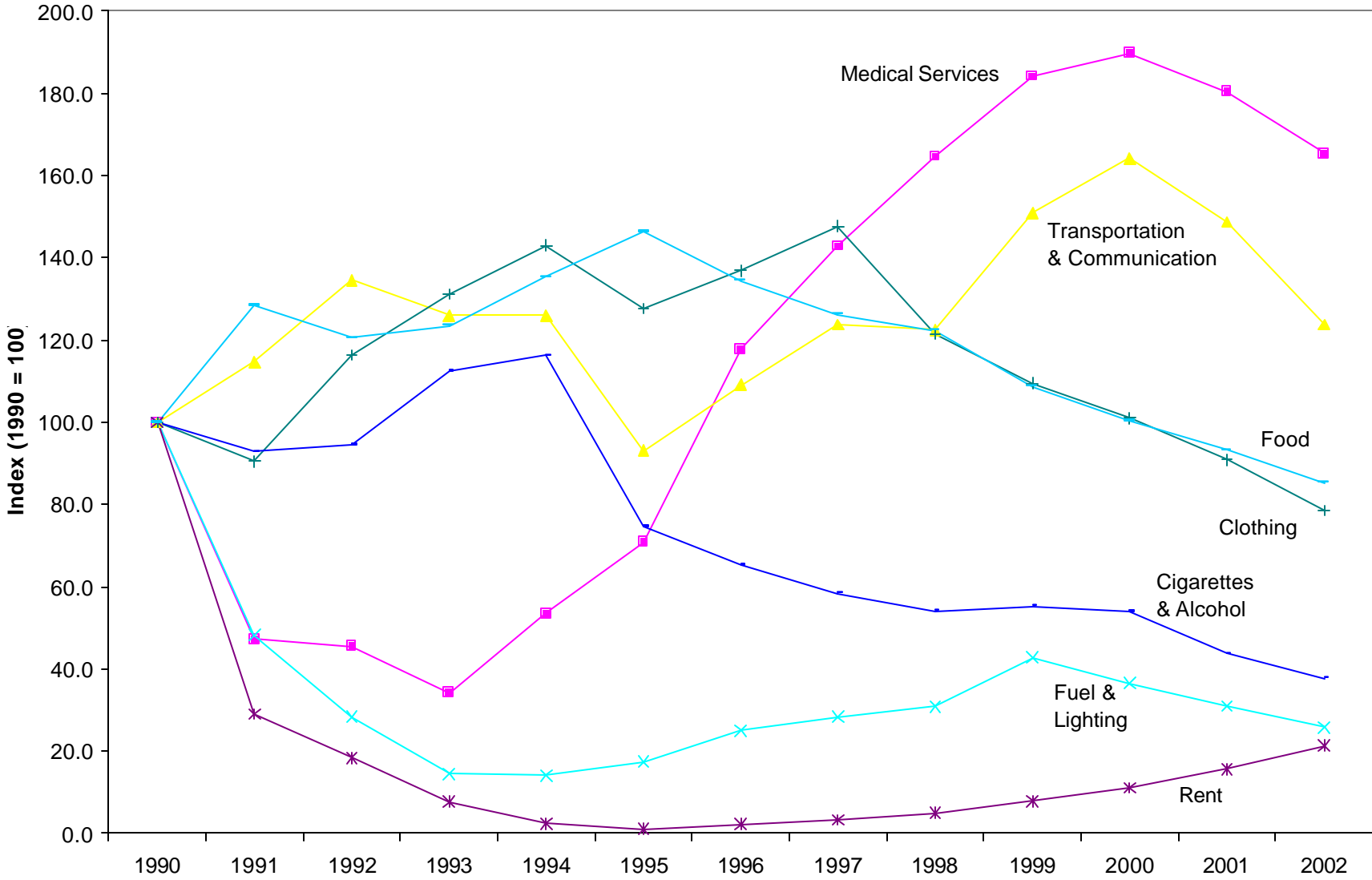


Figure 9: Swiss Dinar Exchange Rate (Jan 2002 - October 2003)

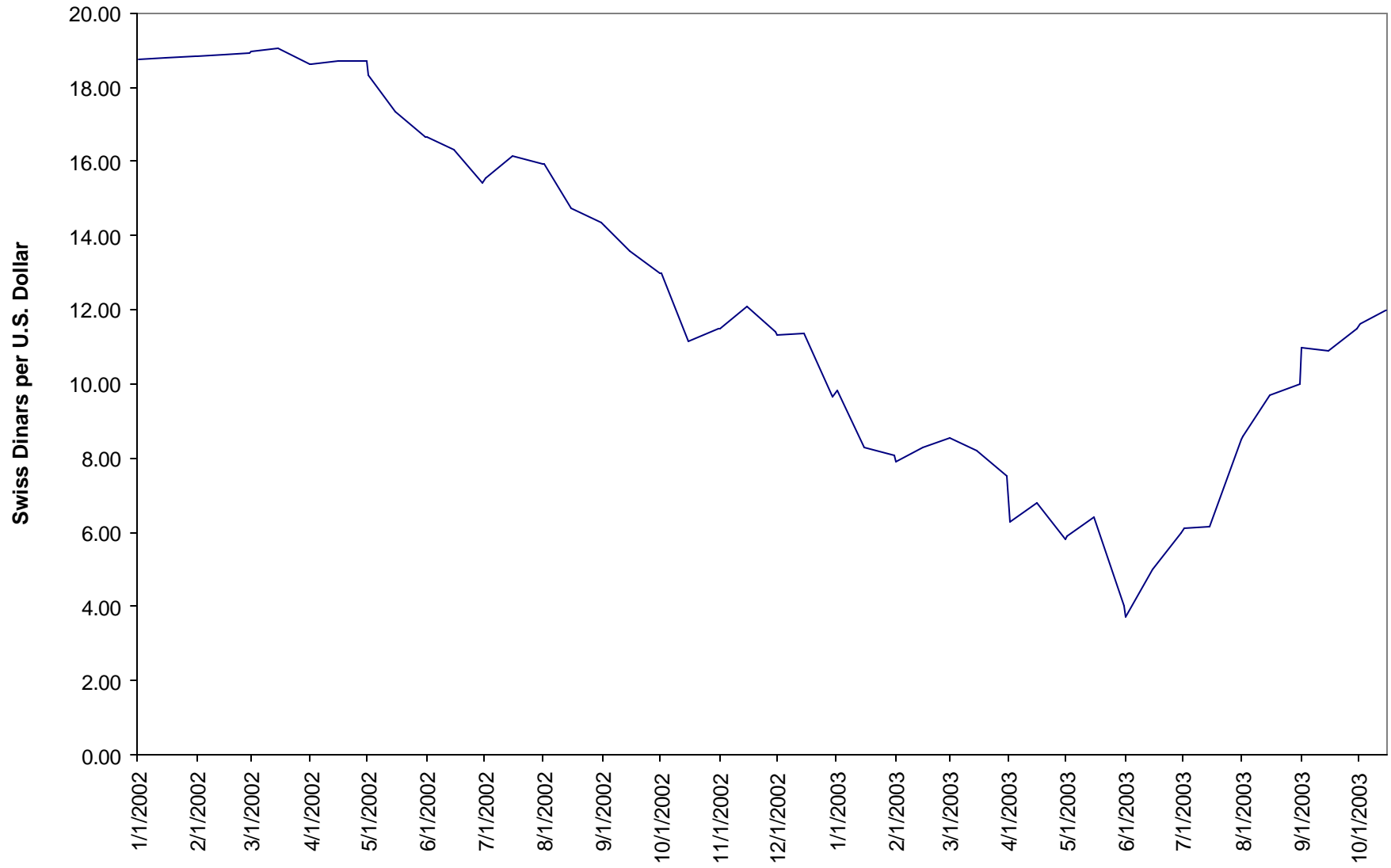


Figure 10: Implied Exchange Rate for Saddam Dinar/Swiss Dinar

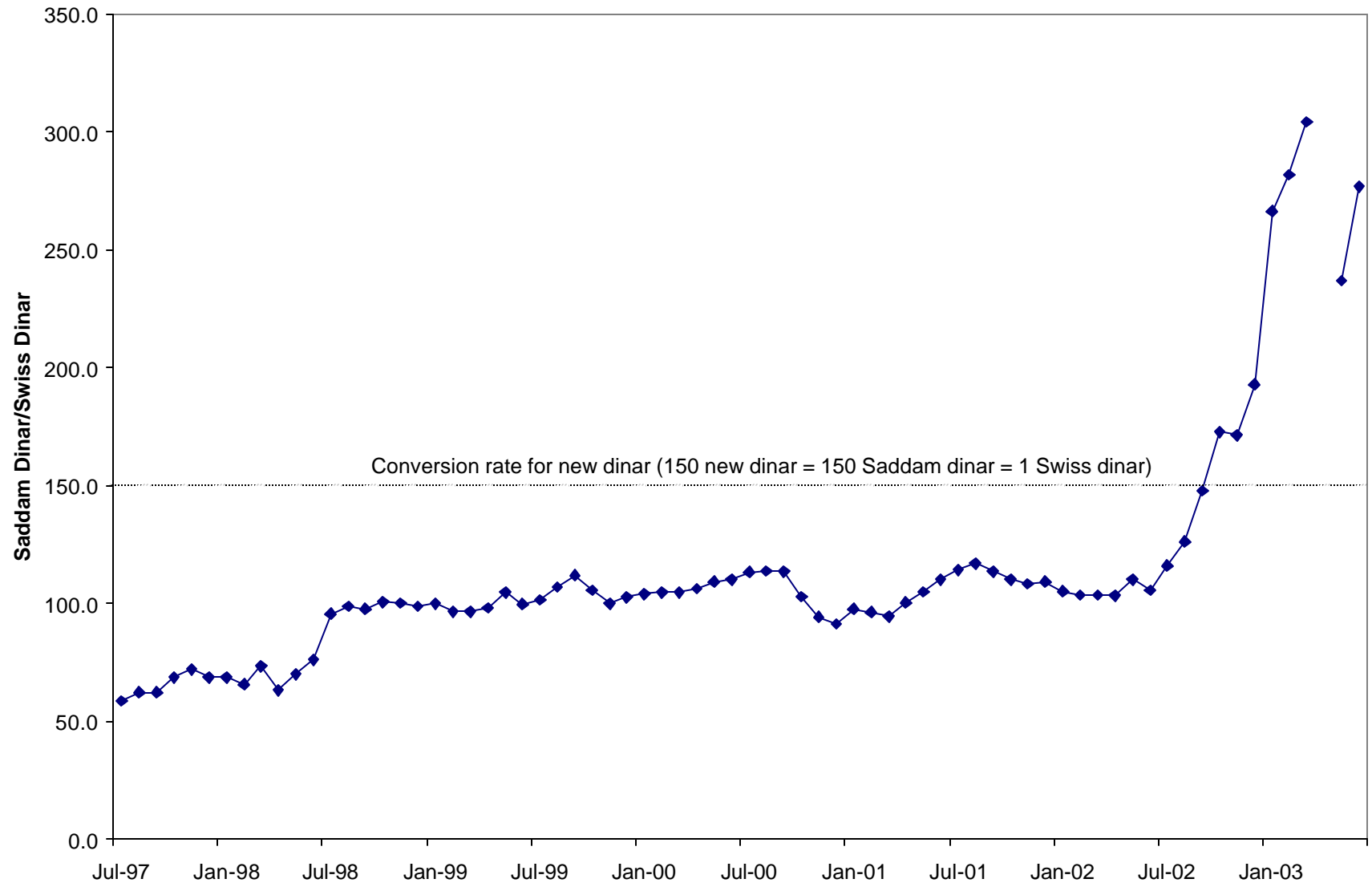


Figure 11: Exchange Rates for the Iraqi Dinar

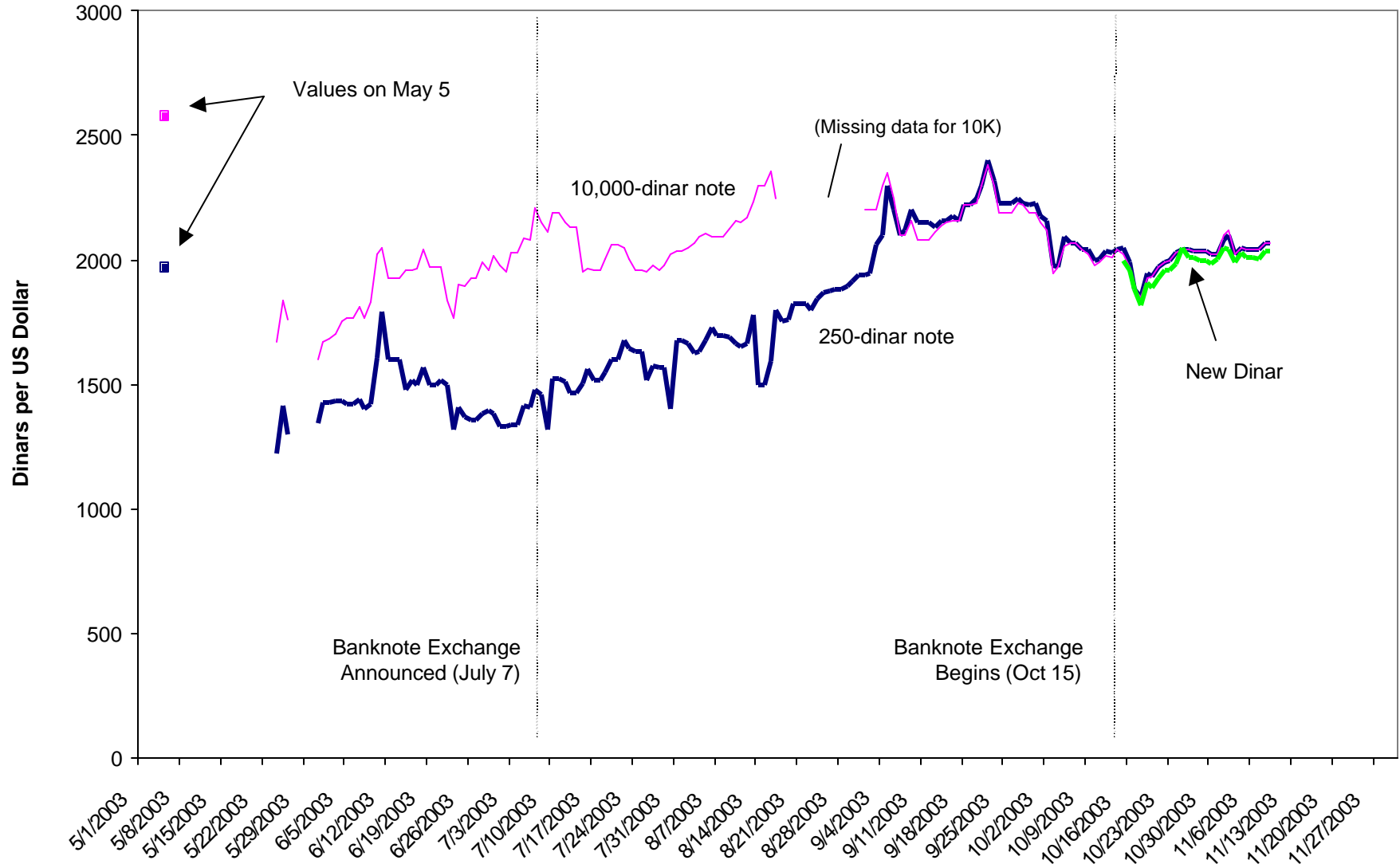


Figure 12: Saddam Swiss Cross Rate (July-October 2003)

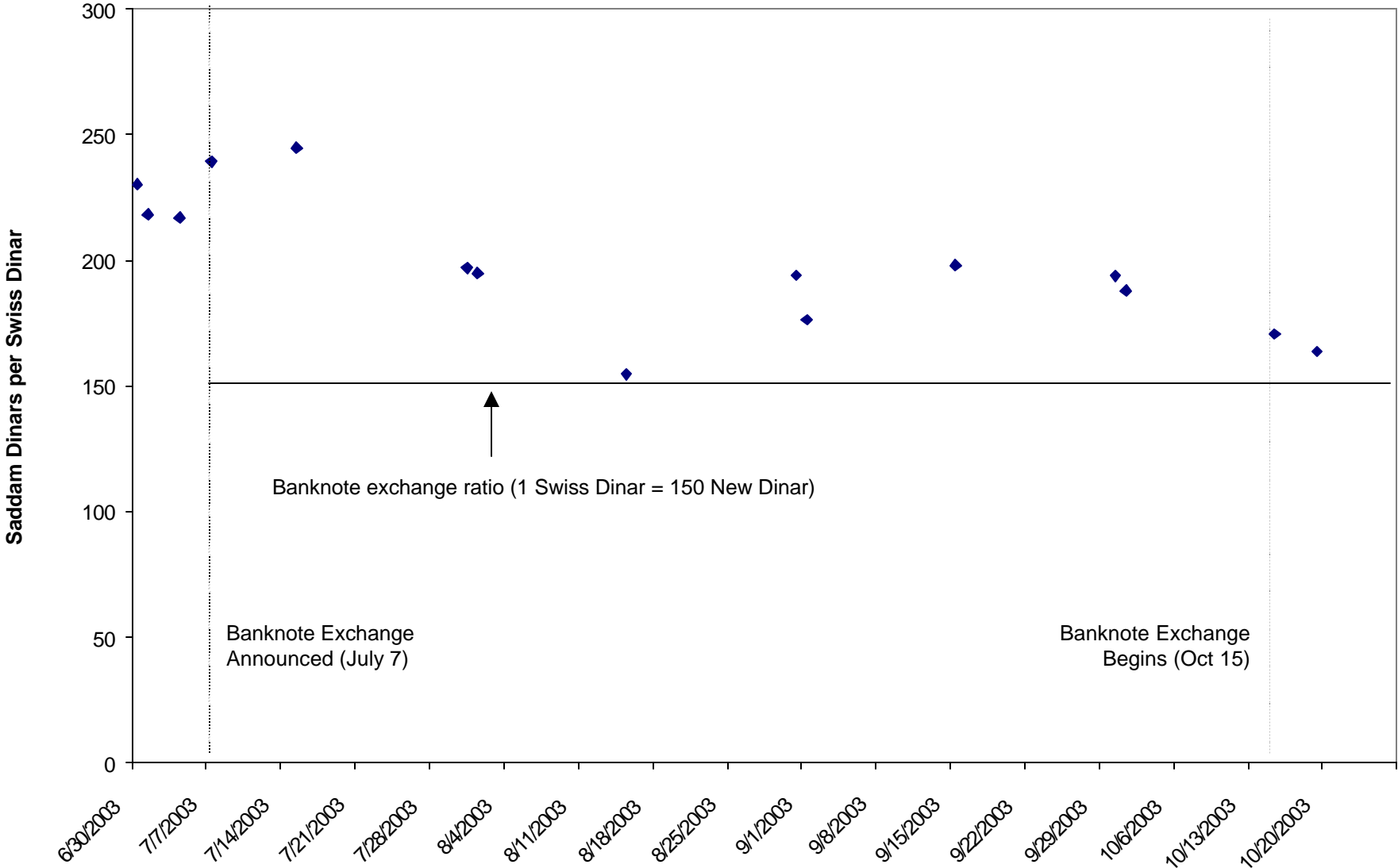
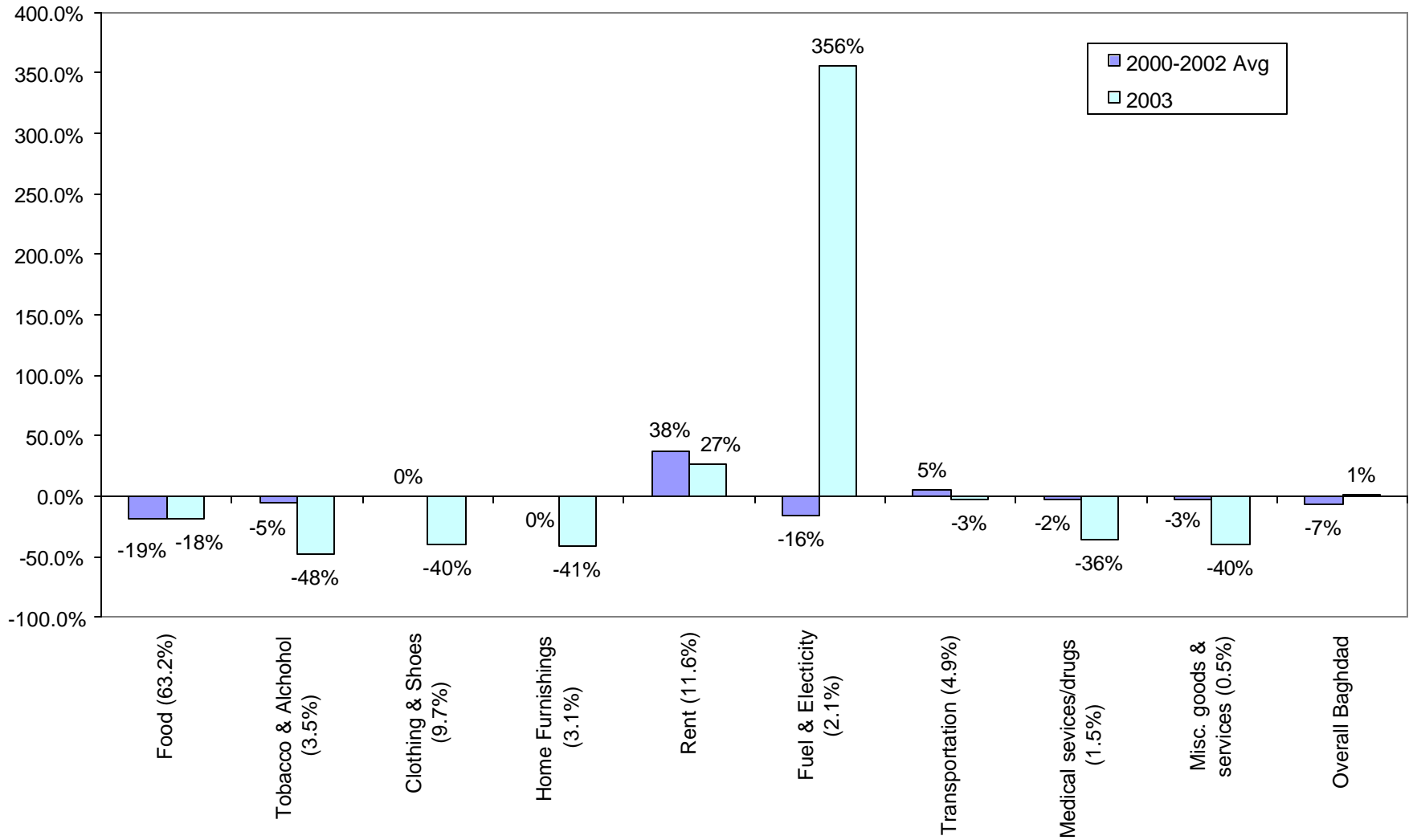


Figure 13: February-July Changes in Baghdad CPI (2000-2002 Average vs. 2003)



Note: Values in parentheses are shares of the individual component in the overall index.

Table 2: 2004 Budget (in million US dollars)

	2003:H2	2004	2005	2006
Revenues				
Oil	2,731.0	12,000.0	18,500.0	19,300.0
Customs Duty	--	300.0	350.0	--
Income Tax	--	30.0	80.0	160.0
Returns from SOEs	225.0	375.0	95.0	100.0
User Fees and Charges	57.0	64.2	88.3	123.4
Other taxes and income	51.0	70.0	70.0	80.0
Total Revenues	3,064.0	12,839.2	19,183.3	19,763.4
Expenditures				
Operating Expenditure	4,908.2	12,684.5	14,079.5	14,309.2
Capital Projects	1,246.6	745.6	5,091.0	5,436.0
Total Expenditures	6,154.8	13,430.1	19,170.5	19,745.2
Budget Balance	-3,090.8	-590.9	12.9	18.2

Note: All figures are derived from dinar totals published in the official 2004 Budget, assuming a dinar-dollar exchange rate of 1,500 to 1. Figures for 2003 cover July-December only and are revised from original 2003:H2 budget published on July 7.

Appendix Table 1: Economically Active Population 10 and Over: Males

Activity	Urban		Rural		Total	
	Number	Share	Number	Share	Number	Share
Unemployed	485,685	17.0	284,402	19.6	770,087	17.9
Unknown	4,684	0.2	1,811	0.1	6,495	0.2
Organizations & commissions out of the city	1,101	0.0	53	0.0	1,154	0.0
Household (includes users)	7,338	0.3	1,004	0.1	8,342	0.2
Personal and social services	53,781	1.9	9,756	0.7	63,537	1.5
Health and social services	42,063	1.5	7,695	0.5	49,758	1.2
Education	82,236	2.9	28,632	2.0	110,868	2.6
Administration and social security	641,362	22.4	224,934	15.5	866,296	20.1
Praedial activities and commercial projects	19,616	0.7	1,797	0.1	21,413	0.5
Finance	4,422	0.2	319	0.0	4,741	0.1
Transport, communcations and storage	211,867	7.4	52,871	3.6	264,738	6.1
Hotels and restaurants	38,712	1.4	2,005	0.1	40,717	0.9
Wholesale and retail trade	764,902	26.7	74,022	5.1	838,924	19.4
Construction	180,700	6.3	34,424	2.4	215,124	5.0
Electricity, water and gas	19,146	0.7	5,126	0.4	24,272	0.6
Manufacturing	165,011	5.8	22,232	1.5	187,243	4.3
Mining and Quarrying	22,413	0.8	4,876	0.3	27,289	0.6
Fisheries	11,748	0.4	12,297	0.8	24,045	0.6
Agriculture, hunting and forestry	104,176	3.6	684,714	47.1	788,890	18.3
Total Economically Active Population	2,860,963	100.0	1,452,970	100.0	4,313,933	100.0
Population	6,466,325		3,070,245		9,536,570	
Aged 0	218,002		136,378		354,380	
Aged 1-4	793,390		475,819		1,269,209	
Aged 5-9	949,157		502,873		1,452,030	
Aged 10 and over	4,505,776		1,955,175		6,460,951	
Participation Rate	63.5		74.3		66.8	

Source: 2001 Annual Abstract of Statistics

Appendix Table 2: Economically Active Population 10 and Over: Females

Activity	Urban		Rural		Total	
	Number	Share	Number	Share	Number	Share
Unemployed	8,924	2.5	3,159	2.2	12,083	2.4
Unknown	3,451	1.0	2,063	1.5	5,514	1.1
Organizations & commissions	294	0.1	1	0.0	295	0.1
Household (includes users)	899	0.3	39	0.0	938	0.2
Personal and social services	9,714	2.7	619	0.4	10,333	2.1
Health and social services	29,714	8.3	1,366	1.0	31,080	6.2
Education	174,495	48.6	12,479	8.9	186,974	37.4
Administration and social security	40,807	11.4	2,318	1.6	43,125	8.6
Commercial projects	2,520	0.7	109	0.1	2,629	0.5
Finance	11,243	3.1	182	0.1	11,425	2.3
Transport, communications and storage	8,030	2.2	363	0.3	8,393	1.7
Hotels and restaurants	984	0.3	24	0.0	1,008	0.2
Wholesale and retail trade	20,345	5.7	2,138	1.5	22,483	4.5
Construction	2,715	0.8	206	0.1	2,921	0.6
Electricity, water and gas	3,773	1.1	222	0.2	3,995	0.8
Manufacturing	27,258	7.6	4,668	3.3	31,926	6.4
Mining and Quarrying	3,225	0.9	308	0.2	3,533	0.7
Fisheries	345	0.1	200	0.1	545	0.1
Agriculture, hunting and forestry	10,191	2.8	110,021	78.3	120,212	24.1
Total Economically Active Population	358,927	100.0	140,485	100.0	499,412	100.0
Population	6,479,451		3,168,522		9,647,973	
Aged 0	211,309		132,344		343,653	
Aged 1-4	780,779		469,026		1,249,805	
Aged 5-9	918,832		483,570		1,402,402	
Aged 10 and over	4,568,531		2,083,582		6,652,113	
Participation Rate	7.9		6.7		7.5	

Source: 2001 Annual Abstract of Statistics