The Structure and Volatility of Fiscal Revenue in MENA Countries [1]

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1-Introduction

Maintaining the rule of law and security, supplying (public) goods that the market does not optimally supply, substituting the market when it fails, financing poverty reduction schemes and social programs, and investing in basic infrastructure are the accepted spheres of government activities. The government in developing countries often acts as an agent of growth and development—though of questionable effectiveness. The government also looks after its own interests. It has a bureaucracy and a large clientele to maintain, including money-losing public enterprises. To finance these activities the government needs resources, and raising funds has priority over raising money in accordance with the principles of economic efficiency. There are often tradeoffs between efficiency and political exigencies. Tax policy and what should be done about each specific tax cannot be determined without reference to a revenue target, and a revenue target is often set in accordance to an expenditure target (Musgrave 1987). A bigger and more active government requires more expenditure, hence resources.[2]

The traditional domain of fiscal policy is choosing a mix of tax instruments to raise sufficient revenue efficiently. Over the last fifty years the tasks and goals of fiscal policy in developing countries (DCs) has broadened to include: macro-management and stabilization policy, financing economic growth and development, and funding poverty-reduction and distribution programs. Governments in DCs have had a mixed experience with these added responsibilities and challenges. Fiscal systems in many parts of the world, particularly in the MENA region, have been the principal source of capital formation and development finance. The experience also points to the limits of what we can expect the fiscal system to deliver, specially considering the incentive, information, and governance problems that currently exist in the structure of government organizations. Higher taxation can be used to finance capital accumulation and development in transitional periods. However, history shows that, turning this into a long-run policy to accommodate rising government expenditures relative to GDP will jeopardize growth and stability.[3] The hallmarks of a well-managed system

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[2] To sharpen the focus, we leave aside questions regarding the desirability of government intervention in the economic sphere to the extent observed in DCs, and whether the government bureaucracy has the motivation and interest to act purely in the interest of its citizens. Should we rely more on "market" and less on "command"? For a cursory review of these interesting issues, see World Bank 1997.

[3] For a general discussion and selected case studies, see William Easterly, Carlos Alfredo Rodriguez, and Klaus Schmidt-Hebbel (1994).

that can be deduced from the diverse literature on fiscal policy and development are, expenditure prudence, accountability, transparency, and broadly based revenue systems. [4] We also know, up to a certain level of certitude, the general contours of tax systems that meet public-sector revenue requirements with lower social costs than the fiscal systems in place. However, DCs (including some MENA countries) have been slow to adopt and implement those systems.[5]

This paper has several objectives. First, to examine the structure of fiscal revenues and their trends in MENA countries in order to provide a set of stylized facts regarding the composition of government revenues. In this connection, it will compare the structure of taxes in MENA with those in industrial countries and developing countries in other regions. Second, to examine the volatility of the basic fiscal ratios and cyclical behavior of government revenue for MENA countries, to determine if certain patterns can be detected. Third, to look at trends in fiscal balance and budget deficits and assess the magnitude of inflation tax in MENA countries. Finally, in connection to the above lines, this paper will discuss in general terms the issues of fairness, efficiency, and economic growth.

2. The Structure of Government Revenue in MENA Countries

This section examines the structure of fiscal revenues in MENA countries and compares it to those in the industrial and developing countries.[6] The objective is to identify the stylized features of government revenue and tax structure in MENA region. Tax structure here signifies the revenue importance of different taxes.

Optimal tax theory has a strong normative bent and does not purport to explain the structure of government revenues and its evolution. The standard result suggests that, in the absence of externalities and assuming convexity of isoquants and indifference curves, any Pareto efficient outcome can be reached as a competitive equilibrium in which the government obtains

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[4] For example, see Blejer and Chu (1989), Tanzi (1990), Ahmad and Stern (1991), Burgess and stern (1993), Tanzi and Zee (1997).

[5] For a review of the merits of different taxes and the actual experience of developing countries see, Burgess and Stern (1993), Ahmad and Stern (1989), and Newbery and Stern (1987).

[6] MENA countries are referred to here as, Algeria, Egypt, Iran, Jordan, Lebanon, Syria, Morocco, Tunis, Turkey, plus GCC countries that include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE. For a number of MENA countries, data on fiscal operations are scant and the time series data on taxes and GDP are incomplete. The coverage in this paper will be focused on those countries where a minimum number of annual observations are available.

revenue through the appropriate set of lump-sum taxes and redistributes the proceeds (Ahmad and Stern 1989). The policy implication is clear: governments should, as far as possible, raise revenue in a way consistent with lump-sum taxation and avoid imposition of taxes that distort relative prices and incentives to supply human effort and capital. Poll and land taxes can qualify for the above policy prescription. Given the regressivity of poll taxes and their unpopularity this proposition is politically impractical, and morally unappealing. Therefore, if taxes (on labor, capital, and commodities) must be raised to finance government activities, the optimal tax system would be a package with a minimum of dead weight losses.

The actual structure of government revenues can be better understood when the political dimension of taxation (Buchanan 1993) and its institutional and administrative context (Mansfield 1988) is taken into account. The "tax handle theory" (Hinrichs 1966, Musgrave 1969, and Mansfield 1988), offers a historical account to explain why countries at different stages of development have a particular tax structure and how it evolves over time. Like many other historical approaches, it is in essence, a description of a process of *being* and *becoming*. It argues that low-income countries, at the early phases of development, are forced to collect tax revenue from simple tax handles (e.g. trade taxes). As the economy develops, the tax base deepens and the administrative capacity for tapping better or more efficient taxes is enhanced. For instance, as per capita income grows and the share of urban/formal sector in GDP increases, additional taxes on income can be raised with limited collection costs, hence the incentives and the political will to tap it gets stronger. With a broader tax base and improved administrative capabilities for tax identification, collection, and enforcement, tax yields improve. Consequently, new taxes are tapped and the coverage of the existing taxes expands, raising the elasticity and buoyancy of the tax system. This convergence process, however, can be disturbed by changes in external trade arrangements, the value of natural-resource endowments, and is subjected to the influence of social and political factors specific to a country or region.

2.1. Income Tax

Amongst the main tax bases, income and wealth taxes have been popular because they accord well with the principle of the ability to pay. Comparative international studies show that taxes on income (individual, corporate, and capital gain taxes) as a proportion of total government

revenue or as a proportion of GDP is higher in industrial countries compared to DCs (Goode 1984). These proportions are also higher in middle-income developing countries than in low-income countries. Other studies (Tanzi 1987, Burgess and Stern 1993) could find a weak but positively significant relationship between the share of taxes in GDP and (the log of) per capita income, as an explanatory variable. The estimated coefficient of per capita income was significantly greater than unity, indicating that the tax share in GDP rises with higher GDP per capita. The above mentioned evidence is consistent with generalizations of the "tax handle" theory.

Tables 1.1 and 1.2 provide data on the percentage share of each type of tax (on income, sales, trade, and social security) in *total revenue* (TR) and in *current revenue* (CR).[7] Table 2 shows the share of each type of tax in *GDP* for individual MENA countries and other regions of the world. These tables provide a picture of fiscal revenue structure in MENA countries. The un-weighted average proportion of taxes on income (individual, corporate, and capital gain) is 34.02 per cent of TR for OECD countries for the 1994-1996 period.[8] The average share in TR for the middle-income countries is 26 per cent for the same period. This proportion for the MENA region (excluding GCC, where the conventional tax ratios are much smaller) is 24.5 per cent.[9] The average *share* of taxes on income (personal, corporate, and capital gain) *in GDP* for MENA countries (excluding GCC) in 1996/97 was about 4 percent.[10] Compared to other regions of the world, the proportion of taxes on income in MENA countries in TR and in GDP, are low, although most MENA countries are classified as middle and upper-middle income countries.

Individual income tax, as a proportion of *GDP* or as a proportion of *current revenue* in MENA is quite low by international standards (tables 1.1, 1.2 and 2).[11] These proportions are much lower in Oil-exporting countries than other

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[7] It should be noted that total revenue excludes grants.

[8] Regional averages are all un-weighted, otherwise noted.

[9] The above calculations are based on data provided in Government Finance Statistics, Yearbook, various years, Washington DC, IMF, and World Development Index, CD-ROM, Washington DC, World Bank, 1999. The average for non-GCC MENA is for, Algeria, Egypt, Iran, Jordan, Morocco, Syria, Tunis, and Turkey, and Yemen.

[10] It should be noted that the ratio of taxes to non-oil GDP for oil-exporting countries is appreciably higher than that to GDP. However, this does not change our empirical generalizations and conclusions significantly.

[11] For a large sample of countries containing both industrial and developing countries in 1989, the Middle East had the lowest individual income tax/total tax ratio in the world. Latin America had the second lowest ratio, and Europe had the highest ratio (Burgess and Stern 1993). The same was true with respect to the

MENA countries, in spite of higher per capita incomes. In most of the GCC countries, taxes on income as a percentage of TR is low, and the income tax consists mainly of taxes on corporations. Given the importance of oil revenue, fiscal revenue in GCC countries is overwhelmingly dominated by non-tax revenue. The average share of personal taxes on income for the above group is nil. This share for Algeria, Egypt, and Iran, Jordan, Lebanon, and Syria is less than 1 per cent. Among non-oil MENA, the share of personal taxes in GDP for Morocco, Tunisia, and Turkey is around 3 per cent.

Table 3 provides data on the lowest and highest marginal personal and corporate income tax rates or MENA countries. The marginal rates (plus minimum income exemptions allowed) indicate progressive statutory income taxes in non-GCC MENA countries, and consistent with the criterion of vertical equity. Personal income taxes are assumed to fall on those who are taxed, and if tax evasion is ignored then, a higher personal tax/GDP ratio is presumed progressive. A comparison of the marginal personal income tax (table 3) and the average personal tax (table 2) shows that the actual amount of taxation relative to the potential is quite low. Low coverage and high marginal tax rates are the textbook case for an environment conducive to tax evasions and low income-tax yields. At such low individual-tax/GDP ratios (e.g. less than one per cent for Egypt, Iran, Jordan, Syria) it is difficult to establish the fairness of personal taxes. The likelihood of being taxed is the highest for individuals whose income is taxed at the source. They include government and formal sector employees, corporations, and shareholders in publicly traded companies). Those who happen to be taxed, pay taxes on a progressive scale. Those who escape the tax net or can under-report income pay at regressive scales.

A few general statements can be made regarding the fairness of personal taxes. If the average tax rate increases with income, post-tax income is more equally distributed than pre-tax income. In other words, post-tax income is Lorenz superior to pre-tax income. [12] Assuming a given distribution of pre-

individual income tax/GDP ratio. The share of income taxes in GDP in the Middle East was less than half a per cent.

[12] Assuming that disposable income and taxes are related as in the following

$$d(y) = y - T(y) \tag{1}$$

$$d'(y) = 1 - T'(y), \quad d'(y) \rangle 0, \quad T'(y) \langle 1 \tag{2}$$

Given the above, the concentration curve of disposable income coincides with its Lorenz curve provided the marginal tax rate is less than one (Kakwani 1980). Income (y) can be conceived as a random variable with f(y) being its probability density function and

tax income and tax paying units, if the average tax rate increases with income over a span of time, post-tax income is more equally distributed than pre-tax income. Morocco, Tunis, and Turkey collect more individual income tax, in proportion to their total government revenue, than other MENA countries. Taxes on income as a proportion of GDP in Turkey rose during the 1970s, peaked in the early 1980s, and then decreased to a stable ratio. In Egypt personal tax in proportion of GDP rose in the 1970s, peaked in early 1980s, and had a declining trend until the early 1990s. This ratio in Morocco and Tunis has had a long-term upward trend. Moreover, simple regression equations for these two countries impart elasticity estimates greater than one with respect to income for the period 1970-1995. These could imply a positive contribution by personal taxes to income equality, if assumptions referred to earlier holds and if tax evasion has not become more frequent.

Given our limited access to data, some rough estimates were made to provide a broad picture regarding the extent of personal tax evasion and avoidance in a few MENA countries. An estimate of the private sector's gross income based on consumption expenditures, personal taxes, and a proxy for private savings, was made. Data on the shares of expenditure by quintiles of the population was used to produce an estimate for shares of income quintile.[13] By applying different tax rates to the estimated income for

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$$F(y) = \int_0^y f(y)dy \tag{3}$$

F(y) represents the proportion of economic units that have an income less than or equal to y. Let g(y) be a continuous function of y, and g(y)>o for all y>0. If the mean exists, then its first moment is given by

$$F_1[g(y)] = \frac{1}{E[g(y)]} \int_0^y g(y)f(y)dy \quad (4), \quad \text{where } E[g(y)] = \int_0^\infty g(y)f(y)dy \quad (5)$$

The relationship between F1[g(y)] and F(y) is called the concentration curve of g(y), which is a generalized Lorenz curve. Following Kakwani (1980), (1) can be written as in (6)

$$m_d F_1[d(y)] = m F_1(y) - Q F_1[T(y)] \tag{6) or equivalently}$$

$$F_1[d(y)] - F_1(y) = \frac{e}{1-e}\{F_1(y) - F_1[T(y)]\} \tag{7}$$

Where e is the aggregate average tax rate and is equal to Q/m, Q is the average tax yield, m, m_d are the mean before and after tax income, and F1(y)>F1[T(y)] for all y. In other words, after-tax income is Lorenz superior to before-tax income. If the average tax rate (e) increases with income, after-tax income is more equally distributed than pre-tax income.

[13] Based on World Development Indicators, CD-ROM and World Development Report 2000. As well known, income is usually more unequally distributed than expenditures. Estimate of income shares based on expenditure shares has this problem. However, when income distribution data is not available choice over the type of data is limited.

the share of highest income quintile, a projection for tax revenue collectable from this base was made. The larger is the amount of projected personal tax revenue compared to the actual amount collected, the greater is the extent of tax evasion and avoidance, and the smaller is the actual base for personal income tax. An average tax rate of 10 per cent (well below the relevant statutory marginal tax rate for this income class) was applied to the estimated highest income quintile in Egypt. The resulting tax yield, from the 20 per cent of the population with the highest income, was more than 5.5 times the total individual tax actually collected from all income groups in 1995. The same exercise for Tunis and Morocco generated about 1.8, and 1.3 times actual total individual taxes. Individual taxes in Egypt, Tunis, and Morocco were 1.56, 8.16, and 10.32 per cent of total revenue, respectively, in the years for which the estimates were made. The above numbers indicate a narrow tax base for the above countries. They also imply that the actual base for personal income tax is quite limited in Egypt and is significantly broader in Morocco. Large differences between the statutory and the effective tax rates observed in a number of MENA countries indicates that improved tax administration and reducing the number of permissible exemptions can result in significantly larger revenue. By widening the tax base and improving collection, government finances in a number of MENA countries can improve. The marginal tax rate multiplied by the amount of the deduction can be conceived as a tax benefit (subsidy) to the individual. The higher is the marginal tax rate the higher is the amount of potential subsidy to the person taking the deduction. Since much of income taxes paid in most developing countries are from higher income groups, tax exemptions reduce the progressivity of direct taxes. Tax evasion has the same effect but it is illegal.

For GCC, the issue of tax fairness is somewhat unconventional. Transfer payments and subsidies are primarily financed through non-tax revenues. Moreover, since personal income taxes are nil, it is a case of a flat rate with no tax burden, but it is not equitable vertically. In this setting, progressivity should be analyzed in terms of differential incidence of government subsidies and transfers.

2.1. 2. Corporate Taxes

The share of corporate tax in GDP in MENA countries is low compared to industrial countries and other regions. The un-weighted average is about 2.2 percent of GDP in MENA countries (excluding GCC). The share of non-oil

corporate tax in total government revenue is also very small in GCC. MENA countries that receive limited revenue from individual taxes tend to raise more from corporations. The share of corporate tax in TR is higher compared to the share of personal income tax in Egypt, Iran, Jordan, and Syria. Statutory corporate tax rates in MENA countries are similar to most other developing countries. Bahrain and Lebanon have the lowest corporate tax rates. Due to active role of the state in the economy in most MENA countries, the potential gross amount (not adjusted by subsidies) of non-oil corporate taxes received from government-owned corporations can be significant.

The primary reason for taxing corporations is to raise money. In the absence of an accounting/information system that can be used for measuring the income of tax-units accurately and comprehensively, and with "mixed" tax systems[14], taxation of corporations becomes more practical. The major advantage of taxing corporations is that taxation of retained earnings at the source can reduce the cost of identification and collection for tax administrators. The disadvantage is, corporate tax discourages the supply of capital, a factor relatively scarce in DCs. By broadening the definition of income, taxation of individuals and corporations can be integrated. An accretion definition of income—accrued, imputed, or realized in units of money from wages, profits, interests and net transfers—can be used to measure sources of income. This broad measure of income is also equal to the uses of income, the sum of consumption and changes in net worth (saving). Horizontal equity, in this context, means individuals with equal income levels (from capital, labor, and transfer payments) are taxed similarly.

Generally, evaluation of the impact of corporate taxes (or any tax) can be made with reference to the uses and sources of income. Analyses of the redistributive effect of taxes are sensitive to the assumptions about how different taxes are shifted to consumers, producers, and factor owners. Each tax has side effects on the sources of income (labor, capital, and transfers), or on uses (consumption and saving) or on both. The progressivity of these effects depends on their allocation. Assuming corporate taxes cannot be shifted, the short-term incidence is on profits and on their owners, and if stockholders are amongst the higher-than-average income households, the

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[14] It is a tax system that combines features of a global and a schedular system. The former applies a unitary rate to income from all taxes and the latter taxes the principal sources of income flow at different rates. See Goode (1984) for more details.

incidence is progressive. If, as it is frequently assumed that, one-half of corporation taxes is borne by the owners of corporations and the other half is shifted forward to consumers through product prices, the conclusion is different. With this assumption, the incidence for the lowest income brackets is a regressive profile, a progressive one for higher than average income groups, and a flat incidence for middle-income groups (Shah and Whalley 1991).

Allocation of the effect of corporate taxes also depends on the market structure and the type of ownership. Where shareholders are not large enough or do not have proper channels to exercise control over management, and the market for corporate control does not exist, principal agent problems are prevalent. In such as case, taxation of corporations, particularly government-owned corporations may have a disciplinary and a positive saving effect. It has been found that due to agency problems in publicly owned firms with a high concentration ratio, profit (taxes paid to the treasury) is lowered by inflating expenses.[15] In more extreme cases, insufficient control on expenditures has resulted in negative taxes.[16]

Assuming partial forward shifting, higher corporate taxes in such cases can serve as a mechanism to control cots and expenditures, and may not have a significant price effect, and hence a flat incidence for most income groups. Well designed schemes for cost control in public enterprises is one method to increase profit (reduce losses), hence higher taxes (saving) in the public sector. This is the most efficient method of raising financial resources for the public sector. Unlike taxes, it does not involve a net social loss in fact it is the reverse.

2.1.3. Summary

Non-oil MENA countries have a tax structure strikingly similar to middle-income developing countries. The average share of taxes on income in TR (or in CR) and in GDP for non-oil MENA is about the same as in middle-income countries. Turkey, Morocco, and Tunisia have a higher average tax on income compared to other non-oil MENA countries. The structure of fiscal revenues in oil exporting MENA countries (particularly GCC) is quite different from developing countries and other regions. Populated MENA

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[15] See Hossein Salehi and Afshin Jafari, (1999).

[16] For 1998, government financial assistance to public companies in Iran was five times the amount these companies paid the treasury.

countries like Algeria, Iran, Egypt, and Syria, with different levels of oil related revenue, tend to have a structure somewhere between the two. The average is much lower in other oil-exporting countries. The smaller is the share of fuel exports the closer is the structure of taxes to that for middle-income countries. Turkey has a tax structure similar to the European countries, and taxes on income constitute 31.7 per cent of total revenue. Interestingly, Turkey also has the lowest total revenue/GDP ratio in the region. Raising direct (income) taxes in MENA has been constrained by problems with income measurement, prevalence of small-scale enterprises, poor accounting, and inadequate administrative capability. In most MENA countries, wage and salary employment outside the government sector is limited, and tax coverage on small enterprises (in manufacturing, services, and retail trade) is narrow. Usually, wage and salary earners, particularly those in the public sector or large private companies--who can be identified easily by the tax authorities and whose income is withheld automatically at the source--pay the bulk of individual income taxes, due to widespread tax evasion in both the formal and informal sectors. Empirical evidence shows that, the share of individual income taxes derived from wages and salaries of employees in the public sector and large establishments in the private sector in developing countries tend to be significantly higher than industrial countries (Tanzi 1987).

2.1.4. Social Security Taxes

The proportion of social security taxes in TR or in GDP in developing countries is significantly below those observed in industrial countries. The problems of raising social security taxes are not too different to those for personal income taxes. Since social security contributions are mainly based on wages and salaries, coverage is often restricted to government employees and formal sector employees. Also, since the amount of contributions paid is positively related to income, there is a strong positive correlation between the share of social security taxes in GDP and the logarithm of per capita income.[17] The proportion of social security contributions in TR in non-oil MENA countries is distinctively lower than that in industrial countries but higher than middle-income countries. Tunisia (16.84%), Egypt (13.23%), Iran (6.31%), and Morocco (6.67%) have a higher ratio of social security contributions in TR than other MENA countries (table 1.1). Public social security programs in existence are mostly of "pay as you go" variety. In this

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[17] Burgess and Stern 1993.

system, in contrast to fully funded systems, the benefits paid to current recipients (e.g. retirees) come from contributions paid by those who are working.[18]

Theoretically, it is difficult to establish the economic impact of social security tax on private saving due to the conflicting effects on household behavior. In a life-cycle consumption model, if social security tax is perceived by households as a form of saving with a guaranteed future income stream, then personal saving may decline. This is the *wealth substitution* effect. If the system is partially funded, some of the current contributions are paid for current consumption hence this effect might actually result in a lower aggregate saving. In contrast, the *retirement* effect may induce people to save more.[19] The *bequest* effect tends to increase private saving. [20] Other things being equal, for raising national saving, fully or partially funded systems are preferable to pay-as-you go systems.

Public pension funds can be an important source of saving to finance economic development. Pension funds have been used to finance specific development projects in various MENA countries and can be invested in domestic security markets. Although only investment in new issues (IPOs) finance new capital investment, portfolio investment in secondary issues can increase the liquidity of domestic capital markets. With population growth rates falling in MENA region[21], it is expected that in the next decade, the ratio of working-population to total population will increase and hence the potential for raising social security taxes.

Intergenerational transfers that are effectuated through social security payments can have a significant impact on aggregate savings and economic growth. In the overlapping generation (OG) models (Diamond 1965), social security tax is a mechanism to correct the problem of dynamic inefficiency[22] due to over-saving. This is done through transferring income from the

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[18] The current social security programs include several benefits, retirement, disability, sickness, medical, and work injury. See Social Security Administration (1997) for details regarding the principal features of social security systems in different countries.

[19] Because, if they retire earlier and hence reduce their labor supply at old age and increase the time duration of old-age consumption, saving during the working-age must increase.

[20] Because social security programs tend to shift income from children to parents, a positive saving effect neutralizes the distributional effect of social security on children's income.

[21] In Algeria, Egypt, Iran, Jordan, Morocco, Saudi Arabia, Syria, Tunisia, Turkey, and Yemen, the average population growth during the 1990-98 period is significantly less than during the 1980-90 period. See World Bank (2000).

[22] A saving rate higher than necessary to set the steady-state capital per worker at the golden-rule level.

working generation (who save) to the "old" (who consume). In many developing countries, the problem is not over-saving but under-saving. This has the potential of leaving them at a low-income steady-state (or low-level equilibrium trap). Jalali-Naini and Ghorashi (1998) show that due to the possibility of multiple equilibria in an OG model, economies with low saving can be trapped at a low-income steady-state. However, for given initial values of capital per worker, one can compute the magnitude of intergenerational transfer necessary to launch the economy on a transitional path to a high-income steady-state (at the golden rule level of per capita capital).[23] This policy reduces the short-run consumption of the "old," however, in the long-run it can increase the consumption of both "young" and "old" generations.

2.1.5. Indirect Taxes

Like income, consumption is a broad measure of the ability to pay tax. It is less comprehensive than income, because the former taxes actual consumption, and the latter taxes potential consumption. In this sense, income is a broader and a more appropriate measure of the ability to pay taxes. Though not a settled issue, progressive income taxation seems to be a more appropriate tool for income distribution but not growth.[24] The choice between income or consumption tax as an instrument for government finance also involves the issue of consumption/saving tradeoff, with significant implications for developing countries. It is argued that, since consumption tax excludes savings it avoids the problem of double taxation of savings, therefore, it does not diminish incentive for domestic savings—which for countries with limited access to international capital markets, is critical for financing capital accumulation. With equal tax rates on consumption and income, under a consumption tax regime, income tax is paid but consumption tax is postponed, and hence there is a net benefit to the saver for postponing consumption to future. The impact of this on the actual saving rate, however, depends on the underlying utility functions and their implied substitution and income effects.[25]

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[23] Calibrating the model with reasonable production function elasticities, discount rate, and population growth rate results in well-behaved convergence properties.

[24] Hackmann (1989) is skeptical of the view that a shift from income to consumption tax is pro-growth.

[25] The optimal saving policy for oil-producing countries could be significantly different from a non-mineral economy, see Farzin (1999).

With a constant labor supply, it can be shown that since consumption tax does not distort the tradeoff rate between present and future consumption, it is preferable to income tax. More generally, when the supply of labor is a choice parameter, both taxes distort leisure-consumption tradeoff and they both entail some efficiency cost. Auerbach (1996) shows that, when labor supply distortions are taken into account, consumption tax creates less excess burden than an income tax.

Indirect taxes, consisting of excises, general sales, and value-added taxes are an important component of government revenue in MENA. Theoretically, final point (sale) VAT and sales taxes are more desirable than other taxes.[26] The proportion of domestic taxes on goods and services (DTGS) in current revenue is higher in industrial countries than DCs, in fact higher than all other regions (table 1.2), but the gap is not as large as that for taxes on income. DCs as a group have been more successful in collecting general sales, excise, and VAT, than raising taxes on income. DTGS is an important component of government revenue in all regions of the world. Excluding OECD countries, the difference between DTGS to GDP ratio in various regions of the world (except the Middle East) and across different per capita income classifications is relatively small. The proportion of DTGS in GDP is not sensitive to the level of per capita income as an indicator of the level of economic development. International studies do not find a positive correlation between per capita income and DTGS/GDP ratio (Tanzi 1987, Burgess and Stern 1993). We could not find a significant and positive correlation between the two for MENA countries.

The un-weighted proportion of DTGS (including VAT) in *total revenue* and in *GDP* in MENA are 24.04 and 5.2 per cent, respectively (tables 1.1 and 2). The proportion of DTGS in TR for Turkey is 46 per cent, the average ratio for Algeria, Morocco, and Tunis is 15.1 per cent, and the ratio for Middle East is 12.02 per cent. The above ratios are lower for oil-exporters,

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[26] In the optimal commodity tax literature, the issue is choosing a commodity tax vector **t** to raise a given amount of revenue to minimize welfare loss of households. More compactly, this can be written as:

Max **V**(**q**), s.t. **R**(**t**)=**t** **X**(**q**) $\geq$ **R***,

Where, **q**=**p**+**t, q** is the vector of consumer prices, **p** is the vector of prices facing producers, **R**(**t**) is indirect taxes, **x**(**q**) is household demands, **X**(**q**) is the aggregate demand, and **R*** the required revenue target. The social welfare, obtained from a Samuelson-Bergson type social welfare, is obtained from after-tax prices, **V**(**q**). The solution to the above constrained optimization yields the many-person Ramsey rule for optimal commodity taxes. See Ahmad and Stern (1989) for detailed discussion and analysis, and Diamond and Mirrlees (1971) for a generalization of the Ramsey rule.

particularly GCC countries. Amongst the latter group, sales taxes in UAE account for a significant share of total tax revenue. In non-oil MENA countries like Turkey, Morocco, Jordan, and Tunis, the share of DTGS in total taxes, current revenue, and GDP is quite significant. For this group, the ratio of DTGS to GDP is 8.45 per cent, not too far from that in OECD (10.32 per cent). Amongst non-GCC MENA countries with a population exceeding fifteen million, Iran has the lowest sales tax ratio. Excise taxes constitute about one half of DTGS in OECD but slightly less in the MENA.

Amongst the components of DTGS, value-added tax has been touted as one of the most important tax innovations of the second half of the 20th century. The most common form of VAT, based on destination principle, is in essence a general sales tax with a better compliance property. Taxation at different stages of production can be a self-monitoring instrument, hence reducing the extent of tax evasion. VAT is a general tax applicable on goods and services. An important efficiency property of VAT is its presumed neutrality, that is, prices for producers and users are the same. VAT and General Sales Tax have been introduced in a number of MENA countries. The principal rate for Morocco (20%), Tunisia (17%), and Turkey (16%) are higher than other countries (Algeria 14%, Egypt and Jordan 10%). Revenue yield for each percentage of the principal rate is the highest (0.44) in Algeria (Handy, 1998). The introduction of a comprehensive VAT in Turkey not only significantly changed the structure of taxation towards consumption taxes, but it also might have had a positive impact on the trade balance (Erbas and Hewitt 1990).

VAT like general sales taxes, is presumed regressive. There are, however, some qualifications regarding this general statement. Basic consumer goods can be exempted from taxation (or taxed negatively, as it is practiced in a number of MENA countries[27]) and luxuries can be taxed at higher rates to render this tax more progressive. On a theoretical level, differential tax rates on commodities can result in higher welfare if the income tax system is sub-optimal (Stiglitz and Atkinson 1980). However, if income tax schedules are optimal, levying differential taxes is not welfare improving. A good case for application of differential commodity taxation can be extended to commodities with negative externalities. Extending differential taxation to a large number of goods entails costs. It makes the tax base narrower, and introduces substantial administrative complications.

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[27] A number of MENA countries pay subsidies for basic foodstuffs. See van Eeghen (1998) for details.

VAT has been regarded as the top tax choice in DCs because of its broad coverage and efficiency properties, and is considered a good replacement for trade and corporate income taxes. In addition, it has been recommended to restrict excises to a limited number of items and to bring most other commodities under a unified VAT system (Cnossen 1991). More countries in MENA have introduced a VAT or a GST system or are planning to introduce a VAT system. Aside from the countries that were mentioned previously, Iran has drafted a VAT program for its Third Development Plan (2000-2004). Lebanon and Syria have not yet introduced a broad-based consumption tax. There are concerns for the success of VAT as an alternative to other taxes, due to administrative and paper work complexities, particularly in countries with large numbers of small businesses and too many exemptions. [28] Moderate VAT rates and limited exemptions can address some of these concerns.

2.1.6. Trade Taxes

In contrast to income and indirect taxes, international trade tax tends to be negatively related to the level of income and the stage of development (Goode 1984). Using a 39 developing country sample, it has been shown (Farhadian-Lorie and Katz 1989) that the ratio of import duties to total tax revenue is positively correlated with the degree of openness (the ratio of total trade to GDP), and negatively to per capita income and the rate of inflation. Industrial countries have a distinctly lower proportion of trade taxes in GDP. Taxes on international trade and transactions in OECD countries account for only 0.56 per cent of GDP, much lower than other regions of the world. Trade taxes as a proportion of GDP in MENA (excluding GCC) is about 3.9 per cent, which is significantly higher than OECD countries but lower compared to other regions of the world (table 1.1 and 2). Trade taxes, as a proportion of TR in MENA, (excluding Turkey) is 18.5 per cent. In Jordan and Morocco, the proportion of trade taxes in GDP is higher than other countries. Turkey has had the lowest international trade tax (as a proportion of TR and of GDP) amongst non-oil MENA countries. For 1995/96, the share of trade taxes in TR for Turkey was 2.32 per cent. Export duties account for a very small proportion of trade taxes in all MENA countries.

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[28] Just as there are concerns for its failure, there are concerns about its potential success. Since VAT is not a direct tax and is hidden in the total price consumers pay, its successful implementation may result in an ordinate increase in the size of the government.

Trade taxes as a proportion of GDP have declined in all regions of the world economy since 1975 (Abed 1998). Export taxes have declined both in OECD countries, non-OECD countries, also in the MENA region. Import taxes have declined steadily in OECD since 1975. However, for non-OECD countries (including African and Asian countries), import taxes as a percent of GDP increased between 1975 and 1985 and then declined. For MENA countries export duties had a declining trend since 1975. The ratio of import duties to GDP declined between 1975 to 1990, but the trend was reversed in the early 1990s. The ratio of import taxes in GDP in MENA countries was 3.4 percent in the 1997/98, lower than that in Africa, Western Hemisphere, and slightly higher than Asia.

Less reliance on trade tax, especially import tax, in the MENA has followed trends in the world economy. Greater trade liberalization in Southern Mediterranean region have contributed to lower import taxes (per unit of GDP) in Lebanon, Morocco, and Tunis, resulting in the loss of significant fiscal revenue in the recent years. Turkey has had a low trade tax GDP ratio for a many years. Lower import-tax ratio in GDP in Iran is partly due to lower import volumes. Still in most non-oil MENA countries import taxes constitute a large proportion of tax receipts. Effective import duty rates are higher in Syria, Egypt, and Morocco than other MENA countries.[29] Import duties, however, do not reflect the extent of trade restrictions due to widespread use of quantity restriction on imports in a few non-oil MENA countries.

Theoretically, taxes on traded goods create distortions in both consumption and production and hence are allocative-inefficient. Their existence, in the absence of lump-sum taxes is usually justified in terms of their collection cost. Distortions in consumption and production can result from both tariff and non-tariff restrictions on trade. In general, quantitative restrictions on trade are inferior to tariffs. Hence, as the first step towards rationalizing trade protection, a country can undertake measures to either transform trade quotas to tariffs or auction import licenses, in which case the auction price, in equilibrium, is equivalent to a tariff. The market value of import licenses is paid to the government as revenue raised. The income distribution is affected by transferring rents associated with licenses to the government. When there are quantity restrictions on trade and/or foreign exchange is

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[29] It is well known that to the extent quantitative restrictions and banned imports are enforced, effective tariff rate becomes a less reliable measure of trade protection.

rationed, the market price is frequently determined by the severity of such constraints. Under these conditions, tariffs do not determine market prices, but transfer rent from holders of import licenses or foreign exchange rations to the government. In such a system, trade taxes largely become lump sum (Shah and Whalley 1991). Therefore, the first step towards reforming the structure of protection not only has a positive revenue effect, but because it allocates trade taxes to owners of capital (merchants), distributional consequences are not regressive.

The second step in reforming trade taxes has to deal with the argument that tariffs are inferior to VAT or more generally sales taxes on final consumption goods. In this case, it has been shown that, if lump-sum taxation is administratively impossible (or excessively costly), then in an open economy, the optimal indirect tax regime is in the form of a tariff in harmony with a domestic sales tax. This tax, to be levied on final goods only, consists of a tariff with an equal (excise) tax on domestically produced goods (Diamond and Mirrlees 1971, Dixit and Norman 1980, Ahmad and Stern 1987 and 1989). This tax neutrality can be achieved with VAT. This requires applying zero rates to exports and allowing reclaim of tax paid on input purchases, and taxing imports in par with domestic output.[30]

Trade tax Policies should consider the current trends in the world economy. Globalization, and the requirement that WTO imposes on its members, not to mention regional trade agreements, is a force in the direction of the removal of the quota/licensing system, and over the longer horizons, less reliance on trade taxes. The current trends in the world economy imply reduced and more transparent trade protection. This is consistent with the direction of reforms undertaken in several Southern Mediterranean countries. The impact of globalization on budgetary revenues is not clear-cut. In the short-run reduced tariffs may create a revenue short fall but in the intermediate-run removal of the quantitative trade protection will transfer trade rents to the treasury. Moreover, reducing high tariff rates could potentially reduce tax evasion and smuggling activity. Lower tariffs and removal of quantitative restrictions on imports have two additional short-term impacts: an increase in the exchange rate and loss of domestic output in highly protected industries. The impact of the former is ambiguous, and depends on the relevant trade elasticities and the degree of price flexibility in the asset and traded goods markets. Lower tariffs may also induce growth of

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[30] The above arguments are cast under a competitive framework and within the Hecksher-Ohlin model and do not consider complications arising from introduction of non-competitive market structures.

trade and counterbalance the initial decline in trade-tax revenues (Abed 1998). The latter impact can result in less domestic tax revenue--especially if subsidies are insignificant. However, given the relatively limited ratio of corporate tax to GDP in most MENA countries, the important issue is not the loss of tax revenues but the problem of unemployment.

3. Trends in Aggregate Fiscal Ratios in MENA

3.1. Aggregate Tax Level and Development Finance:

In the three decades following the WW II development economics and development policy was primarily focused on ways to boost the national saving rate to finance capital accumulation. Raising the share of taxes in GDP was a strategy to mobilize resources to finance a higher investment/GDP rate, to launch a public-investment led growth process. This Keynesian "big-push" thinking could be easily knotted to a neo-classical growth model to show the positive impact of a higher tax-financed rate of capital accumulation on the transitional dynamics of per capita output. Enhancing taxable capacity in developing countries was an important policy objective during this period. In the context of a simple Phelps-Shell type growth model, it can be shown that an increase in the tax ratio to finance a higher government investment rate will result in a higher capital per worker and per capita income (Bartsch and Tolkemitt 1989). Endogenous growth models have been developed to derive the optimal tax-financed government expenditure ratio in steady state (Barro 1990 and Barro and Salai-Martin 1992). In this class of models, an increase in the tax-financed government investment raises growth up to a maximum, however as the distortive effects of higher taxation outweighs the positive effect of government expenditures further expansion results in lower growth.[31] The insight some pioneers in development finance had in mind (Nurkse 1953) was not getting "big-push" results from neo-classical growth models. Rather, how taxation can substitute an underdeveloped credit/money market to fund more investment. Under-funding and rationing by a rudimentary financial market with costly information was later shown to be pervasive (Stiglitz and Weis 1981, Stiglitz 1994). When asymmetric information exists, moral hazard and adverse selection problems can result in credit rationing, because the riskiness of projects and individual borrowers cannot be determined a priori. The implied market failure and under-funding of investment projects were thought to be

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[31] In the benchmark model, expenditure or tax to output ratio that maximizes growth is equal to the marginal product of public service.

rectifiable by reallocation of savings to the public sector through a higher tax ratio. It was implicitly assumed that positive externalities of a higher investment rate (Rosenstein-Rodan 1943) financed in this fashion outweighed distortion cost of taxes. Development thinking up to the early 1970s reflected this general view. Although the emergence and popularity of AK and endogenous growth models (Lucas 1988, Roemer 1986, and Barro 1995) since mid-1980s have made the case for raising saving, investment, and policy intervention more potent, structural adjustment policies disfavored government-financed "big-push" strategy. This was partly a reaction to over expansion of government activity and huge budget deficits during the early 1970-mid 1980s, and inferior growth and inflation performance compared to the previous two decades. Higher tax/GDP ratio became of interest for a different reason: monetary stability and control of inflation. In fact, policy targets for the tax ratio became a part of IMF supported stabilization (Tanzi 1990a). We will see later that MENA countries faced the same process of over expansion and a subsequent down sizing of the government as did many other DCs within the same time span.

The aggregate tax ratio in developing countries in fact did rise in the 1970s but the oil and commodity shocks of this decade overwhelmed whatever positive effects it might have had. Due to the impact of oil revenue, the movement in total (tax plus non-tax) revenue to GDP is not highly correlated with tax/GDP ratio in a number of MENA countries.

Time trend of the ratio of tax/GDP and government-expenditure/GDP for MENA countries are shown in figure 1. In most non-oil MENA countries the tax ratio rose significantly during the 1970s and the mid 1980s. Morocco and Tunis have seen their tax shares rising since the early to mid-1970s.[32] The tax/GDP ratio peaked in 1982-84 in Tunis and after declining for a few years, it is rebounding and approaching the peak levels. In Egypt, tax/GDP ratio peaked in 1980/81, and after a period of staying at higher levels, it has had declined since the early 1990s. In both Jordan and Syria the tax/GDP ratio has risen significantly since the mid-1970s. In Turkey the tax ratio rose in the early to mid-1970s and peaked in the late 1970s, and after a significant fall in the 1980s, is reverting to the peak levels.[33]

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[32] The data is based on the ratios provided by WBDI, 1999. Total tax in the above source corresponds to total tax, line IV (A. IV) "Table A. Revenue and Grants", and Total Expenditure to line 7 (C.II) in the Consolidated Central Government Summary tables in IMF, Government Finance Statistics.
[33] The rise and the subsequent fall in the average tax ratio in some MENA countries is consistent with the experience of the developing countries as a whole, though the range of the movement of this ratio for MENA countries is wider.

It should be noted that, while a higher tax ratio reflects the ability of the government to finance higher levels of development and social programs, it is not necessarily an economic virtue. The caveat is: non-neutral taxes cause distortions in behavior and result in excess burden even if the public sector is as efficient as the private sector. If taxes are optimally structured, higher tax levels still have higher levels of excess burden. When reallocation of resources engineered by the public sector creates significant positive externalities, and if equity is an argument in the social welfare function, the above generalization should be modified. At any rate, if such a situation exists, then one would expect to see a positive impact of government taxation and expenditures on growth and income distribution. We shall look at the evidence regarding Fiscal policy and growth in MENA later.

3.1.1. Determinants of the Tax Level

The average proportion of total revenue in GDP in industrial countries shows a very remarkable degree of stability, with a standard deviation of about 0.22 per cent. The same ratio for DCs is not as stable, with a standard deviation of 0.98 per cent (table 4). For the MENA region, this ratio is much less stable (more on this in section 4). Total revenue and GDP in industrial countries are highly cointegrated. Although both series are not stationary, a linear combination of the two is--hence the existence of a cointegrating vector.[34] This infers the existence of a long-run equilibrium relationship between these two variables. The stability of the tax ratio in industrial countries reflects the existence of stable underlying economic and institutional processes. For developing countries that have not reached this stage, the average tax ratio may not be as stable. In fact, it is hypothesized to have an upward trend in the primary stages of development. The average ratio reflects both taxable capacity and the tax effort. Unlike some other aggregate variables such as consumption and saving, there is no widely followed model in the literature to explain the relationship between economic development and the tax level. What we know about the determinants of the tax level are based on a number of empirical studies by Musgrave (1969), Chelliah et al., (1975), Tait et al., (1979), Tanzi (1987), Burgess and Stern (1993), and Ghura (1998). These studies indicate that the ratio of taxes to GDP in developing countries is sensitive to measures of tax

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[34] If two series like real output and total revenue (or expenditures) are integrated of order one and are cointegrated, their difference is stable around a fixed mean. See Engel and Granger (1987) for more details.

capacity (per capita income[35], the structure of the economy, the degree of openness, urbanization, and literacy). It is also influenced by variables that affect the "tax effort" like, oil-revenue, government expenditures/GDP ratio, and foreign loan and grants. Tax handles for a typical developing country are international trade, oil and mineral production (especially if they are foreign-owned), and transactions within the formal sector. Therefore, the tax ratio, during the early to intermediate stages of development, is positively correlated with urbanization, the share of the industry and services in GDP (which are administratively easier to tax than semi-monetized agricultural sector), openness. It is inversely related to the share of agriculture and the informal sectors in GDP (Tait et al., 1979). Ghura (1998) relates the actual tax/GDP ratio to the targeted (desired) ratio, measures of tax capacity given by the available tax-handles, macroeoconomic policy variables, and a proxy for "corruption". The targeted tax/GDP ratio is obtained from the government's constrained utility maximization. [36]

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[35] As mentioned in section 2, one measure of tax capacity is the ability of individuals and firms to pay taxes. A weak but significant relationship between the tax ratio and per capita GNP for large samples of developing countries has been reported by previous empirical studies (Tanzi 1987, Burgess and Stern 1993).

[36] The actual tax/GDP ratio, denoted as T/Y is assumed to be a function of the targeted (or desired) ratio, $(T/Y)^*$, and the potential tax capacity, which is given by the available tax handles (or bases), macroeoconomic policy variables. Ghura (1988) adds a corruption factor to other variables, which we ignore here. In a compact form

$$T/Y=f[h, \mathbf{E}, (T/Y)^*] \qquad\qquad (1)$$

where h represents tax handles, described in the text, and $\mathbf{E}$ is a vector of policy variables. The targeted tax/GDP ratio can be obtained by assuming a utility function for the government (Heller 1975, Ghura 1998). Government utility is an assumed function of disposable income (Y-T), government expenditures G, net domestic government-debt (D), foreign Grants (F), and loans (L).

$$U=U(Y-T, G, D, F+L) \qquad\qquad (2)$$

the signs of the partial derivatives are, +, +, -, - if D, F+L>0, and vice versa.
The above utility function can be specified in different forms to get a slightly different final reduced-form. In MENA countries, non-tax revenue, reflecting the impact of oil-related revenue, can be an argument in the utility function. Government consumption expenditures can be put in the utility function in place of total expenditures, and G can be an element $\mathbf{E}$.
Government's budget constraint is, T+D+F+L=G. Again, in the context of MENA countries, non-tax revenue should be included as one of the main components of the sources of funds.

Writing (2) as a quadratic function and maximizing it, subject to the budget constraint, with respect to T, G, and D yields an expression for the targeted tax level. Inserting this into (1) gives the expression for the determinants of the tax level. The variables included in the estimated equation (Ghura 1998) is similar to the previous models cited in the text, except for the inclusion of policy variables, a corruption variable, a negative relationship between (F+L) and T/Y, and an ambiguous term between per capita income and T/Y.

To explain the observed time trends (and not cross-sections[37]) in tax/GDP ratio in MENA countries, this variable was regressed on the measures of tax capacity. These included, the share of agriculture in GDP, the share of modern sectors in GDP (industry and services), per capita income, total trade GDP ratio (as an indicator of openness), import GDP ratio, the share of fuel exports to total exports, and the ratio of urban to total population. In addition, fiscal factors such as the share of non-tax revenue in GDP, and fiscal-policy factors like the ratio of government expenditure to GDP, and economic policy variables like the rate of inflation were included. Non-tax revenue can also be conceived as a proxy for oil revenue.[38] The regressions were performed for selected MENA countries. The only selection criterion was the availability of a sufficient number of annual observations. The results are shown in table 4.1.[39] Both structural and fiscal factors influence the tax ratio in MENA countries, and a few explanatory variables seem to be significant in nearly all regressions. Fiscal factors seem to be more important in explaining variations in tax/GDP ratio. The ratio of government expenditures to GDP is a significant variable for nearly all the countries for which a test was carried-out, with an expected positive sign. The share of oil-revenue in GDP was significant in Iran and has a negative sign. This indicates that non-tax revenue acts as a substitute for tax revenue and hence reduces "tax effort". Non-tax revenue, which includes oil revenue in Egypt did had a positive sign. Oil revenue in Egypt is about one-half of non-tax revenues, therefore this variable may not have a strong substitution effect as oil-revenue has in the case of Iran. Per capita income, openness, and the share of modern sector were significant with the expected signs in some cases. For example, for Morocco the openness variable has a negative sign. In Jordan, urbanization has the expected positive sign, but per capita income has a negative sign. In models that obtain desired tax ratio from utility maximizing behavior by the policy makers (Ghura 1998 and Leuthold 1991), the sign of the coefficient of per capita income is ambiguous. Generally, this coefficient can be positive if the impact of rising income on direct taxes is greater than the decline in trade taxes as the economy reaches higher levels of income and integration into the world market. As expected, the rate of inflation has a negative impact on the tax ratio in the case of Iran and Jordan.

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[37] The objective here is not to conduct a comparative tax-effort type empirical investigation (e.g. Tait et al., 1979) by taking a cross-section of countries and relate their tax/GDP ratios to the measures of tax capacity.

[38] Non-tax revenues can include other non-tax revenues, e. g. Suez Canal revenues in Egypt.

[39] The time series data used for the regressions are based on World Development Index 1999, CD-ROM, World Bank.

In Turkey, this variable was negative but not significant at 10 per cent, and was dropped. The regressions reported here pass the diagnostic tests for classic assumptions.

In the above regression equations a measure of the cyclical fluctuation was included. This variable reflects the impact of economic cycles on the ratio of taxes to GDP. For a number of countries cyclical output, defined here as the deviations of GDP from trend was significant and had the expected positive sign, indicating that some variations in the tax level is due to cyclical fluctuations in output. The positive sign indicates that, when output (income) is above trend the ratio of taxes to GDP moves up.[40]

3.2. Non-Tax Revenue, Fiscal Ratios, and Economic Fluctuations

The proportion of *total revenue* in GDP in MENA countries, as a group, is the highest in the world. Total revenue to GDP ratio in MENA countries averaged 31.5 per cent during 1980-1995, compared to 19 per cent in developing countries and 21 per cent in industrial countries during the same period.[41] The proportion of non-tax revenue in TR and in GDP in MENA countries is also the highest in the world. Non-tax revenue is the largest component of government revenue in oil-exporting MENA countries. In Jordan, it is second to trade taxes. In non-oil MENA countries like Morocco, Tunis, Lebanon, and Turkey the share of non-tax revenue in total taxes is significant but not large. For most other countries, non-tax revenue is the

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[40] Due to limited time series data on GDP, cyclical output was not included in the regression equation for Jordan. We used the Hodrick-Prescott filter, shown below, to approximate for cyclical output.

$$\min\{(1/T)\sum_{t=1}^{T}(x_t - s_t)^2 + (1/T)\sum_{t=2}^{T-1}[(s_{t+1} - s_t) - (s_t - s_{t-1})]^2\}$$

A popular device, for separating the trend from the cycle, while allowing for a flexible trend, is the HP filter. This filter is based on the idea that not all frequencies observed in a variable are a business cycle frequency. If, for instance, one assumes that business cycle fluctuation are the type which occur between four to eight years, then movements of a variable which is smoother than the above frequency are considered as trend movements in the variable. In the HP filter (above) the unobserved trend component (s) moves gradually, and is obtained from the above minimization problem. The objective is to choose the trend component of x which minimize the squared sum of deviations (x-s) subject to the constraint that the unobserved trend component (s) changes gradually over time. The Lagrange multiplier for this minimization problem is a positive number that penalizes changes in s.

[41] See Eken, Helbling, and Mazarei (1997) for more details.

largest component of fiscal revenues (table 1.1 and 1.2). The last two columns of table 2 show the division of non-tax revenue into hydrocarbon revenue and other non-tax revenue. Algeria has the highest hydrocarbon revenue ratio to GDP, followed by Iran. The same ratio for Egypt in 1996/97 is 5.2 per cent. The share of hydrocarbon revenue in Egypt was 43.5 per cent of non-tax revenue in 1996/97.

Of the two components of total current revenue, non-tax revenue is less stable than tax revenue for those MENA countries. Tables 5.1 and 5.2 show the mean, standard deviation, and the coefficient of variation of tax/GDP and non-tax/GDP ratios. Countries that have a higher hydrocarbon revenue ratio tend to have unstable fiscal ratios, though there are a few exceptions.[42] Fluctuation in total revenue in MENA countries is substantial.

Fluctuations in any macroeconomic variable can be decomposed into trend, cycles, and noise.[43] Cyclical revenue fluctuations, aside from those with a noise frequency, can stem from (cyclical) fluctuations in the level of economic activity and fluctuations in non-tax revenue, which in a number of MENA countries is dominated by fluctuations in oil revenue. The more elastic is a tax system the larger is the impact of cyclical fluctuation in output on cyclical fluctuation in tax-revenue. The cyclical relationship between taxes and output (GDP) can be examined by the correlogram for these two series. Augmented Dicky Fuller tests[44] performed on real output and real tax revenue for the selected MENA countries[45] indicated the existence of a unit root, so these two series were detrended. Hodrick-Prescott filter was used for de-trending real tax and GDP, and to obtain an estimate of the cyclical value of tax revenue and GDP. Cross correlation between the cyclical component of these two variables can give us some information regarding the cyclical co-movement of these two variables.[46] Following

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[42] Countries for which at least ten years of the most recent observations were not available were not included. These included Algeria Kuwait, and Saudi Arabia.

[43] See Bergstrom and Verdin (1994) for more details.

[44] For a variable x, the ADF test is an OLS test of the following equation

$$\Delta x_t = a + qT + (1-b)x_{t-1} + \sum_{i=1}^{n} d_i \Delta x_{t-i} + x_t$$

T is a time trend. The null hypothesis is Ho=(1- b)=0, b =1, which in this case is not stationary.

[45] The only selection criterion was the availability of a minimum of twenty five annual observations.

[46] Cross Correlation between GDP and real taxes gives us a measure of co-movement between pairs of these variables at different leads and lags. For variables x and y the cross correlation coefficient is:

Blanchard and Watson (1986), a variable is called pro-cyclical (counter-cyclical) if it has predominantly, statistically significant, positive (negative) correlation coefficients. Insignificant correlation coefficients indicate that the variable is non-cyclical (or acyclical). A variable (y) has a cyclical behavior if it displays a pronounced peak. If the peak happen when the variable is lagged (led) relative to a reference variable (usually GDP), it will be called a leading (lagging) variable. In general, if there is a co-movement between GDP and a variable y(t-i) and i>0, and the correlation coefficient is positive, the variable is pro-cyclical and leads the cycle i periods, and vice versa. These also indicate that there is a phase shift in the movement of a variable relative to GDP. If the largest cross correlation coefficient is observed at t+i, then that variables is said to peak at i and lags the cycle i periods.

Tables 6-10 and 11-15 show correlograms of the cyclical values of real tax and GDP, and non-tax revenue and GDP, respectively for the selected countries. As expected, tax is a procyclical variable for all five countries considered. In other words, real tax revenue tends to move above trend when GDP is above trend, and vice versa. For Turkey, Egypt, and Iran tax is a semi-strong procyclical variable. Moreover, for these countries tax revenue tend to lag the cycle. For Morocco, the contemporaneous correlation is not strong but significant, indicating procyclical behavior but taxes do not lead or lag the cycle. In Tunis tax revenue has a weak procyclical behavior. In the case of Iran, which we have estimates of GDP and non-oil GDP, contemporaneous correlation between cyclical output (detrended non-oil GDP) and cyclical real tax revenue is significantly positive, and tax revenue lags the cycle. Cross correlation between cyclical output and cyclical real non-tax revenue (mainly oil revenue) indicates that non-tax revenue is

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$$r_{xy} = \frac{c_{xy}(l)}{\sqrt{c_{xx}(0)} \ \sqrt{c_{yy}(0)}} \qquad l = 0, \pm 1, \pm 2, \ldots$$

$$c_{xy} = \begin{cases} \sum_{t=1}^{T-l} (x - \bar{x})(y_{t+l} - \bar{y})/T & l = 0,1,2,\ldots \\ \sum_{t=1}^{T+l} (y - \bar{y})(x_{t-l} - \bar{x})/T & l = 0,-1,-2 \end{cases}$$

Cyx measures cross co-movment of y and x, and Cyy and Cxx are variance of series x and y. Unlike auto-correlation, cross correlations are not symmetric around lag 0.

strongly procyclical. In addition, in contrast, to tax revenue, non-tax revenue leads the cycle. The reason is that, increases in non-tax revenues relative to trend reflect positive terms of trade impact of the oil sector, which tend to cause an oil-led expansion in the rate of economic activity. Therefore, a positive oil shock leads a positive movement in output. In sharp contrast to taxes, non-tax revenue in non-oil MENA countries does not show procyclical behavior. In fact, except for Iran, none of the countries have a significant positive (or negative) contemporaneous correlation between cyclical movements in real non-tax revenue and cyclical movements in GDP. Only in Turkey cross correlation between the two with output lagged one period is statistically significant, indicating that non-tax revenue is a lagging cyclical variable. Except for a distinct absence of a lack of any contemporaneous co-movement, the cyclical co-movement of non-tax revenue and GDP is ambiguous.

3.3. Government Expenditures

MENA countries, as a group, have the highest government expenditure/GDP ratio in the world. Governments in both oil-exporting countries and non-oil exporting countries in MENA have a strong presence in the economy. For oil-exporting MENA countries this position is enhanced because the governments have the monopoly right of appropriating oil revenue. The average ratio of government expenditures to GDP for the MENA region was 39 per cent during the 1980-95 period, much larger than the average for developing countries (22 per cent) and industrial countries (25 per cent) during the same period. Interestingly, the share of government expenditures in GDP is quite large even in non-oil countries like Morocco, Tunis and Jordan with no significant oil revenue. Table 16 provides data on the mean, standard deviation and the coefficient of variation of the ratio of (central) government expenditure to GDP for MENA countries--for which at least fifteen years of most recent observations are available. The degree of instability in government expenditure (relative to GDP), like other fiscal ratios, in MENA countries is higher than other regions of the world economy. The greater instability of non-tax revenue and current revenue in countries with a higher hydrocarbon revenue ratio is plausible, because oil revenue fluctuates more than most macroeconomic aggregates. Volatility in oil revenue is transmitted to volatility in non-tax revenue, hence current revenue. The greater volatility in expenditures reflects sensitivity of current government expenditures to current revenues. The government sector's expenditure may not possess the same degree of intertemporal smoothing as

that of the private sector. This myopic behavior can be due to a higher government discount rate or political pressure by various social groups for more spending by the state.

MENA countries, except Turkey, tend to allocate a large share of government expenditures to capital expenditures compared to both developing and developed countries. This observation indicates the important role of governments in MENA countries in funding capital accumulation and development finance through the government budget.

Research interest on the impact of government expenditures on growth in the recent years has been strong. In MENA countries government financed investment constitutes a large proportion of aggregate gross investment. Moreover, in many MENA countries the government, through public enterprises, directly produces goods and services and competes with private producers. In certain industries, government monopolies limit private sector entry and competition. In this case, higher public investment may crowd-out private investment. As shown by Khan and Kumar (1993), private investments are usually more productive than public investment, so a large reallocation away from the private sector might negatively affect growth. [47]

A number of recent studies have focused on the issue of the relative importance of public versus private investment. In the optimal government size model of Barro (1990), if public investment (e.g. in infrastructure) is complementary to private investment, the marginal product of private capital increases and so does the rate of economic growth, up to a maximum. This class of models can generate rough estimates of the optimal government size, and under some restrictive assumptions, the optimal tax ratio in long-run equilibrium. The optimal government size that maximizes growth rate was estimated to be 15 per cent in Iran. This estimate is based on a modified and expanded version of Barro (1990) allowing for the impact of oil revenue (Nili and Amid 1999). Knight, Loayza, and Villanueva (1993) show that the level of investment by the public sector in infrastructure has a significant positive impact on growth. Easterly and Rebelo (1993) also found strong support for a positive correlation between growth and core public investment (communication and transportation). In contrast, Levine and Renelt (1992)

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[47] For example, it is argued that higher government expenditures relative to GDP, particularly if spent on consumption, reduces growth is (Balassa 1990). She also finds a negative correlation between public investment, private investment, and economic growth. Concerning the negative impact of government consumption on growth the weight of evidence is in her favor, however, the same cannot be said about the issue of the relative size of public investment. See Knight, Loayza, and Villanueva (1993).

found that the growth effects of public investment or public education expenditures are not robust.[48]

The empirical evidence regarding the effect of taxes on economic growth is mixed (Tanzi and Zee 1997). Martin and Fardmanesh (1990) show that, amongst the least developed countries, there is a negative relationship between the tax level and economic growth. Engen and Skinner (1992) show a negative relationship between the rate of change in the tax level and economic growth. Easterly and Rebelo (1993) found that amongst a relatively large number of tax measures, only an estimate of marginal income tax was negatively related to growth.[49] More recent studies (Mendoza, Milesi-Ferreti and Asea 1998) show that based on panel regressions for 18 OECD countries, a lower income tax has a statistically significant and positive impact on investment.[50] However, the positive investment effect was not of the order to have a significant long-run growth effect.

A recent study of the impact of fiscal variables on economic growth in MENA countries indicates that, for non-oil exporting countries, the share of government revenue in GDP and the share of current expenditures in GDP, had a negative level effect on economic growth.[51] However, there is a positive relationship between growth and overall budget balance. The share of private investment was positively correlated with economic growth. In sharp contrast, for a panel of oil-exporting MENA countries, economic growth was found to be positively correlated with the share of total government revenue (including oil) in non-oil GDP, and the share of current expenditures in non-oil GDP. In a modified version, the share of capital expenditures in non-oil GDP was found to be positively but insignificantly related to growth in oil-exporting countries.

4. Fiscal Imbalances and Inflation Tax

Although the MENA region had the highest proportion of total revenue in GDP in the world during the 1980-1995 period, it also had the largest budget deficit/GDP ratio for the same period. Budget deficits in MENA averaged

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[48] This is in contrast to the findings of Barro and Salai-Martin (1995) regarding a positive impact of government financed public education on growth.

[49] The estimate of the marginal income tax was obtained by regressing income taxes on GDP.

[50] A lower consumption tax had a negative impact on investment.

[51] See Eken, Helbling and Mazarei (1997) for more details.

around 7.4 per cent of GDP, compared to 4.1 percent for developing countries (table 16). The average deficit ratio for non-oil MENA countries was 11.2 per cent, and for oil-exporting countries was 4.9 per cent, higher than the average for DCs during 1980-1995 period. For the first half of the 1990s, the deficit ratio in non-oil MENA countries declined quite significantly compared to the 1980s period but for oil-exporting countries the ratio increased. Calculated coefficient of variation of deficit/GDP ratio for the last two decades indicates a high degree of volatility in this ratio for most MENA countries. This reflects a high degree of volatility in non-tax revenue and expenditures, and for oil-exporting countries, myopic expenditure policies. Also, with an increase in oil revenue, expenditures increase but when oil revenues decline, expenditures are not cut proportionally. Policy makers may not be able to distinguish between short- and long-term terms of trade shocks to determine their intermediate-term expenditure policies. Therefore, establishing a reserve-fund in the budget to smooth intertemporal fluctuations in oil revenue might be a prudent policy.

Table 16.1 compares the budget deficit and gross domestic saving to GDP ratios for some selected MENA countries since 1970. The figures indicate a notable deterioration in the fiscal balance in mid 1970s until mid 1980s, and a significant improvement afterwards. For a few years during the 1980s, the ratio of the budget deficit to GDP exceeded domestic saving to GDP ratio in several countries. The remarkable achievement in MENA countries over the last fifteen years has been a significant decline in the budget deficit ratio and a corresponding increase in domestic saving per unit of GDP.

Budget deficits cannot grow relative to GDP without having substantial destabilizing effects. The government can achieve a sustainable primary deficit (constant debt/GDP), but since in this situation the total stock of debt grows at a rate the economy is expanding, it still needs to tap savings from domestic and foreign capital markets.[52] If lenders are not willing to continue

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[52] Cuddington (1996) discusses "accounting" and "present value criterion" definition of fiscal sustainability and empirical tests of sustainability. Defining B as the stock of outstanding debt, r the ex post return on government bonds during period t, the outstanding debt in this period is related to the last period's debt and the government budget primary surplus (SUP) as in the following:

$$B_t = (1 + r_t)B_{t-1} - SUP_t \qquad \text{dividing by Y (or GDP) we have}$$

$$\frac{B_t}{Y_t} = \frac{(1 + r_t)B_{t-1}}{(1 + g_t)Y_{t-1}} - \frac{SUP_t}{Y_t}$$

funding government borrowing requirements[53], then economic and institutional adjustments to reduce government expenditures or raising private saving must be made to avoid high inflation rates.

4.1. Seniorage

Seniorage is a widespread form of implicit taxation in MENA. It represents the amount of resources the government appropriates through creation of monetary base. $S=dM/P=g(M/P)$, where S is Seniorage, M is base money, and $g=dM/M$ the proportionate growth rate of money. In steady state when real balances held by the public are constant, $M_t/P_t = M_{t-1}/P_{t-1}$, seniorage is equal to the inflation tax$=dP/P (M/P)$.

Denoting lower case letters as the ratio of the variables to GDP, and noting that g is the growth rate of the economy

$$b_t = \frac{1+r_t}{1+g_t} b_{t-1} - \sup_t$$

Taking the first difference of the above

$$\Delta b_t \equiv b_t - b_{t-1} = \frac{r_t - g_t}{1+g_t} b_{t-1} - \sup_t$$

Setting the above equation to zero, in the case where seniorage and foreign borrowings are non-existent, the level of the sustainable primary surplus (deficit) in units of GDP for t is:

$$\sup_t = \frac{r_t - g_t}{1+g_t} b$$

[53] The present value constraint approach (Cuddington 1996) considers this possibility. Government finance constraint, the first equation in the previous footnote, can be iterated forward to yield (assuming expected real interest rates are constant) the following expression:

$$B_{t-1} = \sum_{j=0}^{N} \frac{SUP_{t+j}}{(1+r)^{j+1}} + \frac{B_{N+1}}{(1+r)^{N+1}}$$

Imposing the "no Ponzi game" condition,

$$\lim_{N \to \infty} \frac{B^{N+1}}{(1+r)^{N+1}} = 0$$

The above condition states that the present value of government debt will approach zero. For this, the discount factor must grow faster than debt.

The relationship between budget deficit and inflation is not simple and uniform.[54] How deficits affect major macro variables like output, inflation, and interest rates, depend on how they are financed. If the deficits were monetized by the central bank and through creation of base money, assuming a stable money demand, the consequence would be inflation. Higher deficits and monetary growth may not yield higher inflation tax due to the existence of a Laffer type effect.[55] If the deficits are financed through borrowing from the public, the impact in the short and intermediate term will be on interest rates and partially on inflation. In financially repressed economies with [56]administratively set interest rates, deficits result in credit reallocation to the government sector and quantity rationing in the credit market, hence crowding out of private investment. If deficits are financed externally, or by drawing down of foreign assets, accumulation of foreign debt and current account imbalance will result.

The proportion of seniorage in GDP in the MENA region over the 1981-1995 period was roughly equal to, if not greater than, the proportion of taxes

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[54] There are various explanations why the empirical relationship between the two is not as strong as one might expect. For an explanation based on wage-cycles see Buffie (1999). It should be added that if seniorage enters as a financing item in the budget, primary fiscal surplus (SUR) is equal to taxes (T) plus seniorage minus government expenditures (G).

$$SUP_t = T_t + p_t(M_t / P_t) - G_t$$

[55] Assuming a Cagan (1956) type demand for money, where M is base money, P the aggregate price level, r the real interest rate, and Y real output,

$$(\frac{M}{P}) = a(Y^l)e^{-br}, \quad l = 1, \quad b \rangle 0.$$

The nominal interest rate is equal to r plus the expected inflation rate. In the steady state, expected inflation is equal to the actual rate, the latter being equal to the growth rate of base money g. Designating the steady state values of the variables by a bar on them, seniorage, S, is equal to

$$S = ge^a \bar{Y} e^{-b(\bar{r}+g)}$$

$$= Dge^{-bg}, D \equiv e^a \bar{Y} e^{-b\bar{r}}$$

The rate of change in S with respect to an increase in the growth rate of money is

$$\frac{dS}{dg} = De^{-bg} - bDge^{-bg}$$

$$= (1 - bg)De^{-bg}$$

The above expression is positive for 1/b>g and negative when g is greater. This results in an inflation Laffer curve where seniorage can be maximized at dS/dg=0, but will decline at a sufficiently high g.

on income in GDP. The percentage share of seniorage in GDP in non-oil MENA countries was 5 percent, significantly higher than 1.2 per cent in oil-exporting countries during the same period. In oil-exporting countries money financed deficits were less frequent than in non-oil MENA, hence seniorage was a smaller fraction of GDP. Estimates of seniorage for some selected MENA countries are shown in table 16. Note that, the amount of seniorage that can be raised during economic crises can be very significant and much larger compared to the average amount over a period. The proportion of seniorage in GDP in some years can be several times greater than the average amount over a period. Table 16 shows both the average and maximum values. Similarly, an initial and unexpected inflationary wave can generate significant inflation tax. However, maintaining a high inflation tax yield on a durable basis is very difficult, and this is not a viable long-term public-finance strategy.

All MENA countries shown in tables 17 and 17.1, including several countries with relatively large budget deficit/GDP ratios during the 1980s, have reduced their budget deficits. Morocco, Syria, and Tunis implemented measures to balance their fiscal position in the mid-1980s. Iran took measures to reduce its budget deficit through rationalization of the price of publicly produced and distributed goods and services. Additionally, devaluation of the domestic currency was utilized to increase the domestic currency value of government non-tax (mainly oil) revenue. In spite of a significant reduction in the deficit rate over the 1988-1997 period, rapid growth of government expenditures and fluctuations in the price of oil limited the extent of deficit reduction. Egypt and Jordan began stabilization policies in the early 1990s. Persistent budget deficits in Turkey were an important contributing factor in the 1994 financial crisis, and the progress on deficit reduction has not been satisfactory. Algeria and Egypt have succeeded in achieving a sustained reduction in their budget deficits. Since the early 1990s, Egypt has begun a fiscal consolidation program mainly through expenditure reduction, primarily on subsidies and investment. Growth of fiscal revenue has not been as important in bringing balance to the budget. Budget deficits in Egypt have gradually been reduced to less than one per cent of GDP. As a group, MENA countries have been successful in reducing their budget deficits through expenditure reduction and to a lesser extent higher taxes. Raising public saving (reducing the budget deficit) is perhaps the only policy measure known to be effective in

raising national saving.[57] It is argued that creation of budget surpluses can achieve two objectives: boosting national saving, and deepening domestic financial markets by providing funds to the private sector and public enterprises on a competitive basis (Blejer and Cheasty 1989).

Inflation-tax is generally presumed to be economically inefficient, regressive, and unpopular--because it is not a legislated tax. Since money is the least costly means of payment, inflation-tax entails efficiency loss because it reduces the optimal amount of money-balances for transactions. This efficiency loss is readily inferred from a Baumol-Tobin money demand model. Inflation also increases uncertainty and deteriorates the macroeconomic environment for economic growth. Moreover, by creating inflationary noise it adversely affects economic efficiency. The evidence shows that countries with a relatively high and persistent inflation tend to have inferior growth rates (Fisher 1993). The economic effects of inflation, however, may not be the same at low and high inflation rates (Sarel 1996). Low inflation rates tend to be less damaging. For poverty reduction, stable aggregate demand policies that promote sustainable economic expansion are preferable to (deficit-financed) expansionary monetary policies that result in cyclical economic expansions (Roemer and Roemer 1998). In economies with no or partial wage-indexation schemes, unanticipated inflationary shocks can have a significant impact on the real wage and consequently have detrimental impacts on income distribution. Formally, if the estimated income elasticity of money were less than unity, inflation tax would be regressive. However, most demand for money estimates in MENA show an income elasticity of greater than unity for broadly defined money. Some estimates show lower income elasticity for narrowly defined money or currency.[58] These estimates are based on macro aggregates and time series data. If low-income households hold more currency relative to inflation-hedged financial and non-financial assets (non-sight deposits, bonds, foreign exchange deposits, and durable goods), inflation tax would be regressive. Inflation also raises the cost of consumer goods and services and hit low-income individuals, with a lower saving/income ratio, harder.

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[57] Easterly, Rodriguez, and Schmidt-Hebbel (1994).

[58] For instance, demand for broad money in Egypt has an elasticity of 1.69, and for currency 1.06 (Handy 1998). My own estimate of the long-run income elasticity for narrow in Iran is 1.49. Broad money in Tunis has an income elasticity less than one but a broad measure, which includes treasury bills, has an elasticity greater than one (Treichel 1997). For a review of Demand for Money in MENA countries see Tahir (1995).

Another negative aspect of inflationary finance is that it is not sustainable. Inflation reduces the quantity of real balances when there are lags in tax collection (Mourmouras and Tijerina 1994). If the system allows lagged collection and the tax laws allow for loopholes, the incentive to pay taxes late is a positive function of the rate of inflation. Aghevly and Khan (1978) studied a dual relationship between government deficits and inflation. Monetization of government deficits generates inflation tax, but at the same time higher prices tend to increase nominal government expenditures. If the collection lag is substantially larger than the payout lag, anticipated inflation might result in worsening the budget deficit. For instance, in the case of Iran, the average in collecting taxes is about 8.5 months and the average lag in government payout is about 7.7 months, and the empirical studies show that higher prices have a positive impact on the quantity of nominal government expenditures.

5. Conclusion

The main points raised in this paper are:

1-Non-oil MENA countries have a tax structure similar to middle-income developing countries. Amongst the former, Morocco and Tunis can be classified as "high tax-effort" countries. The proportion of total tax revenue in GDP in these countries is about 23.5 and 25.4 per cent, respectively.[59] The structure of fiscal revenues in oil exporting MENA countries (particularly GCC) is quite different from low, middle, and high-income countries. The average tax ratio for this group is distinctly lower than any other region or developing country group. Non-tax revenue is the largest source of government revenue in oil exporting countries. MENA countries with relatively large populations, like Algeria, Iran, Egypt, and Syria, with different levels of oil related revenue, tend to have a structure somewhere between the two. The average tax ratio for this group is significantly less than that for middle-income countries. The smaller is the share of fuel exports in total exports the closer is the structure of taxes to that for middle-income countries. Turkey has a tax structure similar to the European countries, and taxes on income constitute a little less than one-third of total revenue. Interestingly, Turkey also has the lowest total revenue/GDP[60] ratio in the region.

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[59] The figures are for 1997-1998, and estimates from IMF.
[60] Total revenue is equal to tax revenue plus non-tax revenue.

2- MENA countries have been able to raise more revenue from domestic taxes on goods and services (including VAT) compared to other type of taxes. In non-oil MENA countries like Turkey, Morocco, Jordan, and Tunis, the share of domestic taxes on goods and services in total taxes, current revenue, and GDP is quite significant. The countries that have implemented or are planning to implement VAT in the near future have increased in number significantly. The proportion of indirect taxes to GDP in oil-exporting countries, particularly GCC, is low compared to other developing countries.

3-Except Turkey, the share of income taxes (particularly individual income tax) in total revenue in MENA is low by international standards. This is most distinctively the case in oil-exporting MENA countries. Significant differences between the statutory and the effective tax rates observed in a number of MENA countries indicates that improved tax administration can result in more revenue. By broadening the base for individual income tax, rationalizing the existing rates[61], reducing permissible deductions and exemptions, and improving collection, government finances in a large number of MENA countries can improve significantly. Oil-exporting countries with a large population need to do more in this respect, as population growth is expected to increase demand for public expenditures and reserve depletion is expected to limit the flow of non-tax revenue.

4-Given data limitations, it is not possible to make a definite judgment regarding progressivity or fairness of the current tax systems in MENA countries. To address this question and to study the economic impacts of taxes and social expenditures, a more comprehensive regional data bank is needed. Given the low level of individual taxes in most MENA countries, research on how to improve the performance of this (and social security) tax in terms of efficiency, equity, stabilization, and growth, should be given priority.

5-Trade taxes as a per cent of GDP have declined in MENA, and are expected to decline further due to trade liberalization measures underway in Southern Mediterranean region, and WTO membership. Tunis and Morocco have lost a significant amount of import-tax revenue and projections for revenue loss in Lebanon is much higher.[62] Tariff reduction will likely have an adverse effect on government finances in this region. A broad based

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[61] A number of MENA countries have already implemented corrective measures in this respect.
[62] See Abed (1998) for more details.

generalized sales tax or VAT and overhaul the of income tax system seem to be the suitable substitutes. For those countries that use quantitative import restriction, the first step towards rationalizing trade protection is to transform trade quotas to tariffs. The second step is to eliminate complex duty schemes, remove unfounded exemptions, and reduce trade taxes.

6-Basic fiscal ratios (total revenue, government expenditures, budget deficit to GDP) in MENA during the last two decades have been higher than other regions of the world. The share of government expenditures in GDP is quite large even in non-oil countries like Morocco, Tunis and Jordan. Governments in MENA have been the primary source of development finance but public investments have not had a strong growth effect. Higher tax levels or higher public investment/GDP ratios may not positively affect growth and development if the resource allocation in the public sector is inefficient. Policies to enhance tax capacity and collection should be complemented with policies to improve governance, accountability, and transparency of government operations.

7-Basic fiscal ratios in MENA are more volatile than the rest of the world. Oil-revenue fluctuations are the major source of instability in oil exporting countries. They have the least stable revenue/GDP ratio in the world. However, the problem is not unique to oil-exporters. Revenue/GDP ratio has been significantly more volatile in non-oil MENA countries than that in developing countries, and far more volatile than that in industrial countries. Since the short-term and intermediate-term terms of trade shocks in oil-exporting countries are not easily distinguishable, fiscal authorities can run the risk of over (under) estimating government revenue. Setting intermediate-term expenditure targets, based on over-estimated revenue flows, can be destabilizing. Therefore, creating a reserve fund in the budget to smooth the time path of oil expenditures can substantially reduce fiscal volatility and the balance of payments shocks.

8-Taxes exhibit procyclical behavior in a selected number MENA countries for which availability of time-series data allowed statistical testing. As expected, taxes are procyclical and lag the cycle. Non-tax revenue, mainly originating from oil revenue, is strongly procyclical and leads the cycle. This owes to the fact that positive oil shocks inject real resources to the economy, with an expansionary impact on aggregate demand and output.

9-Eventhough MENA countries have had the highest revenue/GDP ratio for the last quarter of century, they also had the highest budget deficit/GDP ratio during the 1980-1995 period. The proportion of seniorage in GDP was significant in MENA countries during the last two decades. As a source for financing expenditures, it was roughly equal to the proportion of taxes on income in GDP during the 1980-1995 period. During the 1980s, MENA countries reached dangerous levels of fiscal imbalance. The very remarkable achievement in MENA countries, particularly in a number of non-oil countries, over the last fifteen years has been a significant decline in the budget deficit ratio and a corresponding increase in domestic saving per unit of GDP. Note however that, there is a limit to expenditure reduction as a strategy to reduce deficits since it can compromise poverty reduction objectives. Lower budget deficits, if achieved through both fiscal discipline and broader taxes, is an effective measure to boost public saving. Combining these policies with measures to reduce the volatility of revenue and expenditures will create an environment conducive for stable growth and low inflation. In the long-term, economic growth should be the source of growth in fiscal revenue.

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Table 1.1 The Structure of Taxes in MENA Countries (taxes as a proportion of total revenue)

	Taxes on Income, Profits,and Cap.Gains	Domestic Taxes on Goods & Services	Taxes on International Trade& Transaction	Nontax Revenue	Corporate	Individual	social security contribution
Middle East							
Bahrain	5.04	3.1	8.77	75.55	5.04	0	5.21
Egypt	16.47	12.94	9.98	37.77	13.23	1.56	9.72
Iran, I.R.	11.9	9.41	6.69	60.24	9.64	2.25	6.31
Jordan	12.66	30.15	25.97	21.85	8.97	3.36	0
Kuwait	0.47	0.02	1.95	95.53	0.47	0	0
Lebanon	7.26	3.94	46.18	18.82	na	na	0
Oman	23.09	1.28	2.35	70.84	22.89		0
Syrian Arab Republic	22.88	28.89	12.37	29.01	na		0
Yemen Republic	18.01	7.12	10.31	62.41	14.42	3.68	0
United Arab Emirates	na	23.35	na	74.38	na		1.73
Average	13.08666667	12.02	13.84111111	54.64	10.665714		
North Africa							
Algeria*	8.2	10.43	15.49	64.75	4.16	4.03	0
Morocco	19.37	19.37	14.44	15.99	6.67	10.32	6.67
Tunisia	15.66	15.66	25.57	15.98	8.16	8.16	16.84
Average	14.41	15.15333333	18.5	32.24	6.33	7.5033333	7.8366667
Turkey	31.76	46.05	2.32	17.01	6.98	24.78	0
Total Average	19.75222222	24.40777778	11.5537037	34.63	7.9919048		

Source: Government Finance Statistics 1998, Washington D.C., International Monetary Fund
* For Algeria the percentage of petroleum related income included in income taxes is deducted in this table and
added to non-tax revenue

	Taxes on Income		Social security taxes		Taxes on Goods and services		Taxes on Int. trade		Other Taxes		Nontax Revenue	
	1980	1996	1980	1996	1980	1996	1980	1996	1980	1996	1980	1996
Algeria	..	68*	..	0	..	10	..	15	..	1	..	5
Egypt	16	16	9	10	15	13	17	10	8	9	34	38
Iran	4	11	7	6	4	5	12	6	5	4	68	68
Jordan	13	13	0	0	7	30	47	26	9	9	22	22
Kuwait	2	..	0	..	0	..	1	..	0	..	97	..
Lebanon	..	7	..	0	..	4	..	46	..	24	..	19
Malawi	34	..	0	..	31	..	22	..	0	..	13	..
Mauritius	15	14	0	6	17	26	52	34	4	7	12	13
Morocco	19	19	5	7	34	38	20	14	7	3	12	16
Oman	26	21	0	0	0	1	1	3	0	2	71	72
Sudan	14	..	0	..	26	..	42	..	1	..	16	..
Syria	10	23	0	0	5	29	14	12	10	7	61	29
Tunisia	15	16	9	17	24	21	25	26	4	5	22	16
Turkey	48	32	0	0	19	46	6	2	5	2	20	17
UAE	0	0	0	2	0	23	0	0	0	0	100	74
Yemen	..	16	..	0	..	6	..	12	..	2	..	62
MENA	15	16	5	0	7	8	17	14	7	4	34	25
World	21	19	4	7	24	32	15	8	3	3	11	12
Low income	19	..	0	..	26	..	34	..	2	..	12	..
Middle income	19	17	4	6	20	33	15	7	4	2	13	13
Lower middle	18	16	4	7	21	34	21	10	5	3	11	12
Upper middle	34	19	5	6	19	33	7	7	3	2	16	15
Low & middle	19	..	1	..	24	..	24	..	3	..	13	..
East Asia & Pacific	29	32	0	1	29	27	20	12	1	2	10	13
Latin America & Cari	19	16	11	11	24	33	19	9	6	4	10	14
South Asia	14	17	0	0	34	32	33	25	2	4	16	20
Sub-Saharan Africa	22	..	1	..	25	..	35	..	3	..	10	..
High income	29	26	19	25	24	26	2	0	3	3	10	8
Europe EMU	26	26	35	38	25	25	1	0	3	3	8	6

Tabel 1.2: The Structure of Taxes in MENA Countries (Taxes as a Percentage of Current Revenue)

Source: World Development Indicators CD-ROM, World Bank 1999, IMF 1998, No. 163.

* Petroleum sector taxes are included.

Table 2: The Structure of Taxes in MENA Countries (Taxes as a Percentage of GDP), 1997/98, Otherwise Noted.

	Tax Revenue	Taxes on Income Profits, and Capital Gains	individual	Corporate	Domestic Taxes on goods & services	General sales, turnover, or VAT	Excises	International	Import tax	Export tax	Property tax	Social Security	Hydrocarbon Revenue*** 1996	Other Non-tax Revenue
Algeria	11.6	3.1	1.6	1.5	5.5	…	…	2.7	2.7	…	…		20.8	0.6
Egypt	15.9	5.5	0.7	4.8	4.7	na	na	3.2	na	na	0		5.2**** (96/97)	6.5
Iran (97)	9.2	3.57	0.56	3.01	2.38	0.14	2.24	1.691	1.69		0.223	1.594	16	2.6
Jordan (98)	16.4	2.7	0.9	1.8	7.8	6.7	na	5.6	5.6	0	na		0	12.3
Kuwait**	1.2	0.222			0			3.5	3.5				na	na
Lebanon (98)	13.5	1.6	0.3	1.1	1	0.2	0.1	8.6	8.6	na	1.5		na	na
Libya	6.5	2.7	1.1	1.4	….	…	…	3.8	3.7	…	…		na	na
Morocco	23.5	6.8	3	2.5	10.1	5.7	4.4	4.6	4.6	0	0		0	3.7
Syria	12.8	4.37	0.87	3.5	1.69	0.6	1.09	2.28	1.98	0.13	0.17		9.7	5.5
Tunisia	25.4	5.5	2.7	1.7	10.4	6	3.4	3.4	3.3	0	0.4		1.9	3.3
Turkey (96)	15.2	5.74			8.31								0	3.7
OECD** (94-96)	34.02	9.01	7.54	2.42	10.32	6.24	3.17	0.56	0.56	0	0.71		na	na
AFRICA*(94-95)	16.4	4.91	1.81	2.74	5.81	2.94	1.96	2.52	2.39	0.12	0.12		na	na
NON-OECD ASIA* (94-95)	17.42	3.77	1.02	2.25	6.22	3.63	2.03	3.72	3.66	0.06	0.4		na	na
Middle East* (94-95)	12.95	3.56	0.39	2.93	4.09	0.59	1.95	3.44	3.48	0.08	0.37		na	na

Source: IMF data, and Abed (1998).

Table 3. Import, Income, and Corporate Tax Rates, Per cent

	Import Duties (Range)	Import Duties (Effective)	Export Duties (Range)	Corporate Income Tax Rate 1/	Individual Income Tax Rate
(Oil-exporting countries)					
Algeria	3-70	15.1	0	33-38	0-50
Bahrain	5-125 2/	5.8	0	0	0
Iran	5-100	4	0	12-54	12-54
Kuwait	0-100 2/	3.8	0	0-55	0
Libya	0-250	8.9	50 3/	20-60	8-35
Oman	0-100 2/	2.7	0	0-50	0
Qater	0-100 2/	4	0	0-35	0
Saudi Arabia	0-50 2/	10	0	25-45	0
U.A.E.	0-50 2/	1	0	0-50	0
(Non-oil-exporting countries)					
Djibouti	0-78	37	10	20	2-32
Egypt	5-70 4/	17.3	0	32-40.6	20-32
Jordan	0-200	8.2	0	38-50	5-45
Lebanon	0-100	11.3	0	10	2-10
Mauritania	0-37 5/	8.1	0-20	40	0-55
Morocco	0-45	16.2	0 6/	36 7/	0-46
Sudan	0-250	13.8	5,10	25-50	0-30
Syria	0-200	20.1	22.0 8/	11-58	5-15
Tunisia	0-43 9/	9.7	1.5 10/	35 11/	0-35 12/
Turkey				45 (highest, 1988)	25 (highest, 1988)
Yemen	30 13/	8	0	35	

Source: Eken (1997) and WDI (1999).

1/ Excludes oil companies.

2/ The maximum tariff rate applies only to one or two commodities and is otherwise relatively low. For example, in Saudi Arabia, excluding duties on cigarettes, the maximum tariff rate is 20 percent.

3/ Excludes some specific export taxes on agricultural products.

4/ Tariffs on certain products, e.g., alcohol and cars, substantially exceed the maximum tariff rate.

5/ In January 1997, Mauritania embarked on a three-year import tax reform. For the first year (1997), the highest combined rate was reduced from 150 to 37 percent.

6/ There is a specific tax on exports of crude phosphate.

7/ Flat rate on profits. There is also a minimum turnover tax of 0.5 percent.

8/ Appies to cotton exports only.

9/ In addition, there is a 10 percent complementary duty on imports yo be eliminated effective January 1998, as well as a 2 percent service fee.

10/ Export service fee.

11/ There is also a reduced rate of 10 percent for some types of activities. In addition, there is a 0.5 percent turnover tax (with ceilings).

12/ There is also a 6.5 percent social security tax and a 2 percent vocational training tax.

13/ There are also two service fees of 0.4 percent and 2 percent.

Table 4. Revenue GDP Ratio in MENA, Developing, and Industrial Countries					
Total revenue and grants	MENA	Oil exporters	Remaining MENA	Developing	Industrial
1980	38.7	46.5	26.4	19.7	20.9
1981	41.2	44.5	36	20	21.4
1982	38.5	38.9	37.9	19.5	21.4
1983	36.7	36.2	37.5	19.6	21
1984	34.2	33.9	34.7	19.1	20.9
1985	32.1	31.2	33.6	18.9	21.2
1986	28	24.8	32.4	19.4	20.8
1987	27.7	27.3	28.4	18.7	21.2
1988	25.4	24.2	26.9	17.6	21
1989	27.7	27.7	27.6	18.4	21.2
1990	28.6	29.4	27.4	18.9	21.4
1991	28.2	28.9	27.2	18	21.2
1992	29.2	28.2	30.6	17.7	20.9
1993	30.3	31.3	28.9	17.6	20.9
1994	28.7	29.1	28.1	17	20.7
1995	28.2	29	27.2	16.9	21.06
Standard Deviation	4.849	6.52	4.05	0.989	0.221
Average 1980-95	31.46	31.94	30.675	18.56	21.1
Average 91-95	28.9	29.3	31.3	17.4	20.9
Source: Raw data is from Eken et al. (1997).					

Table 4.1 Tax-GDP Regression Ratio For Selected MENA Countries

Variable	Jordan Sample 1975-95		Egypt Sample 1975-95		Morocco Sample 1971-95		Turkey Sample 1971-96		Tunis Sample 1972-96		Iran Sample 1974-95	
	Coefficient	t-Statistic	Coeff	t-stat.	Coeff.	t-stat.	Coeff.	t-Stat.	Coeff.	t.Stat.	Coeff.	t-stat.
Constant					-4.225	-2.211			-8.21	-1.707		
Dum92	3.1107	3.806			(a) 3.184	3.173						
Oil-reven./GDP Ratio	-0.268	-7.295	(c) 0.702	2.474							-0.13	-4.71
Per Capita Income	-0.013	-7.317					0.0672	1.729			0.198	6.342
Urban Population	0.5183	21.75			0.47	10.78						
Inflation Rate (CPI)	-0.132	-4.654									-0.04	-3.11
Govt. Exp. GDP Ratio			0.241	3.364	0.234	3.092	0.255	2.189	0.423	8.223	0.16	4.974
Cyclical Output			0.008	3.041	(b) 0.1469	2.242			0.224	3.13	5E-04	1.362
Share of Fuel Exports			-0.11	-1.916								
Openness			0.164	3.616	(d) -0.096	-1.102	-0.0733	-2.149	(d) 0.058	2.495		
Lagged DependentVariable							0.553	4.139				
R-Squared	0.9559		0.795		0.91		0.65		0.891		0.842	
Adjusted R-Squared	0.9449		0.726		0.886		0.55098		0.869		0.802	
D-W. Stat.	2.0265		1.783		1.744		2.219		1.526		1.87	
F-Stat.	86.71		13.6		38.48		9.783		41.05		21.35	

(a) For 1975, (b) lagged one year, (c) non-tax revenue/GDP, (d) the ratio of imports to GDP, Source. WDI, 1999.

Table 5.1: Tax GDP Ratio in MENA Countries, Sample: 1960 1997

	Bahrain	Egypt	Iran	Jordan	Syria	Morocco	Oman	Tunis	Turkey	UAE	Yemen
Mean	7.3471	23.72	7.921	16.29	13.51	20.546	12.52	23.9	13.26	0.276	11.2
Maximum	9.0219	29.84	11.53	23.74	19.4	25.545	29.16	26	16.05	0.716	13.73
Minimum	4.3779	16.74	5.891	10.8	8.877	15.081	6.873	19.4	9.972	0	9.36
Std. Dev.	1.2884	4.096	1.381	3.458	3.249	2.7859	5.705	1.74	1.71	0.287	1.667
Coefficient of Variation	17.536	17.26	17.44	21.24	24.05	13.559	45.57	7.3	12.89	103.9	14.88
Observations	17	21	22	23	25	26	24	25	27	19	8
Source: Calculated Based on Data in World Development Index, 1999.											

Table 5.2: Non-tax GDP Ratio For Selected MENA Countries (per cent)								
	Egypt	Iran	Jordan	Morocco	Oman	Syria	Tunis	Turkey
Mean	12.41134	16.5179	6.098042	3.704385	27.52044	11.95908	6.26413	2.561739
Median	12.033	15.23971	6.2634	3.367485	26.55868	10.50264	6.287088	2.4782
Maximum	16.61663	38.07892	8.213811	8.356646	38.521	30.67923	9.311646	4.521129
Minimum	6.228566	5.123072	3.310655	1.734037	9.034091	3.688077	3.370103	0.991439
Std. Dev.	2.775518	9.911121	1.555593	1.291854	6.165499	7.978755	1.693877	0.945119
Coefficient of Variation	21.77419	21.77419	21.77419	21.77419	21.77419	21.77419	21.77419	21.77419
Observations	21	22	23	26	24	20	25	27

Source: As in table 5.1.

Table 6: Cross correlation Between Cyclical Tax Revenue and Cyclical Output		
	lag	lead
i	RLTXTK1,OHPTK1(-i)	RLTXTK1,OHPTK1(+i)
0	0.5224	0.5224
1	0.3679	0.2117
2	0.0995	-0.2608
Sample: 1960 1997		
Included observations: 27		
Correlations are asymptotically consistent approximations		

Table 7: Cross correlation Between Cyclical Tax Revenue and Cyclical Output in Egypt		
i	lag	lead
	RLTXEG1,OHPEG1(-i)	RLTXEG1,OHPEG1(+i)
0	0.463	0.463
1	0.3682	0.0643
2	-0.1577	0.1287
Included observations: 21		

Table 8: Cross correlation between Cyclical Tax Revenue and Cyclical Output in Morocco		
i	lag	lead
	RLTXMR1,OHPMR1(+i)	RLTXMR1,OHPMR1(-i)
0	0.4555	0.4555
1	0.1489	0.199
2	0.2375	0.0848
Included observations: 26		

Table 9: Cross Correlation Between Cyclical Tax Revenue and Cyclical Output in Tunis		
I	lag	lead
	RLTXTN1,OHPTN1(-i)	RLTXTN1,OHPTN1(+i)
0	0.3543	0.3543
1	0.1418	0.3567
2	-0.0736	0.2206
Included observations: 25		

Table 10: Cross correlation Between Cyclical tax Revenue and Cyclical Output in Iran		
I	lag	lead
	RLTXIRHP,NGIRHP(-i)	RLTXIRHP,NGIRHP(+i)
0	0.6237	0.6237
1	0.445	0.3752
2	-0.0424	0.0338
Included observations: 37		

Table 11. Cross Correlation Between Cyclical Non-tax Revenue and Cyclical Output in Turkey		
I	lag	lead
	NTXHPTK,OHPTK1(-i)	NTXHPTK,OHPTK1(+i)
0	-0.3044	-0.3044
1	0.1968	-0.5812
2	0.3376	-0.6832
Included observations: 26		

Table 12: Cross Correlation Between Cyclical Non-Tax Revenue and Cyclical Output in Egypt		
i	lag	lead
	NTXHPEG,OHPEG1(-i)	NTXHPEG,OHPEG1(+i)
0	-0.112	-0.112
1	0.116	0.1013
2	0.1937	0.3011
Included observations: 21		

Table 13: Cross Correlation Between Cyclical Non-tax revenue and Cyclical Output in Morocco		
i	lag	lead
	NTXHPMR,OHPMR1(-i)	NTXHPMR,OHPMR1(+i)
0	-0.2842	-0.2842
1	-0.3698	0.2219
2	0.0381	-0.0929
Included observations: 26		

Table 14: Cross Correlation Between cyclical Non-tax Revenue and Cyclical Output in Tunis		
i	lag	lead
	NTXHPTN,OHPTN1(-i)	NTXHPTN,OHPTN1(+i)
0	0.0645	0.0645
1	0.0021	-0.138
2	0.2971	-0.1879
Included observations: 25		

Table 15: Cross Correlation Between Non-Tax Revenue and Non-Oil GDP in Iran		
i	lag	lead
	RLNTNGIRHP,NGIRHP(-i)	RLNTNGIRHP,NGIRHP(+i)
0	0.6359	0.6359
1	0.3012	0.8003
2	0.0623	0.6556
Included observations: 34		

Table 16: Seniorage in Selected MENA Countries, As Percentage of GDP, Sample 1961-1996.										1981-1995	
	Algeria	Egypt	Iran	Jordan	Morocco	Oman	Syria	Turkey	Tunis	MENA	Oil-Exporting	Non-Oil MENA
Mean	6.126	6.053	4.5794	6.024	1.98183	3.343	6.285	4.593	1.499	3.3	1.2	5
Median	3.391	5.185	3.638	5.633	2.03821	1.064	4.995	4.281	1.163			
Maximum	24.75	22.1	14.225	17.59	4.89472	31.61	25.16	8.743	4.272			
Minimum	-0.117	-1.373	0.0916	-5.792	-1.4484	-1.071	-1.84	2.06	0.104			
Std. Dev.	6.222	4.814	3.5849	5.148	1.2597	7.475	5.491	1.564	1.068			
Observations	33	27	36	22	27	25	35	27	27			
Source: World Development Indicators, CD-ROM 1999, and Eken et al. (1997).												

Table 17: Budget Deficit as a Percentage of GDP (most recent observations: 1970 1997)	Egypt	Iran	Jordan	Morocco	Oman	Syria	Tunis	Turkey
Mean	-8.894	-4.109	-6.089	-6.549	-7.843	-3.791	-3.88	-3.57
Median	-9.781	-3.843	-6.53	-4.807	-9.27	-3.671	-3.77	-3.14
Maximum	1.7048	4.637	5.18	-1.387	6.592	1.688	-0.89	-1.04
Minimum	-23.15	-13.79	-20.58	-17.6	-25.03	-10.84	-8.09	-8.35
Std. Dev.	6.6695	4.346	5.517	4.421	6.895	4.147	1.907	1.984
Coefficient of Variation	0.7499	1.058	0.906	0.675	0.879	1.094	0.491	0.555
Observations	21	22	22	26	24	20	25	27
Fiscal Balance as Percentage of GDP: MENA and Other Regions of the World								
	Average 80-95	Average 1991-95						
MENA	-7.4	-6.4						
Oil-Exporters	-4.9	-6.8						
Others	-11.2	-5.9						
Developing Countries	-4.1	-2.7						
Sub-Saharan Africa	-6.7	-7						
Asia	-3.1	-2.2						
Western Hemisphere	-2.7	-0.5						
Industrial Countries	-3.7	-3.8						

Source: World Bank Development Index CD-ROM 1999 and Eken, Helbling and Mazarei (1997).

Table 17.1 Ratio of Gross Domestic Saving and Budget Deficit to GDP in Selected MENA Countries (%)

	Egypt		Iran		Morocco		OMN		SYR		Tunisia		Turkey	
Year	S/Y	BD/Y	S/Y	BD/Y	S/Y	BD/Y	S/Y	BD/Y	S/Y	BD/Y	S/Y	BD/Y	S/Y	BD/Y
1970	9.381	..	..	..	14.54	-3.09	67.79	..	10.22	..	18.4	..	1.22E+01	-1.75E+00
1971	8.127	..	..	..	15.17	-2.99	62.11	..	9.909	..	21.19	..	1.03E+01	-2.51E+00
1972	6.555	..	..	..	14.63	-3.84	45.45	-12.14	14.68	-3.54	23.33	-0.89	1.35E+01	-1.67E+00
1973	7.968	..	..	..	15.6	-2.05	38.84	-13.87	8.752	-5.82	20.92	-1.49	1.27E+01	-1.43E+00
1974	5.739	..	44.82	4.637	19.98	-4.01	56.59	-9.921	15.35	-4.67	28.96	-0.99	1.18E+01	-1.42E+00
1975	12.27	-18	33.72	0.355	14.31	-9.18	52.49	-5.206	12.47	-4.82	26.15	-1.45	1.14E+01	-1.04E+00
1976	16.66	-23.1	42.56	-0.83	8.688	-17.6	52.22	-9.578	16.61	-9.43	25.73	-3.23	1.39E+01	-1.55E+00
1977	18.46	-13.4	36.97	-4.89	13.8	-15.4	44.88	6.136	13.03	-10.8	22.11	-6.03	1.33E+01	-4.82E+00
1978	16.39	-12.7	29.35	-8.52	11.74	-10.5	38.49	-7.956	11.06	-9.06	22.98	-4.07	1.16E+01	-3.34E+00
1979	14.24	-15.5	31.49	-3.75	11.64	-9.73	46.36	6.592	9.286	0.777	26.44	-4.78	1.15E+01	-4.79E+00
1980	15.16	-11.7	26.47	-13.8	13.71	-9.7	47.3	0.44	10.32	-9.71	24	-2.79	1.14E+01	-3.07E+00
1981	14.08	-6.33	18.82	-10.5	11.53	-13.4	49.56	1.934	5.876	-6.32	23.86	-2.53	1.32E+01	-1.48E+00
1982	15.18	-17.1	20.41	-5.72	13.76	-11.4	41.99	-8.538	12.64	..	21.2	-5.77	1.38E+01	..
1983	17.78	-9.78	23.35	-6.3	15.17	-7.75	42.07	-8.843	10.17	..	25.14	-8.09	1.22E+01	-3.48E+00
1984	14.02	-11.4	24.11	-4.03	14.89	-6.02	42.67	-11.38	12.13	..	24.53	-4.79	1.21E+01	-8.25E+00
1985	14.55	-10.4	20.96	-3.77	18.39	-7.28	40.22	-10.54	11.16	..	24.13	-5.05	1.34E+01	-5.84E+00
1986	13.84	-12.1	19.79	-8.34	16.68	-7.67	30.43	-25.03	11.24	-8.27	19.48	-7.14	1.61E+01	-2.47E+00
1987	15.88	-5.07	24.89	-7.11	16.83	-4.48	38.6	-4.868	4.91	-2.63	22.49	-4.63	2.35E+01	-3.14E+00
1988	17.08	-7.64	17.98	-9.15	20.73	-3.21	27	-11.85	4.749	1.246	21.07	-3.77	2.62E+01	-2.99E+00
1989	17.32	-5.37	20.8	-3.92	18.29	-5.13	..	-8.961	11.1	-0.61	20.6	-4.29	2.19E+01	-3.30E+00
1990	16.15	-5.71	27.08	-1.82	19.24	-2.24	35.18	-0.81	15.73	0.343	20.02	-5.41	2.01E+01	-3.00E+00
1991	13.19	-0.96	23.02	-2.25	17.16	-2.1	26.48	-7.257	10.3	1.343	21.04	-5.86	1.99E+01	-5.29E+00
1992	15.38	-3.47	29.2	-1.45	16.79	-1.39	27.94	-13.44	11.8	1.688	22.27	-3.06	2.09E+01	-4.33E+00
1993	13.21	1.705	23.82	-0.47	16.99	-2.61	24.59	-11.9	12.93	0.028	21.73	-3.24	2.19E+01	-6.72E+00
1994	11.37	0.337	33.14	-0.2	15.34	-3.19	26.66	-11.17	17.63	-3.73	21.49	-1.39	2.25E+01	-3.90E+00
1995	12.37	0.912	34.06	1.432	14.2	-4.39	..	-10.06	20.28	-1.77	20.68	-3.2	2.10E+01	-4.08E+00
1996	10.82	..	..	..	16.05	..	..	..	19.26	-0.24	23.5	-3.14	1.86E+01	-8.39E+00
1997	12.99	..	..	..	16.81	..	..	..	18.98	..	24.16	..	1.93E+01	..
Source: World Bank Development Index CD-ROM 1999.														