The Challenges of Assessing the Output of Emergent Economies: The Case of Bahrain[*]

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Business analysts worldwide use the standard theories and tools of macroeconomics and finance to determine the investment, trade or production possibilities in foreign markets. These evaluations are generally supported by three sources: estimations of using country-specific macroeconomic data on which they can determine patterns of growth, inflation, unemployment, productivity, income per capita, etc.; timely data on current conditions and developments in production, income and spending; and institutional information on policy makers, business practices and financial markets. This paper focuses on the first two where we examine the publically available macroeconomic data for the Kingdom of Bahrain to determine their reliability. Among our findings are: (1) creating a reliable data base of macroeconomic data is difficult due to data revision and incomplete data gathering; (2) the movement of standard macro-variables is often unusual, leading one to question further the reliability of the data; (3) based on available data it appears that the growth in Bahrain has been driven almost solely by an increase in the number of people working, with little to no apparent rise in productivity; and (4) the growth of GDP will eventually be constrained by physical limits on population growth, and can be improved only if ways can be found to increase the productivity of the workforce.

Keywords: Bahrain, macroeconomic data reliability, GDP, labor force, productivity

Introduction

The application of the analytic tools of macroeconomics to developed economies is straight forward, given that valid and reliable economic data is available going back the better part of a century for most countries. How does a business analyst fare, however, when faced with the task of assessing nations with newly acquired wealth that may be candidates for investment or expansion? A prime example would be expansion into nations of the Gulf Cooperation Council.[1] The amount of research on the economies of the Middle East and the Arab world has expanded lately, all of which involve the use of economic data. For example, articles have appeared on income inequality (Bibi & Nabli, 2009), economic growth and development (Murshed, 2008; Ianchovicina, Ivanic, &

[1] The current members of the GCC are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates.

Martin, 2009; Brach, 2009), business cycles (Alhassan, 2010), financial market integration (Neaime, 2005), and trade (Narayan & Prasad, 2005; Foad, 2010; Benbouziane & Benamar, 2010). Research has also been done using business-related data, including papers on Islamic finance (Ahmed, 2010), entrepreneurship (Khan, 1991), and investor reporting (Al-Ajmi, 2009). Can the data, metrics, and lessons learned in evaluating developed economies be used reliably to evaluate emergent countries? The answer to this question is paramount to export-lead countries like the People's Republic of China and India which seek new markets abroad. To answer this question, we investigate the nature of the macroeconomic data and macroeconomic relationships in the Kingdom of Bahrain. We will focus on the application of macroeconomics in the short run only.[2] The paper is organized as follows: First, we consider the population and labor data gathering issues faced by analysts and the effects these data issues have on an assessment of the Bahraini economy, and second we delve into the evaluation of actual and potential GDP, general prices, and productivity. The last part contains findings, the implications for countries wishing to expand into the GCC, and recommendations for both Bahrain and for future research.

Data Gathering: Conflicts and Lacuna

The amount of data that must be amassed over time to carry out reliable analysis of an economy is substantial. Using the United States as a benchmark, comparable, organized and accessible data going back to the 1930s are available via three avenues: on-line through the websites of the issuing institution, e.g., U.S. GDP figures are available through the Bureau of Economic Analysis; through a publically available repository of historical economic data such as FRED at the Federal Reserve Bank of St. Louis; or through a private repository of both publically available and proprietary data available for a fee, e.g., Moody's Economy.com. The availability of dependable and historically comparable data on an economy and its institutions may be limited in emerging economies, or in the case of our analysis, oil exporting countries whose wealth is substantial but relatively new. Three decades ago, the economic data gathering of the GCC was an afterthought at best, considering the lack of public resources, the expense of gathering the data, and the relative importance of other government activities such as education, water, electricity, and other infrastructure. The need for economic analysis changed with the acquisition of wealth and the desire of the GCC countries to become full members of the international economic community. Data have improved as well with the creation by the International Monetary Fund in 1997 of the General Data Dissemination System, of which all six GCC members are participants.[3]

The collection of data via the internet is quite easy for Bahrain as all important government offices that collect and report data publish in both English and Arabic. However, comparable time-series data are available from 1989 only, and even that database is incomplete for the first ten years (see Appendix for this database, created by the authors) when it comes to labor data. The only economic data available before 1989 are contained in periodic censuses that have been taken since 1941. There was such little economic data in the early censuses that no interpolation can be made to fill in the decade-long blanks. Until just recently the only format for macro

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[2] Long-run analysis would require that we highlight the supply side, focusing on the quality and quantity of the factors of production as well as the level of saving. Essential as well would be non-quantitative factors such as protection of physical and intellectual property rights, encouragement of entrepreneurship, the laws on private and public sector disclosure and transparency, and the level of technology. These facets are beyond the scope of this paper, which we hope to investigate in later research.

[3] For further information, access the website http://dsbb.imf.org/Pages/GDDS/Home.aspx.

data was annual, however quarterly GDP are now available starting with 2007.[4] These quarterly GDP figures are not easily comparable to the annual data, however, because they are not annualized. The labor market data are even less complete. For example, no report is made on any regular basis of the rate of unemployment. From the start an analyst considering using econometric methods to determine macro-relationships in the economy will be hampered with relatively few observations and, statistically, fewer degrees of freedom.

The Appendix shows the database we developed from on-line government sources which contain in summary our best estimates of the currently available time series data on Bahrain. The process of composing the database illustrates for analysts how careful one must be to update information regularly. Let us consider a fundamental figure such as population, which will be essential for exporting companies in establishing income per capita, labor market size, labor participation rates, and the size of the consumer market. The population data are reported by the Central Informatics Organization (CIO), and often cited in the varied publications of the Central Bank of Bahrain (CBB).[5] An adjustment was made in population figures in 2006 that changed any economic evaluation of Bahrain fundamentally. Table 1 containing two columns of population data, with the first column presenting figures for 2001 to 2006 as reported contemporaneously by the CIO, and the second column containing post-2007 revised figures for 2002 to 2008; 2001 was untouched as it was a census year.

Table 1

Population Discrepancy

Year	CIO—"Bahrain in figures"	CIO—As reported after 2006
2001	654,619	654,619
2002	672,124	710,554
2003	698,418	764,519
2004	707,160	823,744
2005	724,645	888,824
2006	742,661	960,425
2007		1,039,297
2008		1,106,509

The new population figure for 2006, issued in 2007, was 29% higher than the figure for the same year published one year earlier. The reason for the revision is mentioned in the CBB *Annual Report 2008*: the original figures were extrapolated from the 2001 census, but the revised figures, according to a footnote on page 3, were necessary due to the use of statistics extracted from the population registry.[6] The population registry is not an official census, but it must contain enough information on changes in population (largely led by in-migration of ex-patriot workers we surmise from decennial census data) to necessitate a restatement of population size years before the next census, which was done in 2010.

While revision is always to be applauded, ensuring that the macroeconomic data are reliable, a 29% error in something so fundamental is alarming. Considering that real GDP figures were not revised, we see in Table 2 data on income per capita in Bahraini dinars, BD, (1 BD = $ 2.65) that would lead to completely different conclusions

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[4] Bulletin of Quarterly National Accounts, No. 4, Fourth Quarter 2009, Central Informatics Organization
[5] Before 2006, the Central Bank of Bahrain was known as the Bahrain Monetary Authority.
[6] As of this writing (late April 2011) the initial findings of the 2010 Census are now being reported. The population in 2010 sat at 1,234,596.

by analysts regarding the country's spending potential.[7]

Table 2

GDP per Capita, in Bahraini Dinars

Year	Real GDP per capita (old)	Real GDP per capita (revised)	Percent change due to revision
2001	4,578	4,578	NA
2002	4,691	4,437	-5.41
2003	4,905	4,423	-9.82
2004	5,052	4,337	-14.15
2005	5,317	4,335	-18.47
2006	5,533	4,278	-22.67
2007		4,285	NA
2008		4,278	NA
2009		No Pop. Data	NA
2010		4,132	NA

Three conclusions can be drawn by analysts from these data: income per capita fell rather than rose between 2001 and 2006; the level of income per capita in 2006 was nearly 27% lower than thought if the analyst was working with the data in 2006; and, the level in 2010 remained below its high in 2001. The effect of this change on computation of market potential is substantial.[8]

The frustration felt by analysts with such revisions is compounded when data reported by two different government agencies provide two completely different numbers for the same indicator. Table 3 is on employment in Bahrain between the census year of 2001 and the second quarter of 2010 (the latest data available as of January 2011). The second column is total employment as reported by the Labour Market Regulatory Authority (LMRA) and the third column is the same indictor reported by various issues of the publication *Economic Indicators* put out by the CBB. Column four is the same indicator for a limited number of years reported by the CBB's *Annual Report* in 2003, and column five is for the *Annual Report* of 2004. The last column provides the amount of discrepancy in percentage terms between the LMRA data and the CBB.

These data show that not only is there a discrepancy in the reported size of employment to this day between two important government agencies, but that the same organization, for two years earlier in the decade, had conflicting data in its varied publications. Again, an analyst could just pick one source and go with it if the only concern were, say, growth rates in the number of workers. But when evaluating the economy's potential for investment the difference in the raw number of employed can be huge. Consider, as we will a little later, the cascade effect such a difference could have: different employment numbers mean different productivity numbers which mean different values for potential GDP which means a different forecast of inflation if based on the gap between actual and potential GDP. In further analysis below, we will assume that the LMRA data are the most reliable as the authority appears to be collecting labor data, save for the census done by the CIO.

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[7] The Bahrain monetary unit, the dinar, has been pegged for years. Originally it was pegged to the IMF's Special Drawing Rights, and since 2001 to the U.S. dollar at a rate of 0.376 dinars per dollar.

[8] While a population number for 2010 is now available with the publication of the initial results of the 2010 Census, for reasons we do not know a population figure appears not available for 2009 as of this writing (April 2011). The most recent issue of *Economic Indicators* from the CBB (December 2010), for example, has no entry for 2009. Nor does the CIO publication *Bahrain Summary Statistics—First Decade of the 3rd Millennium (2000-2009)*.

Table 3

Employment Discrepancy

Year	LMRA Data	CBB Econ. Indicators	CBB 2003 *Annual Rport*	CBB 2004 *Annual Rport*	Percent discrepancy
2001	291,378		188,420		
2002	307,453		196,894	229,879	
2003	331,379	249,493	224,579	249,493	24.7
2004	373,309	285,390			23.6
2005	418,172	336,508			19.5
2006	460,265	351,862			23.6
2007	503,784	379,471			24.7
2008	575,798	471,088			18.2
2009	598,491	486,071			18.8
2010Q2	597,040	489,623			18.0

Dealing as we are we macroeconomic measures of people we can now consider unemployment, the sine qua non of macro labor market analysis. Generally computed through surveys of households, it carries importance to households, corporations, and governments because of the inferences that can be made regarding idle resources and the need for a social safety net, not to mention the expected relationship between unemployment and consumption of durables, housing starts, etc.. Employment as measured by establishment surveys (measuring the number of jobs rather than the number of people) can also tell us much about the strength of the economy, but it lacks any reference to the size of the labor force. A rise in payroll employment can mask underlying weakness and the underemployment of human resources in an economy when the labor force rises substantially. In spite of the economic information that can be gleaned from long-term tracking of unemployment figures via household surveys it is unavailable in any useful form in Bahrain.

Table 4

Computing an Unemployment Rate

Year	Reported labor force	Original employment figures	Imputed unemployment rate	Revise employment figures
2001	308,341	291,378	5.5	291,378
2002	308,300	229,879	25.4	307,453
2003	330,100	249,493	24.4	331,379
2004	339,900	285,390	16.0	373,309
2005	350,000	336,508	3.9	418,172
2006	359,500	351,862	2.1	460,265

Analysts can sometimes overcome such holes in the data by using what is available to create latent variables. If there are some figures on both employment and labor force we can then compute an unofficial rate of unemployment. We have to be sure, of course, that indicators are defined in the same way they are in developed countries. The important number here would be labor force: is it the sum of employed and unemployed? Based on the census year 2001, the most recent year for which we have an official unemployment rate, the answer is yes. If we take the labor force in 2001 (308,341) and subtract the level of employment (291,378) we get an unemployment rate of 5.5%, the official rate reported. So, we may conclude that the indicator labor force in Bahrain is identical to what business analyst would expect. Finding labor force data in years other than the census

is not straightforward. The number was reported only as a part of Bahrain's GCC economic report, contained in the publication *Bahrain in Figures* put out by the CIO. By examining the various years of the publication we were able to come up with labor force figures until 2006. After that we are unable to find published data on the Internet providing labor force data. The sections of the country's *Statistical Abstract* on the GCC Report are inaccessible since 2008. The years we do have, however, call into question the veracity of the labor force data in general. Consider the data in Table 4.

These data reveal several inexplicable movements. One, using the original employment figures concurrently reported with the labor force data we see an enormous swing in unemployment from 5.5% to 25% in 2002, a year we see in the macro-database that GDP grew by 5.2%; in 2003 unemployment remained staggeringly high at 24% even though GDP growth was 7.2%, above its twenty-year average. The huge declines in unemployment that followed these numbers occurred while growth averaged 6.7%. Yes, the correlation this time is correct—growth of GDP above long-run trend is associated with falling unemployment—but what of the movement in the past two periods? This is puzzling. However, the problem must lie with the labor force data considering the revised employment figures after 2002 which show a level of employment greater than the total labor force, an impossibility by definition. In short, the unemployment rate is not reported and cannot be otherwise imputed by analysts with any confidence.

GDP and Related Measures

GDP is the ultimate barometer of overall business conditions and the position of the country in the business cycle. When used by an analyst in comparison to the level of potential GDP, it is as well an indirect signal for pressures on the general price level, the strength in the labor market, and the future direction of interest rate policy. To make the most of the data requires that we have as much detail as possible about GDP and its components and consistent data over a long enough period of time so as to have confidence in the reliability of our inferences. Based on watching data from developed countries over many years analysts expect to find the following:

• GDP should be available in comparable units both quarterly and annually where all observations are both annualized and seasonally adjusted;

• Values for both current dinar (nominal) and real GDP should be highly correlated and differ only by variations in general prices;

• A rise in nominal GDP can mask a fall in real GDP, but a fall in nominal GDP when inflation is positive should insure that real GDP is falling;

• The price index that results from the calculation of real GDP should be highly correlated with consumer prices;

• Potential GDP should be easily calculable, allowing analysts to compare actual growth in production to a supply-centered benchmark.

Let us begin with the fundamental relationship between nominal and real GDP. We find marked volatility in the movement of nominal GDP yet much less in the movement of RGDP. Consider the data an analyst would face with regard to total output for selected years.

The amount of conflicting information in Table 5 is substantial. First, we expect that the movement of inflation as reported in national accounts and the consumer price index should be correlated. They are not; the

correlation coefficient between the inflation rates as captured in the CPI versus the deflator is -0.13, which implies what little correlation there is is inverse. By comparison, the coefficient for similar US data is +0.58. Second, while the correlation coefficient between the growth rates of nominal and real GDP is 0.59 (0.92 in the US), we see some odd behavior in co-movements of the two measures of output:

• While nominal GDP has fallen three times, once by a very substantial -11.8%, there have been no declines in real GDP, i.e., Bahrain has not had an official, annual recession in the twenty years that reliable data have been available;

• In six cases where the CPI declined, the growth rate of real GDP was lower than the growth rate of nominal GDP in five of those cases, even though we would expect falling prices to result in real GDP having higher growth rates than nominal;

• In 2009, when nominal GDP collapsed and consumer prices were rising, real GDP rose.

Table 5

GDP and Inflation

Year	Nominal GDP growth	Real GDP growth	CPI inflation	Deflator inflation
1996	4.2	3.8	-0.2	0.4
1997	4.6	2.9	2.2	1.7
1998	-3.1	4.7	-0.4	-7.4
1999	7.0	4.3	-1.3	2.6
2000	20.5	5.4	-9.1	14.3
2001	-0.7	4.3	-1.2	-4.8
2002	6.5	5.2	-0.4	1.3
2003	14.8	7.2	1.6	7.0
2004	15.3	5.6	2.2	9.1
2005	19.8	7.9	2.6	11.1
2006	17.8	6.7	2.0	10.5
2007	16.5	8.4	3.3	7.5
2008	18.6	6.3	3.5	11.5
2009	-11.8	3.1	2.8	-14.4

Combining these odd movements in GDP with the observation that there is much more volatility in the size of the GDP deflator compared to the consumer price index (CPI), we are prompted to speculate on why. Three possibilities come to mind. One, there could be movements in raw commodity prices that affect the producer prices but do not show up in consumer spending because most of the commodities produced at these higher prices are exported. This is true for energy prices, considering that oil and natural gas are major exports of Bahrain. Two, the method used to remove the effect of price changes in the consumer sector is inconsistent with the one used in tabulating RGDP from the current-dinar data. We cannot accept or reject this option since information on the price indexes used is not easily available. Three, the CPI could be shielded from swings in commodity prices if consumer prices are controlled or subsidized by the government. This is clearly a possibility given that the price of gasoline is subsidized by the government. Which scenario is true is not at all obvious from looking at the data, though we suspect a combination of the first and last possibilities is most likely.

If we turn our attention to potential GDP we can glean some important information about the efficiency of the Bahraini economy. Potential GDP (as a growth rate) is measured by applied macroeconomists as the sum of

three factors: the change in the size of the labor force, the change in productivity, and the change in hours worked. All three can be positive or negative. The intuition is clear: output will rise, ceteris paribus, if you have more people working; if the people working work more effectively; or if the people who are working work more hours per week. Comparisons of actual changes in RGDP to potential are used by analysts to determine inflation pressures, movements in unemployment, and central bank interest rate policy. We have found uncertainty when dealing with the labor market data, so the first and third components—number of workers and number of hours—will have to be used with some concern for their reliability. The same will thus be true of any resultant data on productivity. Productivity, in its simplest form, is RGDP divided by labor hours. Data in two-year increments on productivity is published by the LMRA in its *Bahrain Labour Market Indicators*. Without labor hours we can only speculate on how productive Bahraini workers are. The LMRA definition of productivity is the output per worker in the productive sector, that is the best we can do without specific labor-hour data. We can try to back out data on productivity by tracing the movement in RGDP against the movement in employment, assuming that hours worked per worker has remained constant. When done, whatever change in output we observe beyond the change in workers must be due to changes in productivity. Consider Table 6 on GDP and employment and what we will call "estimated annual productivity". The growth rates in employment and GDP are continuously compounded annual rates (CCAR) of growth, and productivity would be the growth in GDP minus the growth in labor, assuming as we must that hours worked are constant.

Table 6

Productivity Estimates

Year/Period	RGDP in thousands BD	Employment	RGDP CCAR growth	Employment CCAR growth	Estimated annual productivity
1991	2,003.23	212,070			
2001	2,997.07	291,378			
2009	4,881.50	598,491			
1991-2009			4.95%	5.76%	-0.82%
2001-2009			6.10%	9.00%	-2.90%

Consistent with the fall in per capita income found in the last section we discover here that productivity is falling, not rising; all increases in GDP are due to more workers rather than increases in efficiency. The same conclusion is drawn (productivity of -0.26%) if we use a simple average of the growth rates of RGDP over the same 18 year period (5.4%). Most disturbing, if the data are to be trusted at all, is the observation that productivity is even more negative in the more recent period.

Concluding Remarks

The challenges analysts will face when dealing with the economic data of newly emergent economies are considerable. The analysis above illustrates the following: one, creating a reliable data base of macroeconomic data is difficult due to data revision and incomplete data gathering. Data are constantly revised, but the reporting of these new data is often conflicting between government agencies. Two, the movement of standard macro-variables is often unusual. This is due both to data reliability problems and the likely effects of trade and energy prices on the economy. Three, from a business expansion standpoint based on the only data available, it appears that growth of GDP in Bahrain has been driven solely by an increase in the number of people working.

Household incomes are not rising, putting a limit on how much spending could support new entrants into the Bahraini consumer market. And four, growth potential has much room for improvement if ways can be found to increase the productivity of the workforce. We would speculate effective management within services, industry and the government agencies would go a long way toward improving the economic performance of the Bahraini economy. There is further research to be done on the role of energy prices, trade, and the exchange rate link between the dollar and the dinar in the success of the Bahraini economy.

References

Ahmed, A. (2010). Global financial crisis: An Islamic finance perspective. *International Journal of Islamic and Middle East Finance and Management, 3*(4), 306-320.

Al-Ajmi, J. (2009). Investors' use of corporate reports in Bahrain. *Managerial Auditing Journal, 24*(3), 266-89.

Alhassan, A. M. (2010). A coincident indicator of the Gulf Cooperation Council business cycle. *Review of Middle East Economics and Finance, 6*(3), article 1.

Benbouziane, M., & Benamar, A. (2010). Could GCC countries achieve an optimal currency area? *Middle East Development Journal, 2*(2), 203-227.

Bibi, S., & Nabli, Mustapha. (2009). Income inequality in the Arab region: Data and measurement, patterns and trends. *Middle East Development Journal, 1*(2), 275-314.

Brach, J. (2009). Technology, political economy, and economic development in the Middle East and North Africa. *Review of Middle East Economics and Finance, 5*(3), article 1.

Central Bank of Bahrain. (2011a). *Economic indicators, various editions containing data files.* Retrieved from http://www.cbb.gov.bh/page.php?p=economic_indicators

Central Bank of Bahrain. (2011b). *Annual report, various editions containing data files.* Retrieved from http://www.cbb.gov.bh/page.php?p=annualreport

Central Informatics Organization, Kingdom of Bahrain. (2009). *Bulletin of quarterly national accounts, 4,* Fourth Quarter 2009.

Central Informatics Organization, Kingdom of Bahrain. (2011a). *National Account, various publications containing data files.* Retrieved from http://www.cio.gov.bh/cio_eng/SubDetailed.aspx?subcatid=233

Central Informatics Organization, Kingdom of Bahrain. (2011b). *Statistical Abstract, various yearly editions containing data files.* Retrieved from http://www.cio.gov.bh/cio_eng/SubDetailed.aspx?subcatid=119

Central Informatics Organization, Kingdom of Bahrain. (n.d.). *Bahrain in figures, various editions containing data files.* Retrieved from http://www.cio.gov.bh/cio_eng/SubDetailed.aspx?subcatid=120

Foad, H. (2010). Assimilation and trade between the Middle East, Europe, and North America. *Review of Middle East Economics and Finance, 6*(2), article 4.

International Monetary Fund. (2011). *Dissemination standards bulletin board.* Retrieved from http://dsbb.imf.org/Pages/GDDS/Home.aspx

Ianchovichina, E., Ivanic, M., & Martin, W. (2009). Implications of the growth of China and India for the Middle East. *Middle East Development Journal, 1*(1), 79-103.

Khan, G. M. (1991). Entrepreneurship development in Bahrain. *International Journal of Career Management, 3*(2).

Labor Market Regulatory Authority, Kingdom of Bahrain. (2011). *Bahrain labour market indicators, various data bases and files.* Retrieved from http://blmi.lmra.bh/2010/12/mi_data.xml

Moody's Analytics. (2011). *Economic and consumer credit analytics.* Retrieved from http://www.economy.com/default.asp

Murshed, S. M. (2008). Development despite modest growth in the Middle East. *Review of Middle East Economics and Finance, 4*(3), article 1.

Narayan, P. K., & Prasad, B. C. (2005). The validity of purchasing power parity hypothesis for eleven Middle Eastern countries. *Review of Middle East Economics and Finance, 3*(2), article 3.

Neaime, Simon (2005). Financial market integration and macroeconomic volatility in the MENA region: An empirical investigation. *Review of Middle East Economics and Finance, 3*(3), article 5.

St. Louis Federal Reserve Bank. (2011). *Federal Reserve Economic Data (FRED).* Retrieved from http://research.stlouisfed.org/fred2/

United States Department of Commerce, Bureau of Economic Analysis. (2011). *Gross Domestic Product.* Retrieved from http://www.bea.gov/national/index.htm#gdp

Appendix: Basic Data on Bahrain Economy, as of May 2011[a]

	CD-GDP	RGDP	GDP deflator ('01 = 100)	CPI ('06 = 100)	Population	Employed
1989	1,472.92	1,709.12	86.18		488,545	
1990	1,711.51	1,922.18	89.04	95.90	503,022	
1991	1,747.14	2,003.23	87.22	96.00	508,037	212,070
1992	1,794.34	2,088.21	85.93	96.50	516,458	
1993	1,966.97	2,270.86	86.62	99.00	530,225	
1994	2,107.82	2,279.00	92.49	99.40	544,366	
1995	2,214.16	2,337.36	94.73	102.50	558,879	
1996	2,308.12	2,427.17	95.10	102.30	573,792	
1997	2,415.43	2,498.29	96.68	104.60	589,115	
1998	2,341.25	2,615.25	89.52	104.20	604,842	
1999	2,505.03	2,727.04	91.86	102.80	620,989	
2000	3,018.36	2,873.91	105.03	93.40	637,582	
2001	2,997.07	2,997.07	100.00	92.30	650,604	291,378
2002	3,192.63	3,152.97	101.26	91.90	710,554	307,453
2003	3,665.00	3,381.38	108.39	93.40	764,519	331,379
2004	4,224.46	3,572.28	118.26	95.50	823,744	373,309
2005	5,060.60	3,852.82	131.36	98.00	888,824	418,172
2006	5,960.30	4,109.10	145.10	100.00	960,425	460,265
2007	6,945.60	4,453.60	156.00	103.30	1,039,297	503,784
2008	8,235.30	4,733.90	174.00	106.90	1,106,509	575,798
2009	7,265.40	4,881.50	149.00	109.90	-	598,491
2010	8,627.43	5,101.70	169.11	-	1,234,596	597,040
	GDP in millions of BDs					

Notes. [a]: This database was developed by the authors using government sources available through the internet. The primary sources were: (1) the Central Informatics Organization and its on-line publications *Bahrain in figures*, *statistical abstract*, *national accounts*, and *Bahrain summary statistics—First decade of the third millennium (2000-2009)*; (2) the Central Bank of Bahrain and its on-line publications *Annual report* and *economic indicators*; and (3) The Labor Market Regulatory Authority, and its on-line labor market indicators.